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**HRM INNOVATION THROUGH TECHNOLOGY IN GREECE:
FACTORS INFLUENCING
THE ADOPTION, DIFFUSION AND EXPLOITATION
OF E-HRM AND SOCIAL MEDIA.**

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University of Glasgow in fulfilment of the requirements for the degree of
Doctor of Philosophy

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Abstract

Although, electronic human resources management (e-HRM) and social media technologies appear to be increasingly used by companies to design and deliver their human resources management (HRM) practices in order to face the demands of knowledge based economies, there is little empirical evidence concerning whether the absorption of these technologies leads to HRM innovation. To address this gap, this thesis examines the relationships between the absorptive capacity (ACAP) of organisations, e-HRM and social media technologies, and HRM innovation. Drawing mainly on the ACAP theory when paralleled with the innovation diffusion theory, a conceptual model was created from which a range of research hypotheses were deductively developed. These hypotheses were tested by surveying a sample of two hundred large companies that operate in Greece using varied statistical techniques such as parallel analysis, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), mediation analysis with bootstrapping, moderation analysis and Pearson's correlation. To examine the reasons and the ways firms have absorbed e-HRM and social media in Greece, semi-structured interviews were conducted with the human resources (HR) directors of eight companies that had participated in the survey and had demonstrated high information communication technology (ICT) adoption. The results suggested that the ACAP of firms for e-HRM and social media has a significant effect on HRM innovation. The factors that determine ACAP and HRM innovation are: (1) the e-HRM and social media technologies, (2) the characteristics of these technologies, (3) prior knowledge and experience of firms, and (4) national culture. The adoption reasons included improvements in: data management, information security, confidentiality of data, HR service delivery, organisational culture, institutional isomorphism, and environmentally friendly e-HRM. In the case of multinational companies (MNCs): need for control by the headquarters, transparency and standardisation. Based on these findings, this thesis contributes a new framework of HRM innovation from organisational ACAP for e-HRM and social media and an alternative operationalisation of ACAP

for technological knowledge around HRM. Implications for HRM, e-HRM and ACAP academics as well as HR practitioners and their companies are concluded along with the limitations of this thesis and future research suggestions.

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Dedication

I dedicate this thesis to my father Dimitrios Sotiropoulos who is my life mentor and taught me how to feel complete without conditions and created in me a sense of moral and ethical thinking. To my mother Zoe Sotiropoulou who gave me as much love as anyone could ever expect. To my wife Natalia Amolochiti who constantly gives me love, support and happiness -and to my beloved country Greece.

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Declaration

I certify that the work is that of the author alone except where due acknowledgement has been made; the whole or part of the work has not been submitted previously to qualify for any other academic award; the whole or part of the work has not previously been presented in any form to the University or to any other body for any purpose (unless otherwise indicated); the content of the thesis is the result of work that has been carried out since the official starting date of the approved research program; any editorial work that has been carried out by a third party is acknowledged; I confirm that the intellectual content of the work is the result of my own efforts and of no other person.

Signature.....

Date.....

List of Abbreviations

ACAP:	Absorptive Capacity
AGFI:	Adjusted Goodness-of-Fit
AIC:	Akaike Information Criterion
ASV:	Average Shared Variance
AVE:	Average Variance Extracted
CFA:	Confirmatory Factor Analysis
CFI:	Comparative Fit Index
CLT:	Central Limit Theorem
CR:	Composite Reliability
E-commerce:	Electronic Commerce
EFA:	Exploratory Factor Analysis
E-HRM:	Electronic Human Resources Management
ERP:	Enterprise Resource Planning
GFI:	Goodness-of-Fit
HR:	Human Resources
HRIS:	Human Resources Information System
HRIT:	Human Resources Information Technology
HRM:	Human Resources Management
HRMIO:	Human Resources Management Innovation Outcomes
HRMS:	Human Resources Management System
ICT:	Information Communication Technology
IS:	Information Systems
IT:	Information Technologies

IVR:	Interactive Voice Response
KMO:	Kaiser-Meyer-Olkin
MNC:	Multinational Company
PACAP:	Potential Absorptive Capacity
PCA:	Principal Component Analysis
R & D:	Research and Development
RACAP:	Realized Absorptive Capacity
RMSEA:	Root Mean Square Error of Approximation
ROI:	Return on Investment
SA:	Societe Anonyme
SME:	Small and Medium Size Enterprise
VAT:	Value Added Taxes

Chapter 1: Introduction to the Research

1.1 Background to the Problem

Nowadays, firms face strong competition, time-to-market pressures, globalisation and demand for innovation (Roberts et al., 2012) indicating an overall change and turbulence in the business environment. This turbulence, according to Jansen et al. (2005), has increased attention on knowledge as a dominant source of competitive advantage, meaning that the survival of firms depends a lot on their ability to recognise new external knowledge, assimilate it and apply it to commercial ends.

The emergence of the Internet as a widespread means of communication, production, and commerce has elevated important parts of the information and knowledge-based economy to a new level, that of the New Economy (Engelbrecht, 2005). The term “new economy” has been used interchangeably with the term “knowledge economy”. For example, Carlaw et al. (2006) defined knowledge economy as production and services that are based on knowledge-intensive activities (i.e., activities that rely more on intellectual capabilities and less on physical inputs or natural resources) and contribute to an accelerated pace of technical and scientific advance that is becoming rapidly obsolete. Knowledge and its absorption are considered to be key elements to the new economy and, although the term has been used to describe a number of different phenomena such as low inflation, microeconomic disequilibria or changes in the economic rules, it actually refers to the impact of the technological revolution developed around information and communications (Argandoña, 2003). According to Chichilnisky (1998), knowledge as well as the technologies that process and communicate this knowledge led to a social and economic revolution.

The distinguishing feature of the new economy is mainly the nature of the new knowledge intensive goods (Argandoña, 2003; Chichilnisky, 1998; Quah, 2001). In the new economy, digital goods such as ideas and knowledge or computer software are some of the determinants of innovation, production and consumption (Quah, 2003) and derive merely from the convergence of

information and communication technologies (ICT). For example, a large number of goods and occupations that were almost unheard of a couple of years ago, such as iPods, SatNavs and Search Engine Programmers, flourished based on ICT (Marrano et al., 2009). Therefore, the explosion of new economics of knowledge and ICT depends a lot on the management of intangible assets such as the management of people or the use of technology.

Organisations were required to adapt and find ways to manage knowledge in order to face the global shift towards a new knowledge based economy (Schlosser et al., 2006). In other words, organisations needed, and still need, to engage in learning processes that will allow them to acquire new knowledge or to enhance and increase their existing. The concept of a learning organisation included a complex interrelationship of systems with people, technology, practices and tools designed for embracing new information (Bell et al., 2002). Organisations able to learn and adapt faster to a rapidly changing environment by increasing their knowledge from the utilisation of this systemic interrelationship between people, technology and practices will be able to obtain competitive superiority (Antoaneta and Ileana, 2008). Therefore, the sources of competitive advantage of organisations are their unique resources that figure prominently in strategy (Kraatz and Zajac, 2001) which is not simultaneously implemented by competitors (Barney, 1991). These resources can be tangible (e.g., financial and physical), intangible or person dependent (e.g., tacit knowledge, skills) and person independent (e.g., organisational assets) (Maier, 2004).

From a unit level perspective, the turbulence in the business environment, the transformation of economies and the new challenges derived from ICT affected not only organisations but also each function separately. This was particularly true for HR. For example, Shrivastava and Shaw (2003) stated that HR is a discipline that like many others suffers from identity crises while Ulrich (1997) argued that if HR does not meet the challenge to adjust and be responsive in a world of change it runs the risk of being disbanded. The basis for these arguments is that the HR function, like other functions,

needs to adapt to changes, create strategic value to the organisation, become a business partner and innovate. Therefore, in order for the HR function to respond to this challenge, it turned to technology with an agenda to become more strategic, resilient, cost efficient and client focused (Shrivastava and Shaw, 2003). In other words, the HR function started the process of becoming a learning unit so as to be able to acquire and utilise these technologies with the purpose of achieving its objectives and surviving the challenges of knowledge economy.

Technological innovations in the form of e-HRM have been considered to be a way of enabling HR to adapt to change and achieve its objectives. The term “e-HRM” was first used in the 1990s when electronic commerce (e-commerce) swept the business world and mainly referred to the conduct of human resources business transactions by use of the Internet and/or the intranet (Lengnick - Hall and Moritz, 2003). Many academics have associated e-HRM with different ICTs, such as enterprise resource planning systems (ERPs), human resources information systems (HRISs), electronic and wireless networks, virtual structures, web-based technologies, intranets, Business to Employee (B2E) portals and voice technologies (Broderick and Boudreau, 1992; Lepak and Snell, 1998; Kettley and Reilly, 2003; Lengnick-Hall and Lengnick-Hall, 2006; Marler, 2009; Martin et al., 2008).

As Bondarouk and Ruël (2009) argued, the term “e-HRM” has been used interchangeably and without much consistency or agreement with HRIS, virtual HRM, web-based HRM, and intranet-based HRM. This ambiguity led Bondarouk and Ruël to define e-HRM as an umbrella term with all possible integration mechanisms and contents between HRM and Information Technologies that aim to create value within and across organisations for targeted employees and management. In general, e-HRM is founded on the expectations of HR to reduce costs from routine and administrative activities (operational driver), speed up processes and improve service quality to managers, employees or external partners (relational driver), and gain a more strategic and business partnership role (transformational driver) within the organisation (Lepak and Snell, 1998; Snell et al., 2002).

Another web technology that has been discussed by HR researchers for its impact on HRM is social media or as often labelled Web 2.0 (Martin et al., 2009; Bondarouk and Ruël, 2009). It contains a wide range of online forums including blogs, company sponsored discussion boards and chat rooms, consumer-to-consumer e-mail, consumer product or service ratings websites and forums, Internet discussion boards and forums, sites with digital audio, images, movies, or photographs and social networking websites (Mangold and Faulds, 2009). The increased emphasis of social media is founded in the suggestion that knowledge is generated by the user through sharing of data and content, collaborative effort, and new means of web-based interaction (Harris and Rea, 2009). This web development has lead several scholars to view social media as an opportunity for organisations and to argue that HR practitioners must harness and welcome these new forms of interaction and knowledge in order to add value and increase the learning ability of their company (Pauker Kreitzberg, 2009; Martin et al., 2009; Bondarouk and Ruël, 2010).

In the literature, however, only a few academics have integrated e-HRM with social media (e.g., Bondarouk and Ruël, 2009; 2010; Girard et al., 2012) and only a few preliminary studies have addressed this integration, focusing exclusively though on specific HRM practices such as recruitment and selection (Joos, 2008; DeKay, 2009; Roberts and Roach, 2009; Girard and Fallery 2009; Kluemper and Rosen, 2009; Hollander, 2010; Davison et al., 2011). This issue led some academics to call for research on HRM or e-HRM and social media (Martin et al., 2009; Heikkilä, 2010; Bondarouk and Ruël, 2009) considering also that some studies appeared to reveal the risks of social media use including firing employees who blog and/or use these technologies improperly (Valentine et al., 2010; Davison et al., 2011). The lack of research on HRM and social media occurs probably because e-HRM and social media technologies have different functions, serve different purposes and can be implemented separately. Nevertheless, when these technologies are combined they promise a new internal e-business model for

HR allowing it to innovate and address its operational, relational and particularly its transformational drivers, a potential that is attracting attention from many organisations (Martin et al., 2008; Martin et al., 2009).

To conclude with, the increasing rate of environmental change, hyper-competition, globalisation and technological complexity demands even more organisations to be able to seek out and disseminate knowledge-based information (Palmer and Hardy, 2000). The adoption of new technologies allows organisations to transform their organisational structures, work processes and job design in order to adapt to turbulent environments, but at the same time the HR profession is expected to assist companies in meeting these challenges (Hempel, 2004). Therefore, the combination of HRM and IT has rationally created a new and challenging area of research that has attracted growing attention and discussion in recent years (Khatri et al., 2010). However, due to the variety, complexity and un-connectedness of the technologies used -or can be used towards this purpose- research on e-HRM and social media has become of more critical importance in the light of the new knowledge economy.

1.2 Introduction

Advances in technology over the past decade created both concerns and opportunities for organisations and HR (Gainey and Klaas, 2008). Given the substantial benefits though that can emerge from integrating information technology into the HR function, businesses increasingly utilise e-HRM to design and deliver their HRM practices (Bell et al., 2006). Consequently, academic interest in e-HRM has increased (Strohmeier, 2007) while the most recent technological developments of social media seem to provide a new era for HR (Heikkilä, 2010). Although the existing e-HRM and the limited HR related social media research have contributed to increase the understanding of these technologies, there are some debates or areas that still need to be addressed.

First, *the integration between e-HRM and social media technologies within HRM remains unexplored* although directly or indirectly implied. For

example, Lengnick-Hall and Moritz (2003) referred to the potential transformation and freeing up of the HR function to add value to the business through effective use of e-HRM and web-based systems. These web-based systems practically involved the use of social media technologies. Bondarouk and Ruël (2009) claimed that e-HRM users are social media users that know e-sources, without, however, being specific on how these sources were used for finding HR information. Martin et al. (2009) directly addressed that HR can use e-HRM and social media technologies to improve knowledge management and organisational learning, enhance employee voice and communications, help organisations innovate and develop more authentic corporate branding, employer branding and employee relations, and connect with new generations of employees (e.g., V(irtual)-generation). This phenomenon, however, along with the limited research that combines these technologies shows that the understanding of how to take advantage of e-HRM and social media is still vague.

Second, *the real impact of e-HRM and social media technologies is still under question*. Although the importance of e-HRM and social media technologies for firms is recognised in the literature, research across different studies has produced contradictory findings on the tangible benefits of HR technology. On the one hand, there are premises such as cost savings, efficiency, flexible services, employee involvement and virtualisation of HR, whereas on the other hand, there are negative outcomes such as high investment cost, increase of managers and employees' workload and resistance, disappointments with technology, lack of control in communications and branding, and privacy concerns (Lengnick-Hall and Moritz, 2003; Strohmeier 2007; Bondarouk and Ruël, 2009; Martin et al., 2009; Heikkilä, 2010, Martin and Reddington, 2010). This confusion has made HR practitioners sceptical (Francis et al., 2014) of the benefits of adopting e-HRM and social media technologies, thus there is an urgent need to demonstrate empirically how these technologies can add value to firms and which factors should be taken into account in order to provide generalised guidelines that will help HR practitioners to integrate and gain the benefits of these technologies within their firms.

Third, *the lack of e-HRM and social media research in specific countries and contexts is striking*. Although, the importance of cultural, national and economic elements has been stressed on e-HRM research (Strohmeier and Kabst, 2009) a number of countries remain under-researched (Marler and Fisher, 2013). For example, there is only one exploratory e-HRM study in Greece (Panayotopoulou et al., 2007) that was conducted before the country's financial recession. During recession though, it is more important for companies to inculcate HRM practices into their business model in order to compete and survive (Tewari, 2010). Also, researchers need to understand the contextual factors that determine how a technology is acquired and deployed (Marler and Firsher, 2013). Therefore, given the importance of Greece for the European Union and its unique socio-cultural, economic and institutional characteristics during a challenging economic period, research in this country may bring forth some interesting contextual factors that affect the adoption, diffusion and exploitation of HR technology.

Last but not least, *there is a lack of theory application in studying e-HRM and social media*. Past research in the field of e- HRM has been criticised for a general lack of theory (Bondarouk and Ruël, 2009) and several perspectives have been employed in an eclectic manner (Stroehmeier 2007). Furthermore, a widely used and very important theory in the IS field, knowledge management or IT innovation (Roberts et al., 2012), the one of absorptive capacity (ACAP), has been neglected by HRM or e-HRM researchers. This is a surprising literature gap considering that ACAP refers to a firm's ability to identify, assimilate and apply external knowledge (e.g., on markets, science or technology) for new innovative products or services (Cohen and Levinthal, 1989; 1990). In other words, the capacity of organisations to absorb e-HRM and social media technologies could potentially explain variations in HRM innovation.

In order to address the aforementioned issues and literature gap, the research question that this thesis aims to address is: *drawing on the notion of absorptive capacity, can the adoption, diffusion and exploitation of e-*

HRM and social media explain different human resources management innovation outcomes (HRMIO) among organisations in Greece? More specifically, the main aim of this research is to explore whether HRM innovation from the adoption, diffusion and exploitation of e-HRM and social media can be explained by the ACAP of firms. HRMIO refer to programs, policies, or practices that derive from e-HRM and social media absorption, influence the attitudes, behaviours and interactions of employees and are perceived to be new by the members of the organisation (Kossek, 1987; Martin and Reddington, 2010). Therefore, in order to examine the combined contribution of e-HRM and social media technologies to organisations, their effect on HRM innovation will be assessed with the aim to provide useful insights into the interaction between the technology employed by firms, ACAP and innovation. This will be based on empirical evidence captured through surveying and interviewing Greek operating organisations. In other words, these issues will be considered in the Greek context and will also contribute to the lack of research in this country.

In summary, the present research lies in the ACAP of the firm as a theoretical basis in order to set out the potential variables that can result in different HR technology driven innovations among organisations that operate in Greece. Having a clear theoretical foundation and conducting a thorough review of the existing literature, I have developed constructs which are interrelated and form a conceptual model of organisational ACAP for e-HRM and social media. This conceptual model will act as a guide for collecting, analysing and discussing data throughout the entire thesis. Finally, after presenting and introducing the general background and framework around the intention of this research, the exact objectives and research questions addressed in this thesis are discussed in the next section while the last section of this chapter offers an overview of the thesis structure.

1.3 Research Objectives and Expected Contributions

Based on the aforementioned issues, this thesis aims to examine holistically the relationship between organisational ACAP, e-HRM and social media technologies and innovation in HRM.

First, this research aims to integrate different concepts of HR technologies (e.g., e-HRM and social media) into a single model in order to evaluate how best they contribute to achieving HRM innovation in firms. Although some e-HRM and social media academic works have been carried out separately, a multidisciplinary integrative approach from an organisational perspective is still missing. Therefore, a contribution to the development of a new integrative framework on HRM innovation through the adoption, diffusion and exploitation of e-HRM and social media is expected.

Second, this thesis aims to evaluate which factors in the adoption, diffusion and exploitation of e-HRM and social media should be given attention by companies. Despite the theoretical premises of the value of e-HRM and social media technologies, there is much scepticism about the expected - from these technologies- benefits and enough concerns about the resulting negative outcomes. This phenomenon can be attributed to the lack of understanding or the omission of critical factors such as the capacity of organisations to absorb these technologies. Therefore, by researching e-HRM and social media through the lens of a conceptual ACAP model, this thesis aims to contribute and offer recommendations to both; academics on future e-HRM and social media research and practitioners or organisations that plan to adopt, diffuse and exploit these technologies.

Third, given the lack of research in specific contexts that share some distinctive characteristics, this research aims to identify the reasons and the ways organisations that operate in Greece absorb e-HRM and social media technologies. Since these technologies are increasing in number and complexity, research to understand the relationship between ICTs and the capacity of organisations to absorb them is increasingly critical. Therefore, this research will contribute to the understanding of contextual,

institutional or cultural parameters that affect the absorption of these technologies and the resulting HRM innovation in Greece.

In order to meet these objectives, this thesis offers an alternative operationalisation of ACAP within the HRM context and provides empirical contributions to the ACAP theory. The research will also contribute to responding to the criticism that the ACAP has not been sufficiently operationalised (Roberts et al., 2012) and has not been empirically explored in various contexts (Lane et al., 2006). Therefore, empirical research on ACAP in the HRM context may help to develop a new and more managerial approach.

1.4 Overview of the Thesis

This thesis has 10 chapters the overview of which is represented visually in Figure 1. The first chapter introduces the rationale behind this study, the background to the research problem, the research aims and objectives, the expected contributions and the research structure.

Chapter 2 introduces the key elements of the research. E-HRM and social media are considered to be important technologies that will allow the HR function to innovate and face the challenges of the new knowledge economy.

Chapter 3 presents the theoretical basis of the present research. It explains how an integrative theoretical framework such as the one of ACAP is necessary for exploring the capacity of organisations to innovate in HR through the absorption of e-HRM and social media technologies. It connects the literature review with the different themes and ideas of this thesis in a conceptual model that generates specific research questions and hypotheses.

Chapter 4 discusses the economic, cultural and institutional characteristics of Greece in order to present the circumstances in which the context of the present research is formed. It provides an overview of the current economic

situation in Greece with reference to the development of HRM function and the adoption of HR technology among large Greek operating firms.

Chapter 5 describes the research methodology used and the approaches adopted for the study. The chapter discusses the rationale of both quantitative and qualitative exploratory investigation, including an examination of research philosophy and design. It also analyses the ways that the main survey and the semi-structured interviews with HR managers in Greece were strategised, designed and administered and how the data were collected, analysed and stored.

Chapter 6 summarises the focal research question, the research sub-questions, the research objectives and the research hypotheses that derived from the literature review. It also describes how the main constructs and their measured items derived from the literature. Finally, the valuable contributions of this study to theory and practice are discussed.

Chapter 7 presents the quantitative findings. The chapter provides a general overview and describes the companies that operate in Greece and responded to the survey. Also, it explains step by step the statistical techniques used in analysing the data derived from the survey and in addressing this study's research questions. These are: parallel analysis, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), mediation analysis with bootstrapping, moderation analysis and Pearson's correlation. Finally, it presents the results from each of the aforementioned steps without commenting, discussing or interpreting them.

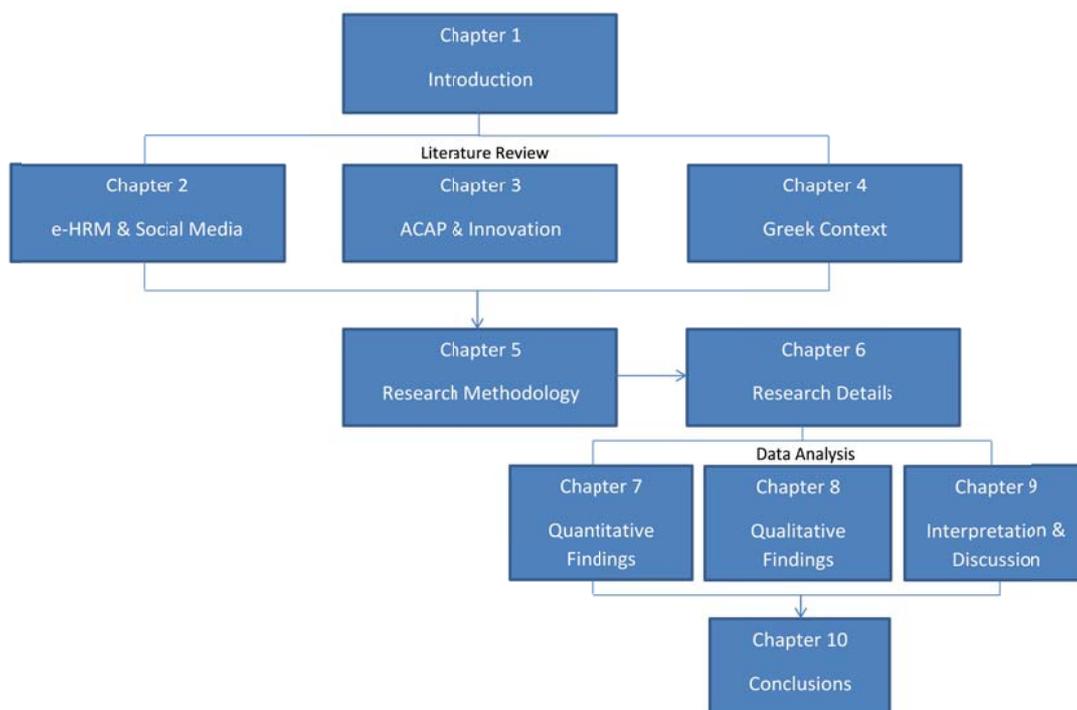
Chapter 8 presents the qualitative findings. It describes and analyses the responses obtained from the interviews with eight HR directors of eight large Greek operating companies that participated in the survey and demonstrated high adoption of ICT for HRM. These exploratory and semi-structured interviews aim to shed light on the factors that influence the absorption of e-HRM and social media in Greece.

Chapter 9 brings together the findings of this research and builds a coherent framework that can be used in theory and practice. This chapter describes

the process by which the study's initial exploratory conceptual model leads to a new theoretical framework on how companies can innovate in HRM through the absorption of e-HRM and social media.

Chapter 10 ends this thesis by drawing the conclusions of the present research based on the revision of the objectives defined in Chapter 6. Furthermore, the theoretical and practical contributions of the present research for academics, practitioners and organisations are discussed. Finally, the chapter goes over the limitations of this research, which points to possible future research directions.

Figure 1: Structure of the Thesis



1.5 Summary of the Chapter

This chapter provides the background to the study. It introduces the research problem, the theoretical frameworks that will address the research problem, the contributions to theory and practice and the overall aim and objectives of this thesis. The next chapter describes the conceptual elements of the research that have a bearing on this study.

Chapter 2: e-HRM and Social Media

2.1 Introduction

This chapter describes and evaluates the main concepts of the research. It presents an extensive literature review which results in various operational definitions of the topics addressed. The rationale is to link the literature to the main aims of the investigation and to provide the theoretical structure for the research processes and the methodological approach. More specifically, the purpose of this chapter is to outline the key assumptions and contributions of this research by critically evaluating the existing literature on e-HRM and social media and by portraying its central issues and gaps.

The chapter begins by defining e-HRM and describing its multidimensional nature. It continues with the technologies that are included under the e-HRM umbrella and justifies how social media technologies can be integrated with e-HRM and consequently with HRM. Then, the chapter discusses the evolution of e-HRM and social media concepts and critically evaluates important studies directing the discussion to the current state of e-HRM research and the general issues or gaps in the field. Finally, it moves from the more general issues to specific findings that are related to the impact of e-HRM to the HR function.

Having justified the general issues of e-HRM research, the chapter summarises the ways that this dissertation will address them by drawing on the theoretical framework of absorptive capacity and by operationally defining HRMIO through the adoption, diffusion and exploitation of e-HRM and social media.

2.2 E-HRM Definitions

The term e-HRM has been extensively used in the literature in a variety of ways. Although a number of definitions have flourished throughout the years, it seems that there are many inconsistencies (Bondarouk and Ruël, 2009) that create conceptual confusion and misunderstanding among

academics and practitioners. This section aims to compare and critically evaluate a number of definitional attempts in order to depict how these efforts relate to or differentiate from each other and come up with a justified and specific operational conceptualisation that will be adopted in this thesis.

The first use of the e-HRM term dates back to the 1990s when electronic commerce (e-commerce) swept the business world. It mainly referred to the conduct of business transactions, which is human resources in this case, by use of the Internet and/or the intranet (Lengnick - Hall and Moritz, 2003). An important characteristic of various academic works from the very beginning is that they associated e-HRM with web-based technologies such as the Internet, the intranet and portals used for administrative and information sharing purposes (Kettley and Reilly, 2003; Lai Wan, Hooi, 2006; Voermans and Van Veldhoven, 2007).

Other researchers moved beyond web-based technologies and talked about e-HRM as the virtualisation of the HR function and its potential alignment with the rest of the business. For example, Lepak and Snell (1998) used the term 'virtual HR' to describe a network based structure that hinges on technology mediated partnerships and helps organisations acquire, develop, and deploy intellectual capital. Martin and Reddington (2010) argued that e-HRM can lead to the virtualisation of the HR function, increase information to managers and employees, align HRM with the business/corporate strategy and create competitive advantage. Liang-Hung (2011) argued that the two critical cornerstones of e-HRM are the *IT adoption*, or how applicable are the IT tools to employees' daily activities and the *virtual organisation adoption*, or how embedded and integrated are the IT-enabled systems and virtualised functions into the working organisational structure.

From a strategic point of view, a number of academics expanded the e-HRM definition and focused on the likelihood of e-HRM to transform the HR function from a traditional role to that of a more strategic and businesslike partnership. For example, Karakanian (2000) defined e-HRM as the overall HR strategy that lifts and moves HR outside the HR department and

redistributes it to the company and its old and new business partners. Karakanian also claimed that e-HRM attaches and assimilates HR activities to other corporate processes such as finance, supply chain, or customer service and through e-HRM the HR function can be the owner of the strategy and, when required, the service broker as opposed to the provider. Similarly, Marler (2007) defined e-HRM as the strategic and collaborative delivery of HR processes and services over an electronic network. Hempel (2004) viewed e-HRM as the reengineering of the HR function and an overall movement from administrative to strategic matters. Gainey and Klass (2008) claimed that e-HRM refers to the use of computer-based technologies that puts HR activities in the hands of the HR customers.

Although these definitions implied the technological capacity of e-HRM to change the role of the HR function (from administrative to strategic) and to connect it further with the rest of the company, the technology necessary to make this change happen was barely emphasised and, in many cases, was different among definitions. The inclusion of diverse technologies within the e-HRM concept by many academics led to the creation of different terms that were used theoretically to describe the same topic.

“e-HRM was interchangeably coined with HR Information System (HRIS), virtual HR(M), web-based HRM, intranet-based HRM” (Bondarouk and Ruël, 2009: 506).

Attempting to distinguish between e-HRM and an Information Technology focused Human Resources Information System (HRIS), Ruël et al. (2004), defined e-HRM as an organisation's implementation method of HR strategies, policies and practices through web technology-based channels. Other researchers adopted a distinction between front-end and often web-based e-HRM systems (e.g., HR portals, self-service tools, interactive voice response systems) that connect different actors and back-end e-HRM systems such as HR data warehouses or HR modules of ERP systems that are used for storing, processing and data retrieval purposes (Strohmeier, 2007; Panayotopoulou et al., 2010). However, the presence of diverse IT and the Internet within the e-HRM term not only creates conceptual confusion among academics but also misunderstanding among practitioners. For

example, Zhang and Wang (2006) claimed that there is misperception of e-HRM from top management in Chinese organisations that leads to unsuccessful investments and adoptions because companies develop e-HRM to repeat existing processes and systems and not to emphasise the strategic functions of e-HRM software.

E-HRM has also been defined as the application of any technology that allows managers and employees to have direct access to HR and other workplace services for communication, performance related reports, team and knowledge management, organisational learning and other administrative applications (Olivas-Lujan et al., 2007). Therefore, e-HRM encompasses a number of important central HRM areas such as e-recruiting, e-selection, e-learning, and e-compensation (Lawler and Mohrman, 2003). These concepts have been generated from a broader human capital management perspective (Liang-Hung, 2011). In other words, organisations that aim to manage human capital to achieve business objectives are more likely to use e-HRM and its related electronic functionality.

However, despite the aforementioned commonalities and positive premises of e-HRM the question still remains: why is there no standardised definition of e-HRM in the literature? Identifying the reasons behind the lack of a typical e-HRM conceptualisation leads to a better understanding of the construct and consequently a better methodological approach in investigating it. Therefore, the reasons are summarised as follows: First, the concept includes two different perspectives (HR and IT) that fall under the same label (Bondarouk and Ruël, 2009). Second, both perspectives can contain an important number of different constructs. For example, HR can refer to areas such as recruitment, training, development, compensation, etc. while IT can refer to architectures such as Internet, intranet, HRIS or ERP systems.

Third, a number of definitions view e-HRM as technology and others as the use of technology. These technology-oriented definitions barely specify the stage of use or whether the use of technology refers to adoption, diffusion, exploitation, user acceptance, better utilisation, etc. In other words, it is

not clarified what “use” of technology for HR purposes means (e.g., planning, implementation and application of information technology - Strohmeier, 2007). Moreover, other definitions view e-HRM as an HR action, method, practice, process or strategy that imply a changing process in HRM (i.e., implementation method of HR strategies, policies and practices - Ruël et al., 2004 / reengineering of the HR function - Hempel, 2004 / overall HR strategy -Karakanian, 2000). Last but not least, a number of definitions refer to e-HRM as an outcome from using technology (i.e., strategic and collaborative delivery of HR processes - Marler, 2009).

Following these authors’ different conceptualisations, there is a clear convergence and agreement that the e-HRM term describes technology in the HR context. As a process, e-HRM moves or is expected to move HR beyond its internal borders and standardised activities. As the use of technology, e-HRM enables or is expected to assist HR departments transform the HR management activity. More specifically, it appears that e-HRM refers to the application of different technologies used not only by HR but also other groups of people, such as internal customers. Therefore, from a definitional stand point, e-HRM has been conceived as: (a) a general application of technology to manage people, deliver services or transform the HR management activity, (b) various ways of implementing HR strategies, policies and practices though the Internet, and (c) an overall HR strategy that makes HR more “extravert”, shifting it from the HR department and its isolated HR activities and redistributing it to the organisation.

However, my own preference is to adopt Bondarouk and Ruël’s definition that takes a broader and a more inclusive perspective on e-HRM and is described as;

“an umbrella term that covers all possible integration mechanisms and contents between HRM and Information Technologies aiming at creating value within and across organisations for targeted employees and management” (Bondarouk and Ruël, 2009:07).

Such a definition allows for (i) the empirical examination of the notion through analysing the HRM perspective (i.e., “umbrella term between

HRM”), (ii) the inclusion of technological aspects of the concept that will be discussed in the next sections (i.e., “...and Information Technologies), (iii) the connection of the concept and its related technologies to the innovation that the HR function can offer as an operational clarification of the term “value” (i.e., “...creating value within and across...”), and (iv) the differentiation of a number of distinct components which are intrinsically included in the concept such as “targeted employees and management” (i.e., people from different levels, departments who are exposed to different information technology platforms within the e-HRM spectrum). This definition allows not only the inclusion of various technologies under the umbrella of the e-HRM term but also the examination of various benefits or outcomes that derive from different e-HRM technologies. Therefore, next section will focus on the backbone technology of e-HRM.

2.2.1 E-HRM Technology

The purpose of this section is to portray the underlying technology that is available to the HR function in order to understand the connecting links between this technology and innovation in HR. As mentioned in Chapter 1, combining an HRM and IT perspective allows specific IT infrastructure that can support HRM (i.e., Internet, intranet, complicated ERP systems) to be examined as predictors of innovation in the HRM field.

Probably the most commonly used label by a number of researchers (e.g., DeSanctis, 1986; Haines and Petit, 1997; Hendrickson, 2003; Jones and Hoell, 2005) for e-HRM, since its inception, is Human Resources Information System or HRIS. Broderick and Boudreau (1992) defined HRIS as the combination of data bases and computerised applications in addition to hardware and software that are used in order to collect/record, store, manage, distribute, present, and manipulate data for Human Resources. From a theoretical stand point, Walker (1982) claimed that an HRIS is a systematic procedure for collecting, storing, maintaining, retrieving, and validating data that an organisation needs for its personnel, human related activities, and organisation unit characteristics. Simplifying the above definitions, HRIS can be seen as a methodical procedure of processing

human resources information (e.g., employees' personal information, compensation or appraisals).

In this thesis, HRIS is considered to be one piece of e-HRM technology that is used mainly, but not exclusively, by the HR function. For example, Martin et al. (2008) mentioned that HRIS refers to the automation of systems that are used for the purposes and the benefit of the HR function while e-HRM includes the application of web-based and mobile communication technologies that can change the nature of interactions among HR personnel, line managers and employees. The change in interaction means that the face-to-face relationships among HR staff, managers and employees are increasingly mediated by e-HRM technologies. However, the change in interaction between HR and the rest of the company can be mediated and change by HRIS too. For example, if HR automates its payroll process through HRIS and is subsequently able to retrieve and systematically send to the line managers payroll data of their staff (i.e., via email) then, this may lead indirectly to a reduction of face-to-face interaction since line managers will not need to request that information from HR. In addition, an HRIS can be accessible online by anyone outside the HR function (Hubbard et al., 1998). Therefore, e-HRM can be seen as the technical unlocking of HRIS to all employees in an organisation (Ruël et al., 2004) while being mainly used among other technologies by the HR function for HR purposes.

In order to clarify further the underlying e-HRM technologies available to the HR function, this thesis also draws on the enterprise resource planning (ERP) field of studies. ERP is a highly integrated enterprise information system that allows a company to handle its inventory, logistics, orders, billing, shipping, marketing, sales, customer service, and many other aspects in addition to managing all aspects of a business operations in an integrated manner (Gefen, 2004; Wang et al., 2005). An ERP system also allows the construction of the HRIS applications around a single database and a common workflow model (Jones and Hoell, 2005). Before ERP, requirements for specific information, system discrepancies among operating partners and diversity of existing applications had made it

impossible to manage organisational processes under a single software package (Hey, 2000). Therefore, the ERP systems refer to big, modular back office information systems that have the technological capacity to manage various and important parts of a company's business such as HR, finance, accounting, purchasing, customer relationship management, etc. while they are able to collect, track and centralise a company's data (e-HR glossary, 2003).

The benefits of an ERP system can be fully realised with a finely tuned alignment and reconciliation between the configurations of the system, the organisational imperatives and the core business processes (Al-Mashari et al., 2003). These configurations can be divided in logistics for marketing and distribution, quality management, enterprise, asset accounting, material management, cost control, production planning, human resources, project management, and financial accounting (Lin et al., 2006). Lengnick-Hall and Lengnick-Hall (2006) described ERP systems as suites of software applications that integrate the information flow and the business processes of organisations allowing functions to communicate and interact directly with each other with an action response chain of events and all data from all functions to be stored into a single and comprehensive database.

From a HR perspective, this thesis views ERP as the HR platform/module that is part of the company's integrated software suite and connects it with the information systems of different departments and functions through the use of a single database that collects and stores data in real time (based on Abdinour-Helm et al., 2003). In other words, a company may choose to bring all of its HR processes under an all-encompassing and integrated HRIS umbrella or integrate its HRIS with its other information systems (Hannon, et al., 1996) that belong to and serve the purposes of other functions. If it is the former, it is referred to as an HRIS while if it is the latter as an ERP system.

The development of an intranet, which is a by-product of the Internet, offered the opportunity to the HR function to transfer specific HR transactions and activities to employees through employee self-service (ESS)

tools (Cairns, 2006) and similarly to managers through manager self-service (MSS) tools. Martin and Reddington (2010) used the term “relational technologies” to describe the new type of technology mediated transactions and relationships between the HR and the rest of the company through MSS, ESS and HR portals. In this thesis, ESS and MSS are examined as independent e-HRM technologies, irrespective of whether the company has an HRIS or an integrated ERP system.

An additional classification of the HR technological infrastructure was created by Florkowski and Olivas-Lujan (2006). The authors classified human resources information technology (HRIT) as: (1) HR function applications used by HR staff, (2) integrated HR software suites used by HR in addition to internal HR customers if they include self-service applications, (3) telephony based applications such as automated or integrated voice responses (AVR or IVR), personal digital assistants (PDAs) and/or smart phones, (4) HR intranets (5) manager and employee self-service applications, (6) HR extranets, and (7) HR portals. Olivas-Lujan et al. (2007) also referred to the automation effect of technology on HRM practices such as staffing, training, development compensation, benefits, performance, career, and compliance management. This thesis also pays attention to different web-based and voice e-HRM technologies and their automation effect on different HRM practices.

In summary, irrespective whether e-HRM technology includes a specific HRIS or an integrated ERP system, a client server or a web-based system, Internet and intranet applications or various additional tools such as telephony based technologies, this thesis considers each e-HRM technology as a separate “tool” that enables the HR function to automate various activities and processes and serve, through this automation, various people. For example, each technology can automate different HRM practices (e.g., recruitment or payroll) and has the potential to serve different HR clients (e.g., managers or employees). The increase in automation and the respective client service spectrum, as many authors claim, (e.g., Ruël et al., 2004; Martin et al., 2008) may change the nature of relationships and

work between the HR and the company's staff. This argument is even further strengthened when e-HRM is considered as an umbrella term that covers all possible integration mechanisms and contents between HRM and Information Technologies (Bondarouk and Ruël, 2009).

This broad definitional approach also allows newer technologies, such as social media, to be integrated in the infrastructural options available to HR. More specifically, some authors have already incorporated the application of social media in their e-HRM definition and believe that their impact on HRM in general can be tremendous (e.g., Martin et al., 2009; Martin and Reddington, 2010). Although in some respects social media can be integrated with HR and IT, I will separately describe and analyse the notion of social media in the next sections with the purpose of clarifying the magnitude of this interrelation and outlining the position of social media in the e-HRM literature.

2.3 Social Media - Web 2.0

This section aims to provide an overview of the social media concept and its underlying technologies and finally present how social media can be related to or can be used by HR as an additional integration mechanism to technology and HRM. The logic is that the understanding of the generic social media concept will lead smoothly to the common and interrelated HR fundamentals despite the fact that the notion of social media is often labelled as and confused with that of Web 2.0. Therefore, it is very important to first clarify this interchanging use of the terms social media and Web. 2.0.

Beginning with the term Web 2.0, it was first used in 2004 at the O'Reilly Media Web 2.0 conference and described a new way the World Wide Web started to be utilised by software developers and end-users without, however, it being a technical update of the World Wide Web (Graham, 2005; O'Reilly, 2005a; O'Reilly, 2005b; Kaplan and Haenlein, 2010).

“It refers to a perceived second generation of Web development and design that facilitates communications and secures information sharing,

interoperability, and collaboration on the World Wide Web” (Harris and Rea, 2009: 137)

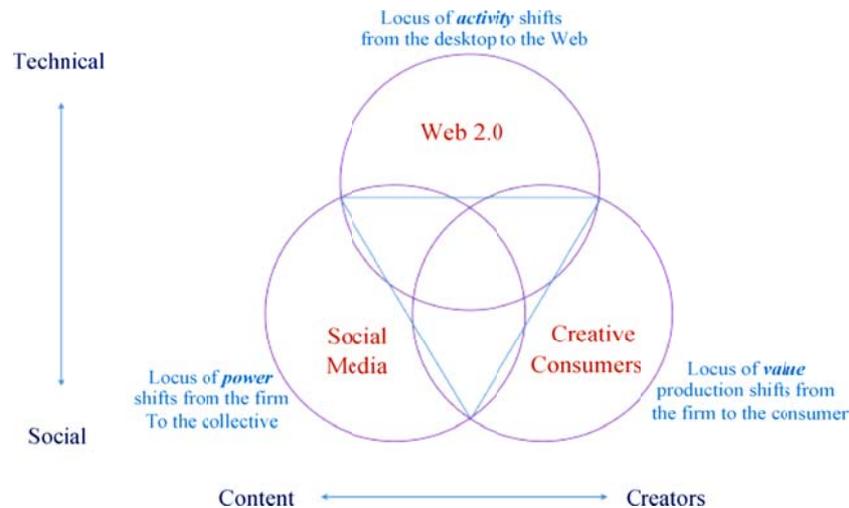
More specifically, it includes functionalities such as:

“Adobe Flash (a popular method for adding animation, interactivity, and audio/video streams to web pages), RSS (Really Simple Syndication, a family of web feed formats used to publish frequently updated content, such as blog entries or news headlines, in a standardized format), and AJAX (Asynchronous Java Script, a technique to retrieve data from web servers asynchronously, allowing the update of web content without interfering with the display and behaviour of the whole page)” (Kaplan and Haenlein, 2010: 61).

The main characteristic of this new World Wide Web capacity is that content and applications are continuously created and modified collectively through the cooperation of all users and not through individual publications. As it can be seen in Figure 2, with Web 2.0 technologies the activity moved from the desktop to the Web while the creation of value and the locus of power shifted from the firm to the consumers (Berthon et al., 2012). In the past, with Web 1.0 technology, which was the “predecessor” of Web 2.0, the focus was on companies, individuals, nodes, unilateral publications and interruption while with Web 2.0 the focus moved to consumers, communities, networks, interactive participation and invitation. In other words, Web 2.0 can be considered as technological (hardware and software) innovations that enable the creation of inexpensive content, interaction and interoperability between users/consumers who are now able to get more attention than firms, and design, collaborate, and communicate through the World Wide Web (Berthon et al., 2012).

Figure 2: Web 2.0, Social Media, and Creative Consumers

(Source: Berthon et al., 2012: 262)



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As a more general description, Web 2.0 refers to the technology that allowed the generation of specific behaviours and phenomena. Despite its technological nature, Web 2.0 had some practical sociological effects the implications of which created a revolution in the business world (Berthon et al., 2012). For example, the phenomenon of consumer generated media or social media (Mangold and Faulds, 2009) which was developed through the technological possibilities of Web 2.0 includes to a great extent the change that companies went and are still going through in communicating with customers. This type of media actually describes many online information sources that are created, introduced, shared and used because of the consumers' intent to educate each other about companies' products, services, personalities and problems (Blackshaw and Nazzaro, 2004). Therefore, Web 2.0 is a platform that allowed the evolution of social media while social media is a product of Internet applications that were actually built on the foundations of Web 2.0 technology (Kaplan and Haenlein, 2010; Berthon et al., 2012). As Berthon et al. (2012) stated the broadcast media monologues (one to many) are transformed into social media dialogues (many to many). In other words, social media include the channels and the content that is distributed through the interactions between individuals and organisations (Kietzman et al., 2011).

Therefore, the term social media refers to the phenomenon of consumer-generated media and its resulting changes in communication methods while Web 2.0 refers to the underlying technologies that allow these changes to happen. However, this thesis uses only the term “social media” despite its focus on the technologies and their usage for HRM purposes. This aspect is analysed further in Section 2.3.2 but the main reason is that the term social media encompasses both the “technologies” and their “potential effect” on the customers of the HR function.

2.3.1 Social Media Technologies

A simple way to understand the concept of social media is to mention the technological tools or websites that are highly likely to be used by everyone who has a PC and web access. As it can be seen in Table 1, social media covers a wide range of online, word-of-mouth forums including blogs, company sponsored discussion boards and chat rooms, consumer-to-consumer e-mail, consumer product or service ratings websites and forums, Internet discussion boards and forums, moblogs or sites that contain digital audio, images, movies, or photographs, and social networking websites (Mangold and Faulds, 2009).

Table 1: Examples of Social Media
(Source: Mangold and Faulds, 2009: 358)

<ul style="list-style-type: none"> • Social networking sites (MySpace, Facebook, Faceparty) • Creativity works sharing sites: • Video sharing sites (YouTube) • Photo sharing sites (Flickr) • Music sharing sites (Jamendo.com) • Content sharing combined with assistance (Piczo.com) • General intellectual property sharing sites (Creative Commons) • User-sponsored blogs (The Unofficial AppleWeblog, Cnet.com) • Company-sponsored websites/blogs (Apple.com, P&G's Vocalpoint) • Company-sponsored cause/help sites (Dove's Campaign for Real Beauty, click2quit.com) • Invitation-only social networks (ASmallWorld.net) • Business networking sites (LinkedIn) • Collaborative websites (Wikipedia) • Virtual worlds (Second Life) • Commerce communities (eBay, Amazon.com, Craig's List, iStockphoto, Threadless.com) • Podcasts ('For Immediate Release: The Hobson and Holtz Report') • News delivery sites (Current TV) • Educational materials sharing (MIT OpenCourseWare, MERLOT) • Open Source Software communities (Mozilla's spreadfirefox.com, Linux.org) • Social bookmarking sites allowing users to recommend online news stories, music, videos, etc. (Digg, del.icio.us, Newsvine, Mixx it, Reddit)

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These technologies are interactive and necessitate users generating new information and content or editing the work of others (Chui et al., 2009). As Harris and Rea (2009) mentioned, Web 2.0 is also known as the "Read/Write" Web the emphasis of which is on the participation of the user. The various types of Web 2.0 technologies mentioned in Table 1 can be classified to some basic categories or types of social media.

These categories, based on Kaplan and Haenlein (2010) and Harris and Rea (2009) are: (1) *collaborative projects* that allow the mutual and concurrent creation of content by many end-users and include *wikis* (i.e., collection of web pages that enable content creation or modification using a simplified

mark-up language such as wikipedia) and *social bookmarking applications* (*i.e.*, group-based collection and rating of web links or media content such as Delicious), (2) *blog* which is a website type usually maintained by one individual with regular commentary entries, descriptions of events, or other graphic or video data that appear in chronological/historical order and allow interaction and exchange of comments, (3) *content communities* exist for various media types such as text, photos, videos and PowerPoint presentations and refer to the sharing of media content between users, (4) *podcast* refers to a digital media file, usually digital audio or video such as MP3 files, VodCasts, MPEG-4 that can be downloaded freely from the Internet through the use of software that handles RSS feeds (e.g., YouTube), (5) *social networking sites* enable social structure made of nodes, individuals or organisations, which are connected by one or more specific types of interdependency (e.g., Facebook), (6) *virtual worlds* is a computer simulated virtual three-dimensional environment that allows users to interact as avatars with each other simultaneously without geographical constraints (e.g., game world such as World of Warcraft or social world such as Second Life).

All these types of social media can be utilised by companies in many different ways. A good way to examine how social media are or can be applied in the business world is to see the overall opportunities that they create for its users. Based on Kreitzberg (2009), earlier websites, or those before Web 2.0, were mainly used to provide information or web services and were based on systems that allowed the interaction and the exchange of data between two computers (e.g., e-commerce). Today, however, anyone can create a website, download, set up and use powerful or even inexpensive applications, manage huge databases and stream-rich media and have access to all these without, for example, being tied to the office. Therefore, these technological developments can change the interaction and communication within organisations and industries (Andriole, 2010).

According to Keitzberg, the HR is responsible for supporting its organisation to use social media technologies and to adapt to the change these

technologies bring resulting change in the workplace. Keitzberg also questioned how social media can be used to make a company more successful, to recruit, develop and retain talent, to maintain confidential information in-house, to attract and engage customers, and to protect branding and reputation. Therefore, the next section will shed light on the ways social media technologies are used or can be used by companies to change the nature of internal communication and interaction among HR staff, managers and employees as well as that of external communication and interaction between the organisation (e.g., HR staff) and potentially interested individuals (e.g., job candidates).

2.3.2 Social Media and HRM

There are many ways that social media can be used by organisations for HRM purposes. Rashi and Chaturvedi (2013) referred to the e-communication, e-recruitment, reputation and information discovery or delivery possibilities for HRM through social networking sites. Kreitzberg (2009) referred to social media friendly culture and described a working environment that allows a company to adapt, utilise and thrive in a world in which the norm is the use of a full range of web-based technologies and tools. The characteristics of such a friendly culture were: (1) transparency or the openness of users' actions, (2) user-centricity or the focus on internal and external groups of people, (3) agility or quick adjustment, (4) empowerment or the information and ability given to people to take action, and (5) creativity or encouragement of experimentation and innovation.

For such a culture, HR can use social media to recruit, develop and retain talent. Most importantly though, HR must recognise the unavoidable change that social media brings to organisations and help the management team assess its firm's readiness to adopt them. It must also identify the knowledge and the skills required for: minimising the employees' fear or resistance towards social media technology; designing a trustworthy and appealing site that provides users with a series of positive encounters; covering assets with practices that protect the company without stifling creativity; creating policies that guide proper use of social media; providing

training for closing the communication gaps across generations, functions, language, culture or physical proximity.

Regarding the *learning or training* aspects of social media, some researchers have explored virtual worlds as interactive learning environments (Broadribb and Carter, 2009) that provide natural seeming role playing activities and experiential learning (Jones, 2007). Williams and Chinn (2009) referred to active learning strategies in educating “net-generation students”, born between 1982-1991, who have different styles and expectations. The idea was that teaching strategies need modifications (e.g., embedding web-based interactions, tools and applications) and consideration of the preferred learning styles (e.g., digital literacy, experiential and engaged learning, interactivity, collaboration, immediacy and connectivity) of the net-generation students. Moving to the business world, net-generation students are already professionals in a number of sectors and industries. Therefore, HRM professionals can adopt social media in order to help net-generation employees communicate and learn experientially through virtual communication, online learning communities and collective intelligence (Martin et al., 2009).

Cooke (2008) discussed changes in *online market research* through social media technology, the emerging business models including real-time sampling, panel exchanges, and panel blending as well as the effects of social networking and virtual worlds upon the creation of participatory market research. As Cooke claimed, social media can turn respondents into participants and co-creators of value with whom the researcher can have on-going conversations rather than discrete communications via surveys. Similarly, the HR function can replace employee surveys (e.g., engagement or satisfaction) with on-going online conversations transforming “employee respondents” in real time participants and co-creators of value allowing them to discuss and share personal opinions as individuals on HR matters (Martin et al., 2009).

Another emerging and innovative concept related to social media technology is *collaborative knowledge*. The creation of collaborative

knowledge is identified by openly shared and collaborative writing in social media (Wagner and Bolloju, 2005). For example, wikis allow users to add and update content of open and shared web-based documents without having individual ownership of that content, providing a knowledge sharing environment that stimulates collaborative writing (Prasarnphanich and Wagner, 2009). This collaborative writing takes place through an incremental and organic growth manner and thus enables the users to make contributions without individually developing knowledge structures that are large and stand-alone. Some of these contributors may focus more on the creation of content and some others on the integration of content (Majchrzak et al., 2006). Because the characteristics of wiki technology as well as wiki norms promote a particular style of collaboration, cooperation and altruistic behaviours, Prasarnphanich and Wagner encouraged organisations to search for and select software that will enable virtual team sites, to create internal online knowledge sharing communities and to make provisions for incentives offered to collaborators.

Based on Prasarnphanich and Wagner and Kreitzberg, it can be argued that two roles for HR have become evident: (1) to create the policies, procedures, practices and conditions that will minimise employees resistance and will generate valuable and ethical information and knowledge sharing through their collaboration, and (2) to measure the value added through knowledge sharing in order to justify past or potential investments to such technologies. As Majchrzak pointed;

“Web 2.0 consists of much more than wikis: social networking tools, mashups, blackberries, MMORPGS (massively multi-player online role-playing games), online prediction markets, tagging, folksonomies, jam sessions, and virtual worlds” (Majchrzak, 2009:18).

Heikkilä (2010) also addressed the possibility that mobile social media can be the dominant technological trend in the near future. Therefore, it is argued that the policies, procedures, practices and conditions that the HR will create must focus on the employees' well-being and must be applied without affecting negatively their work life balance (i.e., extensive use of

Blackberries during leave) in order to be effective and foster collaborative knowledge sharing.

Recruitment through social media technologies has been quite widely researched. For example, DeKay (2009) questioned if the business-oriented social networking websites were useful resources for locating passive jobseekers (i.e., people who have a job and do not actively seek out a new one). DeKay concluded that the majority of members registered at one major site, or more, were employed individuals who wanted to obtain information about new career possibilities and were ready to act upon these opportunities. Furthermore, Joos (2008) claimed that both, passive and active job seekers (i.e., unemployed people who search for a job) can be accessed through blogs, social networking sites and employment oriented wikis, while podcasting can be used for communication with candidates along with employment marketing videos.

Regarding *selection* of candidates through social media technologies, Roberts and Roach (2009) mentioned that Social Networks are now being used by HR as reference checks of applicants (i.e., checking “after hours” social activities or online personal information). Therefore, the lifestyle of a person or a student as presented online may not be what corporate recruiters or graduate school admission officers envision in potential applicants (Finder, 2006). Girard and Fallery (2009) mentioned that social media are used by firms to develop employer branding and to create new relationships with potential applicants. Consequently, candidates’ image or personal branding in social media may affect a company’s selection and hiring decision while companies have an additional “checking tool” before making hiring decisions. As Kluemper and Rosen (2009) argued, Social Networks contain substantial personal information that can cause an adverse impact on employment selection decisions. Also, Davison et al. (2011) added that social media not only affect hiring and selection decisions but also employers’ termination decisions due to improper use of social media by existing employees.

In summary, social media technologies can reveal a shift from exchange based HRM practices to relationship based HRM approaches (based on Girard and Fallery, 2009) and can change the nature of interactions among employees themselves and employees and the company or HR function (Martin et al., 2009). Although social media technology includes a broader shift in how software developers and users are interacting with the Web and it is neither applied only to the HR function nor to the groups that the HR function serves, it can be used by companies to enhance or manage various HRM practices or activities such as training and development, online research by employees, collaborative knowledge creation, virtual learning, employer branding, recruitment and selection, and talent management (see Table 2). Therefore, this thesis views social media technology as one more integration mechanism between HR and IT and an additional technology under the e-HRM umbrella (Bondarouk and Ruël, 2009).

Furthermore, this thesis differentiates based on Andriole (2010) *generic social media* tools that can be widely used by anyone who has Internet access from *intranet-based social media tools* that are accessed and used only by a company's employees. For example, a company may create a work related wiki on the intranet only for its employees' collaborative publication, knowledge creation and sharing (Ann Majchrzak et al, 2013) while Wikipedia can be accessed by anyone online. Therefore, by adopting an e-HRM definition that includes any technology that can be used by a company for HRM purposes allows the integration between e-HRM and social media within the HR context.

The following section presents a systematic literature review of the articles that seem to have played a significant role in shaping the development of the e-HRM field including those that have integrated e-HRM with social media.

Table 2: Social Media and HR: An Integrating Approach for Companies

(Source: Author)

Recruitment & Selection	Social Networks: Companies search better and deeper for potential candidates, discovers and depicts active or passive potential candidates no matter whether they are interested, or not, in finding a job.
	Social Networks: Companies learn more about potential candidates in order to improve the attractiveness of employment offers and make better recruitment decisions.
Training & Development	E-learning: Firms balance the different training preferences of different generations in order to increase their employees' engagement and interaction as well as the overall effect of training programs.
	Companies reinforce employees' creativity and train them not only as social media users but also as "ambassadors" for closing the communicational gaps between generations, functions, language, culture or physical proximity.
Organisational Learning	Podcasts: Firms upload live presentations, videos and press conferences which are accessible by all staff on the intranet.
	Wikis - Collaborative Learning: Firms create through wikis a knowledge sharing environment that stimulates collaboration and allows collaborative writing by adding new contributions to existing ones (not like forums or blogs) since these contributions are integrated into an existing body of knowledge.
Internal Communication	Virtual World: Firms create virtual communities through simultaneous, interactive and live communication among employees across the globe.
	Virtual Gaming: Firms create individual and team games based on actual business cases and reward employees for participating.
	Blogs - Forums: Firms turn the "employee respondents to surveys" in real time participants and co-creators of value through on-going online conversations and increase employees' engagement by fostering conversations of their interest.
	Questions Blogging: Firms create two way communications between the HR and employees within the intranet.
Talent Management	Social Network: Companies obtain more information about their employees, and based on this information, create better retention/benefit programs towards their different life styles and improve their work-life balance.
	Internet - Intranet: Firms design a trustworthy site which is appealing and has ease of use, serves the purpose of the users' visit (empowerment) and provides them with a series of positive encounters.

2.4 A Critical Review of the Literature on e-HRM and Social Media

In this section, I conduct a critical review of various influential studies on HR technology since the 1980s. More specifically, I present the literature review strategy that was followed in this thesis in order to reveal the main gaps in the current state of development in the fields of e-HRM and social media and to explain how this thesis will address them.

Regarding the literature review process, Google Scholar and EBSCO Business Source Premier Database were used to search for studies related to HR technology, focusing though on academic journals and peer-reviewed articles. Keyword search was conducted using the following words: e-HRM, e-HR, HRIS, HRIT, ERP; ERP for HR; social media; social media for HR, web-based HRM, and virtual HRM. To examine the development of e-HRM field and establish its current status, a chronological approach was followed analysing both, the most cited articles in Google Scholar and articles that at the time they were published offered unique contributions. Therefore, I conduct a critical review of 34 influential studies on e-HRM since the 1980s until the beginning of 2012 (see Table 3) when the data collection process of this research started. The chronological literature review allowed the comparison and contrasting of ideas, assumptions and theories around e-HRM highlighting at the same time the evolution of the field.

Table 3: Key Articles on E-HRM, Including Social Media

Authors	Journal	Title	Contribution	Citations
DeSanctis (1986)	MIS Quarterly	Human Resource Information Systems: A Current Assessment.	Assessed HRISs and referred to the potential integration of HRIS with other ISs claiming that HRIS can serve not only HR.	122
Broderick and Boudreau (1992)	Academy of Management Executive	Human resource management, information technology, and the competitive edge.	Provided the link between computer applications and specific HR strategies and objectives.	158
Hannon et al., (1996)	The International Journal of Human Resource Management	Human resource information systems: operational issues and strategic considerations in a global environment.	Suggested the integration of a global HRIS with a domestic HRIS and/or other organisation-wide information systems.	37
Haines and Petit (1997).	Human Resource Management	Conditions for successful HRIS.	Presented system conditions as antecedents to HRIS implementation's success through empirical testing of a conceptual framework.	94
Lepak and Snell (1998)	Human Resource Management Review	Virtual HR: Strategic human resource management in the 21st century.	Established the reasons companies invest in e-HRM and (operational, relational and transformational impact of IT to HRM.	301
Kovach and Cathcart (1999)	Public Personnel Management	Human Resource Information Systems (HRIS): Providing Business with Rapid Data Access, Information Exchange and Strategic Advantage.	Decomposed HRISs functionalities under a "data input - data maintenance - data output" approach and expanded further the HRM technologies.	86
Tansley and Watson (2000)	New Technology, Work and Employment	Strategic exchange in the development of Human Resource Information Systems (HRIS).	Analysed the effect of social processes on the success of HRIS design and implementation.	33
Ball (2001)	Personnel Review	The use of human resource information systems: a survey.	Studied HRIS usage in small-sized organisations.	152

Table 3: Key articles on e-HRM, including Social Media (continued)

Authors	Journal	Title	Contribution	Citations
Ashbaugh, and Rowan(2002)	Public Personnel Management	Technology for Human Resources Management: Seven Questions and Answers.	Reviewed ERP Systems in HRM.	33
Feldman and Klaas (2002).	Human Resource Management	Internet job hunting: A field study of applicant experiences with on-line recruiting.	Presented the positive outcomes of e-recruitment and linkage with organisational branding.	139
Chapman and Webster (2003).	International Journal Of Selection and Assessment	The Use of Technologies in the Recruiting, Screening, and Selection Processes for Job Candidates.	Discussed the mixed positive or negative outcomes of e- recruitment and their linkage with “organisational image”.	147
Cober et al. (2004)	Human Resource Management	Form, content and function: an evaluative methodology for corporate employment web sites.	Highlighted that the form, content and function of employment websites affect online job seekers’ decisions.	81
Harris et al., (2003)	International Journal of Selection and Assessment	Privacy and attitudes towards Internet-based selection systems: A cross-cultural comparison.	Found that privacy considerations may affect reluctance on submitting employment-related information over the Internet.	66
Lengnick- Hall and Moritz (2003)	Journal of Labor Research	The Impact of e-HR on the Human Resource Management Function.	Aligned the e-HRM expectations for positive consequences (i.e., reducing costs, speeding up processes, improving quality, and even gaining an even more strategic role for HR within the organisation) with HR function’s impact.	143
Buckley et al., (2004)	Human Resource Management	The use of an automated employment recruiting and screening system for temporary professional employees: A case study.	Showed that positive outcomes from e-recruitment such as cost savings, reduced employee turnover, reduced staffing costs, ROI and increased efficiencies in the hiring process.	49

Table 3: Key articles on e-HRM, including Social Media (continued)

Authors	Journal	Title	Contribution	Citations
Gardner et al., (2003)	Journal of Vocational Behaviour	Virtual HR: the impact of information technology on the Human Resource professional.	Presented three stages (automation, information and transformation) of the IT's impact on HR.	85
Ruël et al., (2004)	Management Revue	E-HRM: Innovation or Irritation. An Explorative Empirical Study in Five Large Companies on Web-based HRM.	Revealed the reasons (or goals) that companies invest in e-HRM such as improvement of HRM strategic orientation, reduction of costs, gaining of efficiencies; improvement of client service to management and employees, globalisation and standardisation of HRM policies, processes and practices.	165
Ruta (2005)	Human Resource Management,	The application of change management theory to HR portal implementation in subsidiaries of multinational corporations.	Established the importance of flexible implementation plan and top management commitment to HR portal acceptance.	77
Ngai and Wat (2006)	Personnel Review	Human resource information systems: a review and empirical analysis.	Addressed the perceived benefits from HRIS implementation such as increase in response rate and information access.	69
Lepak et al., (2006)	Research in Personnel and Human Resources Management	A Conceptual Review of Human Resource Management Systems in Strategic Human Resource Management Research.	Proposed a shift towards strategically anchored HR systems and highlighted the issues related to any research on HR system.	220
Strohmeier (2007)	Human Resource Management Review	Research in e-HRM: Review and implications.	Offered an analytical framework that distinguished between context, configuration and consequences of e-HRM at both, micro and macro levels.	187

Table 3: Key articles on e-HRM, including Social Media (continued)

Authors	Journal	Title	Contribution	Citations
Ngai et al., (2008)	Computers In Industry	Examining the critical success factors in the adoption of enterprise resource planning.	Critical success factors (CSF) in the adoption of an ERP system.	246
Bondarouk and Ruël (2009)	International Journal Of Human Resource Management	Electronic Human Resource Management: challenges in the digital era.	Defined e-HRM from HR and IT perspectives. Provided the conditions for effective e-HRM research.	74
Bondarouk et al., (2009)	International Journal Of Human Resource Management	e-HRM effectiveness in a public sector organisation: a multi-stakeholder perspective.	Showed the relationship between the use of e-HRM and the perceived technical and strategic HRM effectiveness through multi-stakeholder analysis.	24
Strohmeier (2009)	International Journal Of Human Resource Management	Concepts of e-HRM consequences: a categorisation, review and suggestion.	Conceptualised and categorised e-HRM consequences based on the dichotomy between deterministic vs voluntaristic approaches.	50
Marler (2009)	International Journal Of Human Resource Management	Making human resources strategic by going to the Net: reality or myth?	Created a strategic HR framework and addressed the determinants of strategic HR function.	41
Martin et al., (2009)	Education and Training	Scenarios and strategies for Web 2.0.	Provided the link between Web 2.0 technology and HRM.	13
Martin and Reddington, 2009	Employee Relations	Reconceptualising absorptive capacity to explain the e-enablement of the HR function (e-HR) in organisations.	Provided a framework for ACAP, e-HRM and innovation.	7
Panayotopoulou et al., (2010)	New Technology, Work and Employment	Adoption of electronic systems in HRM: is national background of the firm relevant? New Technology, Work and Employment Adoption of electronic systems in HRM.	Examined cross cultural e-HRM adoption in 13 European countries.	4

Table 3: Key articles on e-HRM, including Social Media (continued)

Authors	Journal	Title	Contribution	Citations
Razali and Vrontis (2010)	Journal of Transnational Management	The Reactions of Employees Toward the Implementation of HRIS as a Planned Change Program: A Case Study in Malaysia.	Analysed perceptions and acceptance of “HRIS implementation” in Malaysia.	5
Wickramasinghe (2010)	International Journal Of Human Resource Management	Employee perceptions towards web-based human resource management systems in Sri Lanka.	Studied the perceptions and acceptance towards e-HRM in Sri Lanka.	6
Martin and Reddington (2010)	International Journal Of Human Resource Management	Theorising the links between e-HR and strategic HRM: a model, case illustration and reflections.	Provided a framework that aligned e-HRM and strategic HRM and was tested in the UK.	10
Parry (2011)	International Journal Of Human Resource Management	An examination of e-HRM as a means to increase the value of the HR function.	Showed the potential e-HRM strategic outcomes and how they can increase the value of of the HR function.	19
Parry and Tyson (2011)	Human Resource Management Journal	Desired goals and actual outcomes of e-HRM.	Goals for e-HRM introduction in UK organisations.	29

As it can be seen in Table 3, an initial study on HRISs in large US based organisations was conducted by DeSanctis in 1986. The author concluded that: HRISs were reasonably located within the compensation and benefits area for administration purposes; there was lack of clarity on the responsibility and the role of HRIS in the corporate management of information systems; HRIS could be interfaced with other information systems such as accounting provided clarification of responsibility and proper integration were determined; HRIS managers lacked combinative skills since they would either have technical or HRM training; HRIS planning was not well coordinated with corporate and strategic planning; and HRISs were mainly created to serve the HR personnel, but also managers and employees in other functions.

In the early 90s, Broderick and Boudreau (1992) connected specific types of computer applications with specific HR objectives or strategies and claimed that IT had the potential to improve HR administrative, operational and planning decisions. The study of Broderick and Boudreau (1992) was an early attempt to connect different technological applications with potentially different HR strategies and objectives. However, the authors recognised that most organisational investments at the time supported administrative purposes and decisions (e.g., compensation and record keeping). Although, DeSanctis and Broderick and Boudreau's work provided different insight into HRIT (e.g., the former about HRIS issues in U.S.- based companies and the latter about the connecting links between technologies and HR strategies), they were both descriptive in nature.

From a more practical and international perspective, Hannon et al. (1996) conducted an in depth survey to eleven US-based MNCs that aimed to increase the effectiveness and efficiency of their HRIS. The authors raised some "fresh" academic topics at the time around technological integration. These included integrations between: a global and a domestic HRIS; HRISs and other organisation-wide information systems (ISs) such as accounting, finance and production; all HR processes under an all-encompassing HRIS umbrella. The authors also dealt with the standardisation of HR processes,

outsourcing possibilities and operational issues concerning global HRISs. The issues were classified as: improper data transferring due to political or technological barriers; lack of consistency between companies in different locations; different system designs and development along with limited technological knowledge and training of HR professionals so as to be able to select, install and maintain an integrated HRIS; lack of the top management's intention to invest in integrated HRISs that would lead to effective strategic management, decision-making and competitive advantage; irrelevant and inaccurate reporting along with non-standard data; hardware and software development moving issues from mainframe-based platforms to relational databases and executive information systems.

Finally, Hannon et al. also mentioned the connecting links between the global business and HRIS strategies, the different needs of multiple HRIS stakeholders and the cross-cultural and cross-national particularities. Their work is considered quite advantageous in explaining the conditions that MNCs need to consider as competitive necessities for their HRISs and in introducing the component of "international" HRIS mentioning at the same time the evolving relational technologies. However, their study was a small scale survey purely on HRIS professionals despite the recognised need for different stakeholders' inclusion. Also, it did not include specific human, business or cultural elements within a conceptual model.

Haines and Petit (1997) identified and modelled some important human, organisational and system predictors of a successful HRIS, in terms of user satisfaction and system usage by surveying HRIS users in Canada. They concluded that system conditions (i.e., functioning, performance and human factors such as training and support by supervisor) were the most important antecedents of success along with the availability of internal support (i.e., training, existence of HRIS department, good documentation) for users. Furthermore, individual variables such as age, gender, education and work experience did not influence user satisfaction or system usage as well as the source of HRIS development (i.e., whether the system was created in-house or purchased). However, the authors observed, without explaining the

reasons, that a system's ease of use and users' higher levels of satisfaction were not followed by higher usage of the system. In other words, despite the variety of variables that were examined and their strong empirical conditions on what constitutes a successful HRIS, their research lacked explanatory reasoning.

Following Haines and Petit's work but again within the U.S. context, Lepak and Snell (1998) introduced the concept of virtual HR and declared three major areas that IT affected HRM. These areas were called operational, relational and transformational and described how different automation levels of HR activities automation could lean up HR from an administrative function to a strategic one. Lepak and Snell's work was rather influential in terms of citations because the authors addressed analytically the reasons why companies implemented e-HRM. In my opinion though, it was mainly based on Broderick and Boudreau's early conceptualisations but under the use of a logical architectural framework as well as a strategic perspective within the resource based view of the company.

At the end of the 90s and the beginning of the 21st century, four studies (Kovach and Cathcar, 1999; Tansley and Watson, 2000; Ball, 2001; Ashbaugh and Rowan, 2002) were considered notable although each for different reasons. Starting with Kovach and Cathcar (1999), the authors disaggregated the functionalities of HRISs based on "data input - data maintenance - data output" logic. They referred to the concept of HR processes reengineering through HRIS and the ability of the system to remove administration layers, serving not only the HR but also different stakeholders. Moreover, they mentioned additional technologies that were, or could be, used for HRM such as interactive information kiosks, web-based applications (Internet or intranet) and interactive voice response (IVR). Their work though was not empirically tested and focused merely on systems.

From a process oriented and relational perspective, instead of a systems one, Tansley and Watson (2000) examined, through an ethnographic paradigm of a case study in a transnational American organisation (e.g.,

80,000 employees in 60 countries), how certain social processes (i.e., interaction, career aspirations of key actors, cooperation) led to a successful HRIS design and implementation. An important contribution of this academic work was that the “human element”, such as the needs and feelings of key actors (e.g., HR director who acts as the project leader), can explain a project’s (e.g., HRIS implementation) success or failure. However, despite their suitable paradigm for studying the implementation of a global HRIS in a transnational firm, the empirical data (e.g., recorded team discussions or transcribed interviews) that were mentioned and analysed in their article were limited and there was no reference on cultural parameters or issues behind a global project of this magnitude. Also, their study could not be generalised in different contexts such as smaller or less global organisations. For example, Ball (2001) surveyed small-sized organisations on the use of their HRIS and concluded that they were less likely to adopt HRIS compared to larger organisations. Also, HRIS was mainly used for administrative purposes and there were no significant differences between small organisations of different sectors in the usage levels.

From a practitioner perspective in the public sector, Ashbaugh and Rowan (2002) referred to the underlying architecture of the “digital government” which was composed by the Internet and ERP systems and focused on the organisational benefits provided by the human resources management system (HRMS). This work was important because it offered insight on the technology and the functionalities of the integrated administrative systems (e.g., ERP) and how all these can lead to specific strategic benefits by automating specific HRM practices. It also provided a practical guide on the ways ERP systems can be applied in HRM and lead to HR transformation, justifying at the same time the reasons companies should invest in these systems.

After 2002, the notion of e-HRM began to become widely used in the literature (Lengnick-Hall and Moritz, 2003; Ruël et al., 2004) while the developing importance and recognition of the concept led academics to consider e-HRM as a separate field of research, theory and practice

(Bondarouk and Ruël, 2009). The growing body of e-HRM literature increased knowledge in various areas such as e-HRM's goals, outcomes and practices like e-recruitment or e-learning (e.g., Oiry, 2009), however, the concept still seems to remain under-explored (Strohmeier, 2007).

From a recruitment perspective, Feldman and Klaas (2002) examined e-recruitment and the experiences of managers and professionals searching online for jobs. The authors concluded that e-recruitment or online recruitment, compared to other means of job advertising, can: cut costs by reducing the use of head-hunters and consultants, reach more diverse pools of candidates, and be linked with companies' marketing and branding. Chapman and Webster (2003) surveyed and interviewed HR professionals in the U.S. on e-recruitment technologies. The authors found that organisations continued to use both traditional and technology based HR methods and despite the mixed positive or negative outcomes of e-recruitment, "organisational image" was a predictor of its use. From a job seeker's view, Cober et al. (2004) explained how the form, content, and function of employment websites affect the decisions of those who search online for a job. As the authors stated,

"employers treat online job seekers like consumers of employment information rather than merely applicants for employment screening. As such, the Internet provides organisations with a powerful employment branding mechanism" (Cober et al., 2004: 214).

Arguably, these three studies provided indirectly an important initial connection between an e-HRM practice (e.g., e-recruitment) and company's marketing, branding or organisational image. This is because recruitment and selection are two major HRM practices that involve people outside the organisation such as job applicants and candidates. However, Harris et al. (2003) examined privacy perceptions towards Internet-based selection systems and argued that privacy considerations may affect reluctance to submit employment-related information over the Internet. Their study though included students rather than job applicants within a small sample while privacy was measured through a newly created and simplistic survey questionnaire. Nevertheless, it was interesting because it raised an

important issue that indirectly affected organisations that aimed to enhance their e-recruitment and e-selection tools. Finally, another important recruitment oriented study took place by Buckley et al. (2004) who reported though positive outcomes from the automated recruiting and screening system of their case studied organisation (e.g., staffing cost savings, reduced employee turnover, ROI, increased hiring efficiencies).

While a lot of attention was paid to the e-recruitment aspect of e-HRM, Lengnick-Hall and Moritz (2003) connected a number of technological components mentioned in previous studies (e.g., ERP, IVR, VRS, Internet, intranet, portals, etc.) under the “umbrella” of an e-HRM system and pointed out that the increased adoption of e-HRM in general was founded on the expectations for positive consequences such as reducing costs, speeding up processes, improving quality, and even gaining a more strategic role for HR within the organisation. Furthermore, Gardner et al. (2003) described and examined three stages of the IT impact on HR: (1) The *automation stage* or the use of IT for the automation of manual systems and the reduction of staff used for routine or administrative jobs, (2) The *information stage* or the process IT provided effectiveness and benefits to its users (e.g., easy access, data evaluation, etc.) (3) The *transformation stage* or the process by which creativity, knowledge and information resulted in new products, services and strategic innovations and increased capability and competitive advantage. The authors concluded that more extensive use of IT enables and makes HR tasks more automated and HR professionals more efficient, responsive and autonomous despite the fact that their job scope increases with IT supported activities and requires more IT related skills.

Using a case study approach, Ruël et al. (2004) examined e-HRM in five MNCs and grouped the reasons (or goals) why companies invest in e-HRM. These types of goals were: improvement of HRM strategic orientation, reduction of costs and gaining of efficiencies, and improvement of HR service to management and employees. Moreover, the authors suggested that globalisation and standardisation of HRM policies, processes and

practices was an additional goal of MNCs that can be affected though by cultural and language differences. They also observed that companies face all types of goals with the same priority and importance while cost reductions and efficiencies along with service improvements were not only goals but also some of the realised outcomes from the e-HRM use.

Using also the case study method in one MNC and its subsidiaries, Ruta (2005) theorised and modelled the implementation process of an HR portal considering the challenges of change management and user acceptance. Ruta proposed that HR portal acceptance increases when a company applies an implementation plan (or plans) that is adapted to subsidiaries' local context and considers their contextual differences, when top management is committed and when those involved in the process demonstrate paradigmatic behaviours. Under these conditions, HR portal implementation can improve the employees' perception of the overall value of HR in the company beyond administration, it can save time by minimising the employees' work activity and transaction costs and it can raise the strategic relevance of the HR function in the organisation. A common element in the works of Ruta, Hannon, Ashbaugh and Miranda, and Ruël et al., was the importance of integrated e-HRM systems that are compatible with different contexts.

Ngai and Wat (2006) reviewed HRIS literature and surveyed companies in Hong Kong on HRIS implementation. The authors argued that the perceived benefits from HRIS implementation were the increase in response rate and information access while an important barrier in the process was the lack of budget. The authors also found differences in perception between HRIS adopters compared to non-adopters as well as in the size of organisations in relation to the HRIS adoption. Another literature critique, not directly of e-HRM but of systems in general, derived from Lepak et al. (2006) who reviewed the HR systems' concepts and their respective variations. The authors proposed a shift towards strategically anchored HR systems and argued that a theory-driven conceptualisation of HR systems would consider them for a specific organisational objective including only the relevant HRM

practices. Finally, the authors argued that HR systems should operate by influencing the employees' knowledge, skills, abilities, motivation, effort, and opportunities for them to contribute. Although, this study was not merely referred to e-HRM it was very important in highlighting research issues related to any HR system, including e-HRM.

Regarding social media and HR, Clearswift, a content security specialist, released in December 2007 the results of a survey on a sample of approximately 700 HR leaders in the United States. The findings revealed that despite the rise in popularity of social networking sites as well as the potential business applications of social media technologies, an important number of HR professionals did not yet fully understand them. The major implication of this survey was that the HR leaders seemed to be unprepared not only for fostering the business towards using social media but also for seeing or realising the ways the HR function could benefit from this technology.

An e-HRM specific and systematic review came from Strohmeier (2007) who created a framework that distinguished between context, configuration and consequences at both, micro and macro levels, suggesting that the configuration determines the consequences of e-HRM, while both configuration and consequences can be preceded and moderated by context. The author concluded that e-HRM research was under-theorised, had been conducted in several disciplines and encompassed several levels of analysis and focal e-HRM topics. The most important implication of Strohmeier's extensive review though was the decoding and mapping of the multilevel nature and aspects of the e-HRM concept and the signalling for specific, methodical, theory driven, pluralistic and international research.

Ngai et al. (2008) conducted a review of various online journals and databases in order to examine the critical success factors in the adoption of an ERP system. The authors grouped 18 common factors that were critical in the success of an ERP implementation across 10 countries of their research population. This review was very practical and assembled critical areas (e.g., top management support, ERP vendor, project management, national

culture, etc.) for any ERP implementation, although the majority of the reviewed articles were U.S.-based.

In 2009, literature appears more mature and explicit on the understanding of the e-HRM concept as well as the requirements and the agenda of thorough e-HRM research. For example, Bondarouk and Ruël (2009) provided an encompassing e-HRM definition and suggested that e-HRM research should include HR and IT features and be clear in terms of epistemology, methodology, theoretical base, contributions and level of analysis. Bondarouk and Ruël along with van der Heijden (2009) also published a qualitative cross-sectional study conducted in a public organisation in the Netherlands and applied in practice their research suggestions. In other words, they examined the relationship between the use of e-HRM and the perceived technical and strategic effectiveness of HRM (i.e., clear research activity) by interviewing employees and line managers (i.e., specific e-HRM users as stakeholders) using the Technology Acceptance Model or TAM (i.e., theoretical frame). The authors stressed the importance of multi-stakeholder analysis because they found that overall perception of HRM effectiveness was affected by the appreciation of e-HRM applications and disclosed differences in e-HRM usage by line managers and employees.

Strohmeier (2009) expanded further his e-HRM review in 2007 but this time focusing on the conceptualisation and categorisation of e-HRM consequences. This categorisation was based on the dichotomy between deterministic versus voluntaristic approaches or simply stated, whether technology versus human causes certain, desired or undesired and expected or unexpected, consequences respectively. Marler (2009) created a strategic HR framework and demonstrated how e-HRM fits in this framework and how it may help a firm achieve competitive advantage highlighting though that e-HRM goals guiding e-HRM implementation are unlikely to make the HR function more strategic. Marler's work was influential in suggesting that for the strategic potential of e-HRM to be realised being strategic in advance is required. Both Strohmeier and Marler's studies added theoretical insight into the e-HRM concept though neither was empirically tested. In my

opinion, Bondarouk, Ruël, Stochmeir, Marler, Lepak and Snell decomposed the multidimensionality of the e-HRM concept and aligned it to the strategic HRM.

In 2010 and 2011, an expansion of cross-cultural studies around e-HRM is observed. For example, Panayotopoulou et al. (2010) explored the e-HRM adoption using data from the 2003 Cranet survey in 13 European countries. Razali and Vrontis (2010) examined the employees' perceptions and acceptance of HRIS implementation in Malaysia through a case study of an airlines system company and Wickramasinghe (2010) did the same in Sri Lanka by surveying 30 companies in the service and manufacturing sectors. Martin and Reddington (2010) examined a leading global oilfield services provider in the UK. Parry (2011) also used the data from the 2003 Cranet survey across 12 countries on e-HRM while the same author along with Tyson (i.e., Parry and Tyson, 2011) examined the goals for e-HRM introduction in ten case studies in a range of UK organisations. However, despite the fact that this research spread in other non-U.S. areas, there are many geographical contexts in which the topic of e-HRM remains unsearched.

The literature seems to connect HRM and social media more apparently between 2009 and 2011. Although a number of academics considered the potential effect of social media technology in HRM to be important (e.g., Martin et al., 2009), the research emphasis was given merely on recruitment and selection (Joos, 2008; DeKay, 2009; Roberts and Roach, 2009; Girard and Fallery 2009; Kluemper and Rosen, 2009; Davison et al., 2011). In other words, despite the evolving effect of social media on organisations it seems that research in social media and HRM has not grown substantially and includes mainly preliminary studies in areas such as knowledge management (Andriole, 2010; Sultan, 2013), active learning (Williams and Chinn, 2009; London and Hall, 2011), misuse of social media for online harassment (Lieber, 2010) or the ethics of laying off employees who blog (Valentine et al., 2010), collaborative work (Broadribb and Carter, 2009), collaborative knowledge creation (Prasarnphanich and Wagner, 2009), innovations and an overall agenda of the strategic use of social media for HRM (Martin and

Reddington, 2009; Martin et al., 2009). The implications of social media on HRM along with the parallel and surprising lack of research in this area were also reported by CedarCrestone (2010).

From the critical evaluation of the above studies, it can be argued that the current status of e-HRM research is mainly characterised by use of one data collection method (e.g., survey or case study), use of one level of key responding actors (e.g., HR professionals) and use of one type of measure which is usually perceptual (Strohmeier, 2007). It is also characterised by focus on specific e-HRM technologies and areas such as online recruitment, lack of a good theory that links the relationship between IT and HR (Ruël et al., 2004) and omission of social media technologies within e-HRM infrastructure. Many studies are U.S. specific, debate the strategic advantages of e-HRM and demonstrate a gap between the goals of e-HRM and its practical/factual outcomes. Therefore, the chronological examination of the most cited and contributory articles on e-HRM and social media highlighted the evolution of e-HRM literature while the evaluation of these articles' methods, context, key findings and limitations stressed the literature gap in the current state of research. Considering all these observations, the next section will turn to the innovation in HRM.

2.5 Innovation and HRM Innovation

The concept of innovation has been extensively defined and examined by a number of scholars from different bodies of knowledge and perspectives (Rogers, 1995; Damanpour et al., 1989; Damanpour and Gopalakrishnan, 1998). According to West and Farr (1990), innovation refers to the deliberate initiation and application within a firm of ideas, processes, products or procedures which are new to the adopted unit and are created in order to benefit the firm or the wider society. Management innovation refers to newly introduced (by management) processes that enable firms to accomplish their objectives such as object management, environmental research and judgement, coordination, integration and schedule control (Shieh and Wang, 2010).

Birkinshaw et al. (2008) reviewed the literature and critically described four important perspectives on management innovation. The first was the *institutional perspective* which has a focus on the social and economic conditions in which new management ideas and practices are formed and shaped. According to the authors, this perspective focuses on the preconditions of innovation emergence and the adoption factors affecting the industries towards such innovations. The second was the *fashion perspective* and focuses on the dynamic interaction between those who use and those who provide the management ideas or fashions. The management fashions can be either abstract expressions or specific practices and techniques while the fashion perspective deals with the industry that provides new management ideas and the behavioural aspects of those who buy these ideas.

The third was the *cultural perspective* and focuses on the organisational culture and the organisational reactions towards the introduction of new management practices. This perspective aims to shed light on the ways management innovation affects -and is affected by- the organisational culture of the context in which it is being implemented. The fourth was the *rational perspective* that focuses on the ways management innovations and the people who drive them improve organisational effectiveness. The idea is that an individual provides an innovative practical solution to a specific organisational problem and then he champions the adoption and the implementation of this solution. In this thesis, institutional, fashion, cultural and rational elements are expected to affect the adoption, diffusion and exploitation of e-HRM and social media and the resulting innovation.

Two widely known typologies of innovation include the distinction between product and process innovations and between technological (also called technical) and administrative (also called organisational and management) innovations (Damanpour et al., 2009). *Product innovation* includes the development of new products and/or services (Boer and During, 2001) because the focus of both is meeting the needs of a company's clients

(Damanpour et al., 2009). *Process innovations* include the efficiency and effectiveness of inter-organisational processes through, for example, the introduction of new technologies (Boer and During, 2001). *Administrative innovations* are those which affect the social system of an organisation (e.g., rules, roles, procedures, structures, etc.) and *technical innovations* are those which occur in the operating component and affect the technical system of an organisation (e.g., equipment and operational methods that transform raw material into products or services) (Damanpour et al., 1989). In this thesis, two types of innovations are examined: process innovations or the efficiency and effectiveness of inter-organisational HRM processes, and administrative innovations such as HRM rules, roles, procedures and structures which affect the social system of an organisation. The reasons are explained later in this section.

Innovation and HRM concepts are closely connected while in most innovation or management innovation literature there is considerable attention to HRM issues (de Leede and Looise, 2005). HRM has been seen as an important antecedent to innovation because people are those who yield innovations and competitive advantage (Jimenez-Jimenez and Sanz-Valle, 2008). Beer et al. (1984) defined HRM as all the management decisions and activities that affect the nature of relationship between the organisation and its employees. Kossek (1987) defined HRM innovation as a program, policy, or practice which is designed to influence the attitudes and the behaviours of employees and is perceived to be new by the members of the organisation.

Regarding the approach to innovation, one important question is whether innovation is either a *process* of using something new or the resulting *object*. As Wolfe (1995) stated, some researchers (e.g., Damanpour, 1991; Van de Ven, 1986) have used the term “innovation” to describe the process of bringing into use new products, equipment, programs and systems while other researchers (e.g., Attewell, 1992; Downs and Mohr, 1976; Rogers, 1983) use it to describe the object of the innovation process such as the new product, equipment, program, or system. In this thesis, innovation is treated as an object or outcome and not as a process.

Another important question is whether innovation is either the first use of an idea, irrespectively of the context that is used, or the first use of an idea within a specific context. For example, some scholars (e.g., Becker and Whisler, 1967: 463) defined innovation as the first or very early use of an idea by an organisation in any context while others as the first use of an idea within a firm irrespectively whether this innovation had been tried or applied elsewhere. In other words, one academic difference is whether the "objective newness" of innovation is an important criterion or not (Wolfe, 1995). A number of academics (e.g., Daft, 1978; Kimberly and Evanisko, 1981) believed that objective newness is an important criterion of innovation while others (e.g., Damanpour, 1991; Kossek, 1989) viewed innovation as a product, program, or system which is new to the adopting organisation, thus, the objective newness of an idea does not matter a lot so far as human behaviour is concerned (Rogers, 1983). This thesis treats HRM innovation without considering the objective newness of an idea.

More specifically, innovation is viewed as the outcome(s) of the deliberate initiation and application (within a firm) of e-HRM and social media technologies which are new to the adopted unit and are created in order to benefit the company. It focuses fully on HRM related outcomes which demonstrate the effect these technologies have on the HR function and the nature of interaction and relationship between the company and its employees (see next section). More specifically, the adoption, diffusion and exploitation of e-HRM and social media are treated as a "mean" to an "end", therefore, HRM innovation refers to the object or outcome (and not the process) that derives from the adoption, diffusion and exploitation of new ICTs (i.e., the process).

By treating HRM innovation as an outcome of e-HRM and social media technologies both, process innovations (e.g., efficiency and effectiveness of inter-organisational HRM processes) and administrative innovations (HRM rules, roles, procedures, structures which affect the social system of an organisation) are examined. However, although institutional, fashion, cultural and rational elements are expected to affect the "process" (i.e.,

adoption, diffusion and exploitation of e-HRM and social media) which will result in these “objects” (i.e., HRMIO), the effect these HRM innovations will have on organisational performance and/or competitive advantage is not examined (see Chapter 10 on future research suggestions).

In the light of the term “HRM innovation” as specified above without considering the objective newness of an idea, it is examined whether the adoption, diffusion and exploitation of e-HRM and social media results in innovation outcomes in an organisation that may not be objectively new for a number of employees or units. For example, if a company introduces a manager self-service (MSS) component of a performance management system and the innovation object/result is the accurate and richer performance management, then, it will not make significant difference if the user of this system (manager) has been exposed to such an application in his previous work. Finally, the objective newness of HR technology was beyond the confines of this thesis’ research question.

The next section operationally defines the concept of HRMIO from e-HRM and social media.

2.5.1 HRMIO from E-HRM and Social Media

This section provides an overview of potential e-HRM and social media outcomes. It starts with the main drivers or goals of companies when considering to adopt e-HRM because these goals may not be realised in all cases (Parry and Tyson, 2011). For example, companies may invest in ICT for HRM for a variety of reasons (e.g., to improve HR service delivery or to reduce administrative costs) without necessarily achieving all of their initial objectives (e.g., administrative costs were not reduced). In other words, there might be a gap between companies’ e-HRM investment/adoption reasons and the actual outcomes of this process and this may have a negative effect on the HR function (Martin and Reddington, 2010).

Lepak and Snell (1998) classified three distinct areas to describe the effect of IT on HRM: (1) operational, (2) relational, and (3) transformational. *Operational HRM* refers to the automation of routine administrative

activities such as payroll, benefits and personnel data and the consequent cost reduction, productivity and efficiency improvements. *Relational HRM* is more progressive and refers to the remote access that managers, employees or external partners can have to HR information so that they can serve themselves and the respective HR service, response time and effectiveness improvements. Finally, *transformational HRM* refers to the limitless communication and information sharing between people in organisations without geographical or time boundaries and the creation of virtual teams and network organisations. According to Parry and Tyson, (2011) these three terms actually represent a useful literature summary of the HR function's goals when introducing e-HRM. A fourth e-HRM adoption goal was suggested by Ruël et al. (2004) and refers to the globalisation, harmonisation and standardisation of HR processes among companies in different countries, cultures that speak different languages.

However, in the e-HRM literature various key authors have used the same terms to describe quite different phenomena. For example, Lepak and Snell based on Snell et al. (1995; 2002) referred to the impact of IT on structural integration within HRM and used the terms operational, relational and transformational. Gardner et al. (2003) also referred to the impact of IT on HRM and mentioned three stages or impacts: automation, information, transformation. Wright and Dyer (2000) though talked about three categories of HR services using the terms transactional, traditional and transformational. Broderick and Boudreau (1992) classified three computer applications: transaction systems, expert systems and decision support systems and matched them with three HR objectives: cost leadership, quality customer satisfaction, and innovation. Lengnick-Hall and Moritz (2003) made reference to three forms through which e-HRM has developed: publishing information, automation of transactions and transformation. Ruël et al. (2004) referred to three e-HRM types: operational, relational, transformational; three e-HRM goals: administration improvement, client service improvement, HR's strategic role improvement; differentiated the e-HRM types and goals from the e-HRM outcomes (e.g., cost effectiveness, congruence, competence, commitment). Strohmeier (2007), after

conducting an extensive literature review, made reference to e-HRM consequences at macro level using the operational, relational and transformational terminology and added one more category of individual consequences to describe the micro level of e-HRM impact. In my opinion, the use of the same terminology to explain different e-HRM concepts (e.g., IT impact on HRM, e-HRM outcomes, e-HRM types, e-HRM stages of development, etc.) has caused theoretical ambiguity.

In line with Ruël et al. (2004), in this thesis e-HRM is viewed as a way of carrying out HRM and implementing HRM practices so that companies can achieve certain goals such as efficiencies and cost reductions, client satisfaction and HR's strategic orientation. On the one hand, the *automation effect or impact of IT on HRM* can be described as operational, relational and transformational, since it represents the degree of automation of HRM practices and the consequent increase of individuals that are served by this automation. On the other hand, the e-HRM outcomes or consequences can be described in two main categories: *transactional outcomes* that include changes in the way the day to day activities and transactions are performed, thus, combining elements from operational and relational HRM, and *transformational outcomes* that include changes of strategic value to the company. For example, Martin and Reddington (2010) distinguished between two categories of e-HRM outcomes: transactional and transformational, which could be intended or unintended, positive or negative (see Table 4). Therefore, this thesis distinguished between the automation effect of IT on HRM using the terms *operational*, *relational* and *transformational* and the e-HRM outcomes using the terms *transactional* and *transformational*.

Table 4: Classification of E-HRM Outcomes
(Source: Martin and Reddington, 2010: 1563)

	Positive	Negative
Intended	<p>Transactional</p> <p>Reduced costs of HR transactions and HR headcount reduction</p> <p>Greater responsiveness to needs of managers and employees' needs for (real-time) information and tailored HR solutions on demand</p> <p>Increased self-efficacy among managers and employees</p> <p>Transformational</p> <p>Greater accountability of managers for people management</p> <p>Increased acceptance of self-development by employees</p> <p>Improved talent management through self-selection, self-assessment, performance management, etc</p> <p>Improved two-way communications leading to higher levels of organizational engagement and satisfaction with HR/people management</p> <p>Greater access to individual learning</p> <p>Greater capability to feed forward individual learning into group and organizational learning across distributed organizations</p> <p>Greater sense of corporate identity through uniform HR portals</p> <p>More time for HR to focus on expert/strategic issues</p> <p>Greater ability to work flexibly from home, and other workplaces</p>	<p>Transactional</p> <p>Reduced costs of HR transactions and HR headcount reduction</p> <p>Transformational</p> <p>Lack of face-to-face contact and remoteness of HR staff from 'clients'</p> <p>Intellectual property and data ownership transferred to outsourcing partner</p>
Unintended	<p>Transactional</p> <p>Spillover of information from HR into other areas of business</p> <p>Transformational</p> <p>Greater sense of organizational innovativeness/progress modelled through adoption of sophisticated e-HR</p>	<p>Transactional</p> <p>Displacement of existing HR staff and loss of organizational knowledge</p> <p>Lack of job satisfaction among HR staff working in shared service centres</p> <p>Manager/employee frustration over ease of use and value of information</p> <p>Resistance to new ways of working through 'benign neglect', opposition or mild forms of sabotage</p> <p>Increased levels of cynicism with HR/organizational change programmes</p> <p>Increased perception by managers of 'doing HR's job' and work overload</p>

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In the literature, the positive outcomes of e-HRM include: employees' 24/7 access to HR data and flexibility to manage their work-life balance (Overman, 2002; Gainey and Klaas, 2008); freeing up of HR practitioners to work on more strategic areas (Stanley and Pope, 2000; Snell et al., 2002; Gardner et al., 2003; Lengnick- Hall and Moritz, 2003) provided the existence or development of specific competencies (Bell et al., 2006) and skills (Hempel, 2004) by HR professionals are ensured; HR efficiency and service delivery improvements resulting in timely, speedy and low cost transactions (Jossie, 2001; Lengnick- Hall and Moritz, 2003; Buckley et al., 2004) with the minimum headcount and human errors (Gainey and Klaas, 2008); improvements on the employees' productivity, morale, decision-making and information sharing (Lengnick- Hall and Moritz, 2003); change in the relationship building process among employees themselves and between employees and their company improving information and expertise flow across the organisation and increasing the strategic capabilities of the firm (Lengnick- Hall and Moritz, 2003).

The negative outcomes of e-HRM include: reduction of HR transactions and headcount and the demotivation of HR personnel particularly when it is combined with outsourcing, displacement and working in shared service centres (Martin and Reddington, 2010); fear that a machine will substitute for a person (Ruta, 2005); loss of organisational knowledge and face-to-face contact; complaints by busy managers and employees who incur HR responsibilities; negative reputation or underestimation of the HR function (Martin and Reddington, 2010). However, this thesis examined only the positive, actual and new outcomes that derived from the absorption of e-HRM and social media because it aimed primarily to: (1) explore e-HRM and social media introduction goals (2) compare these goals with the actual outcomes (3) focus on the factors that affected the absorption process and the realisation of the initially espoused goals.

In summary, this thesis draws on Lepak and Snell's (1998) conceptualisation of IT's impact on HRM (i.e., operational, relational and transformational) and Martin and Reddington's (2010) conceptualisation of e-HRM and social

media outcomes (i.e., transactional and transformational) in order to operationally define and categorise the concept of HRM innovation or HRMIO and compare these outcomes with the e-HRM and social media investment drivers.

2.6 Summary of the Chapter

In this chapter the evolution of e-HRM and social media has been reviewed and critically discussed in order to justify the main assumptions of the present research. Starting with the main issues identified in the literature, they can be summarised as follows:

1. The concept of e-HRM has been defined vaguely and in many different ways.
2. E-HRM technologies vary and can include HRIS, virtual HRM, web-based HRM, intranet-based HRM, ERP systems, telephony based technologies and social media tools.
3. Social media and Web 2.0 are two confusing terms with the former being the phenomenon of consumer generated media and the latter the technologies that allowed the genesis of this phenomenon.
4. Social media have not been considered as additional integration mechanisms between HR and IT under the e-HRM umbrella and consequently have been rarely examined within the HRM context.
5. Research on e-HRM derives mainly from the U.S., it uses one data collection method, it relies on single source respondents and lacks a theory that links the relationship between technology and HR.
6. There is an academic debate on the strategic advantages of e-HRM and variances between the e-HRM adoption goals and the resulting or realised HRM innovation.
7. The outcomes of e-HRM and social media can be positive or negative, expected or unexpected.

Regarding the assumptions or decisions made on the literature discussed in this chapter, the present research corresponding to the above mentioned issues:

1. Adopts a general and all-encompassing definition of e-HRM that allows the empirical examination of the notion, by analysing both the IT and the HRM perspectives; connects the concept and its related technologies to innovation in HRM; differentiates a number of distinct components that are intrinsically included in the concept.
2. Regarding the e-HRM technologies, considers HRIS as one aspect of e-HRM technology that is used mainly, but not exclusively, by the HR function and ERP as the HR platform/module that is part of the company's integrated software suite. Also, examines ESS and MSS as independent e-HRM technologies, irrespective of whether the company has an HRIS or an integrated ERP system. Finally, considers each e-HRM technology as a separate "tool" that enables the HR function to automate various practices and serve, through this automation, various HR clients (e.g., HR staff or managers and employees in other departments).
3. Views Web 2.0 as a platform that allows the evolution of social media and social media as a product of Internet applications that actually build on the foundations of Web 2.0 technology. Also, the whole dissertation uses the term social media, instead of Web 2.0., even to describe the underlying Web 2.0 technologies.
4. Integrates social media and HR under the e-HRM umbrella in areas such as leadership enhancement, training and development, online research, collaborative knowledge, active learning, recruitment and selection. Also, differentiates generic social media from intranet-based social media tools that have been created only for a company's employees.
5. Takes place in Greece (see justification in Chapter 4), uses a mixed methods research design (see Chapter 5), draws on ACAP theory and examines the adoption, diffusion and exploitation of e-HRM and social media (see Chapter 3).
6. Aims to understand the reasons companies, multinational or local, invest in e-HRM and social media technologies. Adopts Lepak and Snell's terms (i.e., operational, relational and transformational) to

operationalise the automation effect of IT on HRM and Martin and Reddington's conceptualisation of e-HRM outcomes (i.e., transactional and transformational) in order to operationally define and categorise the term innovation in HRM or HRMIO.

7. Focuses on the positive outcomes or the *object* that derives from the *organisational process* of absorbing e-HRM and social media and views *innovation* distinctly without assuming its *objective newness* to the studied context.

In conclusion, e-HRM is a complex and multivariate topic that has received enough attention in the literature despite the contradictory research findings and the debates on its strategic outcomes. Furthermore, e-HRM has been aligned with a number of different IT tools used for HR purposes and more recently with the new technological developments referred to as social media. Although e-HRM research has been criticised by a lack of theory (Strohmeier 2007; Bondarouk and Ruël, 2009), this dissertation looks at the potential HRMIO of e-HRM and social media through the lens of the ACAP theory (Cohen and Levinthal, 1990). In the next chapter, this insufficiency of e-HRM concept will be addressed by adopting a well-established conceptual framework.

Chapter 3: Research Framework - ACAP Theory

3.1 Introduction

This chapter describes the theoretical framework of the research. It combines an extensive literature review on the topics of adoption, diffusion and exploitation of technology that results in the creation of a new integrative multidimensional framework of ACAP for e-HRM and social media. The rationale was to link the literature to the main aims of the investigation and to provide a clear structure for the research processes and the methodological approach. In other words, Chapter 3 reviews the theoretical approaches that lead to the development of a new model of ACAP for e-HRM and social media and makes the range of guiding theoretical assumptions that underpin this research explicit.

The chapter is divided into two major parts. The first introduces the concept of ACAP, the core theory in this thesis and discusses its strengths and weaknesses, examines its application in the HRM context and identifies the related research gaps in the literature (see Table 7). The second part describes the development of an integrative framework of ACAP for e-HRM and social media. The purpose is to enable the study to consistently define the core elements of what could be regarded as adoption, diffusion and exploitation of e-HRM and social media, and to describe the relationship between the various interrelated components. This new integrative framework is used to develop research hypotheses in addition to a set of ideas that aim to expand our understanding of organisations that innovate in HRM. Therefore, this chapter provides an overview of the whole study and begins with the theory of ACAP.

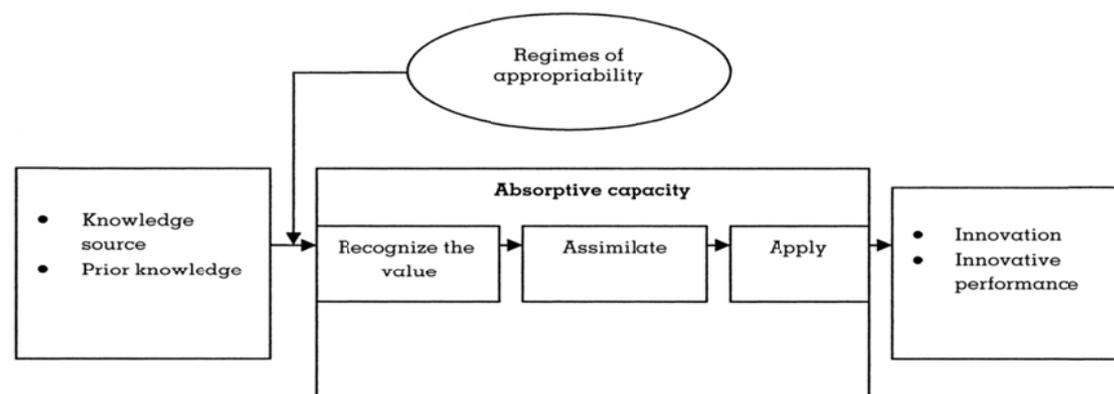
3.2 ACAP Theory Development

In the literature, ACAP has been presented as a broad capacity of companies to retrieve external knowledge mainly from external sources and incorporate it in the existing organisational knowledge base by adding value to it to create new valuable and differentiating knowledge (Thérin, 2007).

Early theories on ACAP derived from the work of Cohen and Levinthal (1989, 1990, 1994). As they argued, ACAP includes a firm's ability to recognise the value of new external information, assimilate it and apply it to commercial ends (see Figure 3) and was important for the development of new knowledge and innovation (1989, 1990). Cohen and Levinthal also suggested that a firm's ability to absorb new external knowledge depends on its levels of prior related knowledge that includes basic skills, shared language or even a field's recent scientific and technological developments.

“A firm's ACAP is not, however, simply the sum of the absorptive capacities of its employees, and it is therefore useful to consider what aspects of ACAP are distinctly organisational” (Cohen and Levinthal, 1990:131).

Figure 3: A Model of ACAP Based on Cohen and Levinthal (1990)
(Source: Todorova and Durisin, 2007: 775)



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Cohen and Levinthal pointed to the significant aspects of ACAP, identified the broad nature of the concept and connected the development of the organisations' collective knowledge of markets, science and technology, through research and development (R&D) activities, with a company's innovative products and services. However, although the authors used ACAP in their model as a conceptual tool to determine the incentives for investment on R&D, they neither established a means of measuring this directly nor did they conduct an empirical study of the impact of the factors that determined (defined as determinants) ACAP (Vega-Jurado et al., 2008). Furthermore, although they distinguished between individual, unit and

organisational ACAP and highlighted the role of the firms' internal mechanisms as a distinctive organisational aspect of ACAP in fostering communication and relationships among its members, a few of these distinctly organisational aspects were described in their brief analysis (Van Den Bosch et al., 1999).

After Cohen and Levinthal's influential studies, Szulanski (1996) empirically researched internal stickiness (i.e., factors or barriers on transferring and imitating best practices within a firm) in eight companies and found that knowledge-related factors such as the recipient's lack of ACAP, causal ambiguity, and a difficult relationship between the knowledge source and the knowledge recipient were some of the main barriers to internal knowledge transfer. Szulanski's work was among the first attempts in operationalising further the construct of ACAP and provided empirical insight into its importance at an organisational level. However, the sample was too small to generalise ACAP's conceptualisation while the measurement scale was developed with overlapping samples (Flatten et al., 2011).

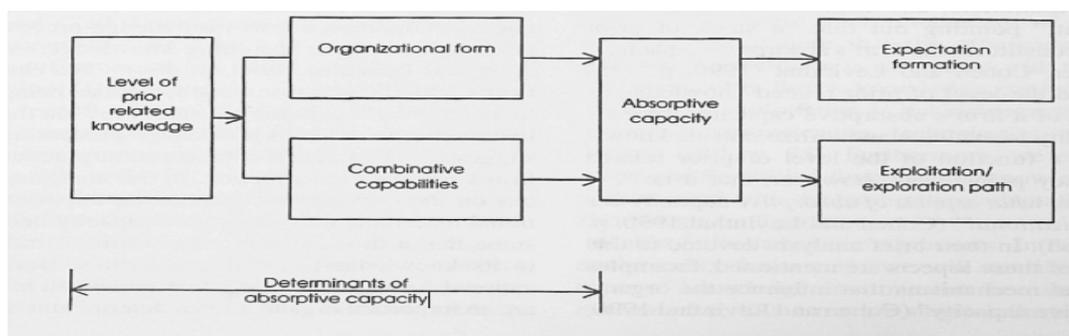
Lane and Lubatkin (1998) expanded the concept of ACAP further and discussed the relativity of ACAP between a firm that seeks to develop its capabilities through learning alliances with other firms. More specifically, the authors reconceptualised the concept of ACAP as a learning dyad-level construct meaning that the *student firm* (i.e., the one that wants to learn) selects the *teacher firm* (the one that will teach the student firm) based on the relative characteristics between these two firms. As the authors claimed, the ability of a firm to learn from another firm (i.e., ACAP) is jointly determined by the relative characteristics of the two firms.

The work of Lane and Lubatkin (1998) developed the concept of ACAP further because it highlighted its learning perspective. More specifically, it stressed empirically that a firm's capacity to learn or absorb new knowledge from a learning alliance depended on the similarity of the student and the teacher firms' knowledge bases, organisational structures, compensation policies, and dominant logics and affected inter-organisational learning.

However, despite their useful empirical insight that a firm's knowledge-processing system plays an important role in knowledge absorption, the strategic business alliance is only one way for companies to seek new knowledge through learning alliances. In other words, relative ACAP has no explanatory power when companies seek to absorb external knowledge from other sources such as universities, consultants or vendors.

After Lane and Lubatkin, Van den Bosch et al. (1999) provided a more integrated framework on the co-evolution of a firm's ACAP and its knowledge environment, focusing on the organisational determinants of ACAP. Although the authors, like Cohen and Levinthal, considered that prior knowledge was the main antecedent to ACAP, they argued that the organisation forms, which are strongly related to a firm's knowledge processing activities, as well as the combinative capabilities, were two important moderating organisational determinants of ACAP (see Figure 4). The former referred to the type of infrastructure that enables the process of absorbing knowledge in a specific way such as functional, divisional and matrix. The latter included system capabilities (i.e., policies, procedures and directions used to incorporate explicit knowledge), coordination capabilities (i.e., relationships and interaction resulting from training and rotation, participation in decision-making, and liaison mechanisms) and socialisation capabilities (i.e., a shared ideology and collective understanding among the organisation's members).

Figure 4: Determinants of ACAP and Expectation Formation
(Source: Van Den Bosch, Volberda, and De Boer, 1999: 554)



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Van den Bosch et al. (1999) made a distinction between three types of component knowledge related to (1) products or services, (2) production processes, and (3) markets. They assumed that the concept of ACAP encompassed evaluation, acquisition, integration, and the commercial utilisation of new external knowledge while they additionally referred to three dimensions of knowledge absorption (i.e., efficiency, scope and flexibility) that were associated with different dimensions of ACAP (e.g., the efficiency with exploitation or the scope and flexibility with the exploration).

One of the main contributing arguments of Van den Bosch et al. was that the firms' knowledge environment could influence their ACAP development. In other words, the nature of a firm's competitive setting (i.e., stable or turbulent) regulated the learning which was stimulated by ACAP, therefore, firms emphasised different mechanisms to accumulate knowledge and adopted different forms of organisation. As the authors believed, in changing knowledge environments external sources of knowledge are critical to the innovation process, thus, firms need to reconfigure existing component knowledge. However, although the authors considered some additional organisational antecedents apart from prior knowledge, their relationship with different ACAP dimensions was not tested empirically (Jansen et al., 2005).

A highly influential work and re-conceptualisation of ACAP was developed by Zahra and George (2002), who differentiated their theories from Cohen and Levinthal in two major areas. The first was the operationalisation of the concept. More specifically, the authors defined ACAP

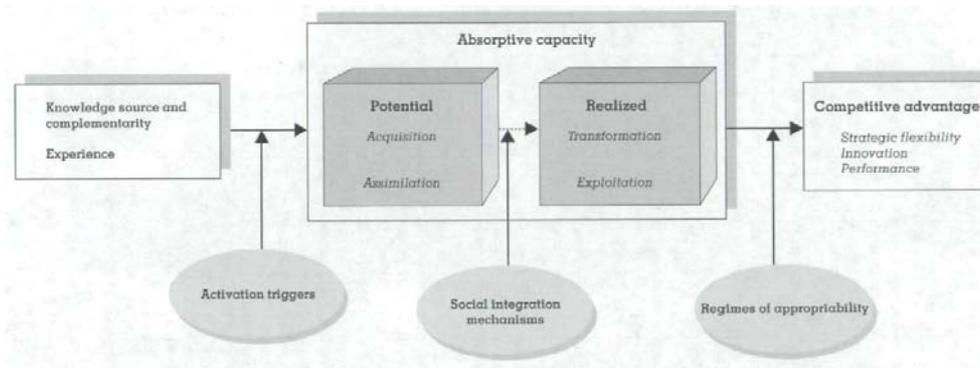
“as a set of organisational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organisational capability” (Zahra and George, 2002: 186).

Zahra and George also claimed that ACAP was pertaining to knowledge creation and utilisation, enhanced a firm's overall ability to gain and sustain a competitive advantage and allowed organisational change, evolution, reconfiguration of a firm's resource base, and market adaptation.

Therefore, while Cohen and Levinthal (1990) viewed ACAP as the ability of a firm to recognise the value of, assimilate and apply new external information for commercial ends, Zahra and George referred to the organisational routines and processes by which firms, instead of recognising, assimilating and applying, produced a dynamic organisational capability through acquiring, assimilating, transforming, and exploiting new knowledge. An important implication of this conceptualisation was the integration of organisational learning as well as resource and capability-based perspectives. This combination led the authors to see acquisition and assimilation as a dynamic capability that may create further organisational competencies and provide the firm with multiple sources of competitive advantage and improvement of economic performance. Similarly, transformation and exploitation were faced by the authors as sources of strategic flexibility and freedom to adapt and evolve in high-velocity environments and dynamic industry contexts.

The second area of differentiation was related to the dimensions that constituted the ACAP concept. In Zahra and George's work, the dimensions of ACAP were four and not three as in Cohen and Levinthal's definition. Also, Zahra and George mentioned that "*acquisition*" was the first component of ACAP and not "*value recognition*" as Cohen and Levinthal (1990) did. Finally, Zahra and George added the component of *transformation* before *exploitation* instead of "*commercial application*" that was included in Cohen and Levinthal's (1990) conceptualisation. The addition of the transformation component provided further conceptual precision to the construct since it highlighted the firms' capability to develop and refine their routines in order to combine existing knowledge with the newly acquired and assimilated knowledge.

Figure 5: A Model of ACAP
(Source: Zahra and George, 2002: 192)



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As it can be seen in Figure 5, Zahra and George grouped their four ACAP dimensions into two categories or subsets: (1) *potential capacities* (PACAP), and (2) *realised capacities* (RACAP). PACAP captured companies' efforts to acquire and assimilate new external knowledge gained from external sources. RACAP included the creation of new insights and consequences derived from the combination of existing with newly acquired knowledge and the incorporation of transformed knowledge into operations. As they claimed, firms needed to manage PACAP and RACAP successfully in order to achieve superior performance. The existence of two subsets of ACAP underlined not only the multidimensional nature of the concept but also the fact that its antecedents, especially organisational ones, could influence ACAP in different ways depending on which component is being analysed (Vega-Jurado et al, 2008).

However, there are two important concerns that can be raised with Zahra and George's work. The first is: "how can a company acquire new external knowledge if it is not able to recognise its value"? In other words, is either acquisition or value recognition the first component of ACAP? For example, some authors (Cohen and Levinthal, 1990; Lane et al., 2006; Todorova and Durisin, 2007) believed that the *value recognition* component was the first dimension of ACAP while others (Zahra and George, 2002; Jansen et al., 2005) considered it to be *acquisition*. Being unable to recognise the value of new external knowledge though (i.e., due to cognitive or capability

limitations) will prevent knowledge acquisition (Todorova and Durisin, 2007). As Todorova and Durisin claimed:

“In sum, the ability to learn—that is, to absorb external knowledge—depends to a great extent on the ability to value the new external knowledge” (Todorova and Durisin, 2007: 777).

According to Zahra and George, acquisition refers to a

“firm’s capability to identify and acquire externally generated knowledge that is critical to its operations” (Zahra and George, 2002: 189).

Therefore, it can be argued that the importance of the *value recognition* component was underestimated or implied vaguely in Zahra and George’s definition of the *acquisition* component.

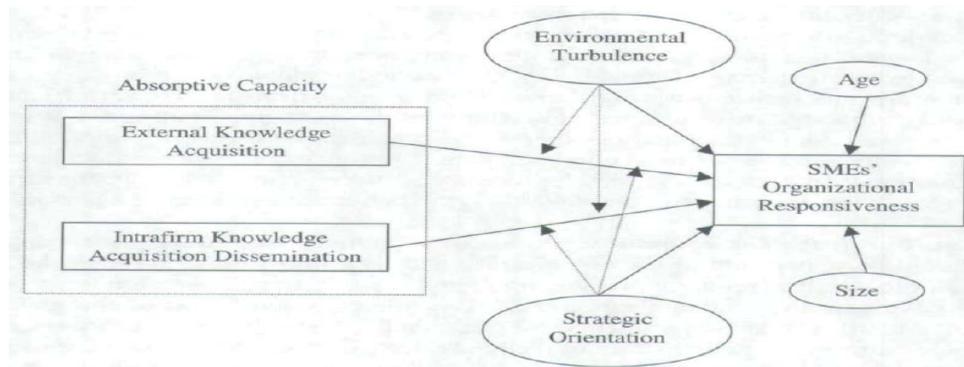
The second question is: “can a firm combine its existing knowledge with the newly acquired knowledge without necessarily analyse, process, interpret and understand it”? In other words, does RACAP always follow PACAP if transformation is not a consequent but an alternative process to assimilation? For example, Todorova and Durisin suggested that transformation was not a consequent but an alternative process to assimilation and firms transformed their knowledge structures when knowledge could not be assimilated. Similarly, Beckett (2008) mentioned that the stages of assimilation and transformation are intertwined and become competent. Therefore, questioning the sequential path of ACAP’s dimensions jeopardises the overall conceptual continuation between PACAP and RACAP.

Following Zahra and George’s contributions, Liao et al. (2003) empirically examined the relationship between small and medium size enterprises’ (SMEs’) ACAP and organisational responsiveness/actions, by validating two different dimensions of ACAP: external knowledge acquisition and intra-firm knowledge dissemination. Their results demonstrated that the responsiveness of companies increased if: (1) they were able to acquire external knowledge and disseminate that knowledge within the firm, (2) they had a well-developed external knowledge acquisition capability and were strategically prepared to search and evaluate new opportunities, and

(3) they faced a turbulent environment and had a well-developed internal knowledge dissemination capability. Therefore, the findings of Liao et al. indicated a dynamic interaction among ACAP, environment and business strategy (see Figure 6) in SMEs.

Figure 6: ACAP and Organisational Responsiveness

(Source: Liao, Welsch and Stoica, 2003: 68)

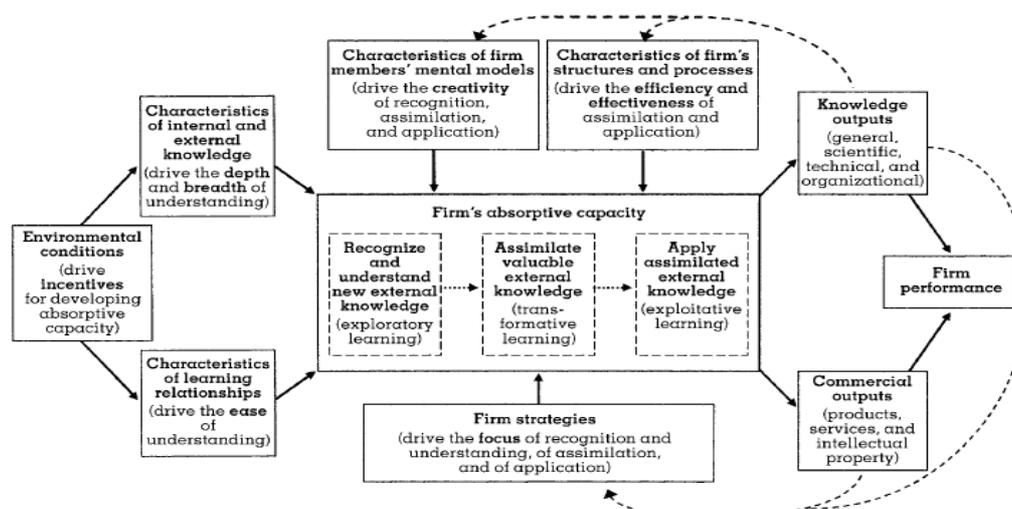


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Jansen, Van Den Bosch and Volberda (2005) drew attention to the antecedents to ACAP. They examined empirically the links between organisational mechanisms as common features of combinative capabilities and dimensions of ACAP. Their study, which was based on the initial work of Van Den Bosch and Volberda (see Figure 4 by Van Den Bosch, Volberda and De Boer, 1999), focused on three types of combinative capabilities. These were: (1) coordination capabilities, (2) system capabilities, and (3) socialisation capabilities. This study advanced research through examining at a unit level the links between specific organisational mechanisms as common features of combinative capabilities and dimensions of ACAP. Also, it empirically justified the distinct nature of ACAP dimensions (i.e., acquisition, assimilation, transformation, exploitation) and was the only empirical work that examined associations between organisational antecedents to ACAP and ACAP dimensions (Vega-Jurado et al., 2008). However, their research was conducted in one organisation and in one industry; more antecedents could have been included and more organisations and contexts needed to be examined in order to allow the generalisation of their results (Vega-Jurado et al., 2008).

Lane et al. (2006) reviewed the literature on ACAP and proposed an enriched model on its processes, antecedents, and outcomes (see Figure 7). They examined the origin of the ACAP theory and reviewed papers, following Cohen and Levinthal's work, mentioning that ACAP had been reified and separated from the basic and initial premises that formed its creation. They also highlighted some of ACAP's conceptual inconsistencies and commonalities that were based on amended, different or limited assumptions. These were: (1) the exclusive relation of ACAP with RandD-related contexts and measures despite its implicit socio-cognitive processes, (2) the development of ACAP as a typical response to valuable external knowledge, (3) the conceptualisation of ACAP as relevant prior knowledge, (4) the scarcity of a firm's knowledge as determinant of competitive advantage, and (5) the fact that ACAP resided in the firm alone. Therefore, Lane et al. redefined ACAP from a learning process perspective (e.g., three sequential steps) as a firm's ability to utilise externally held knowledge by: (1) *recognising and understanding its value* through exploratory learning, (2) *assimilating* through transformative learning, and (3) *using* the assimilated knowledge through exploitative learning to create new knowledge and commercial outputs.

Figure 7: A Process Model of ACAP, its Antecedents, and its Outcomes
(Source: Lane, Koka and Pathak, 2006: 856)

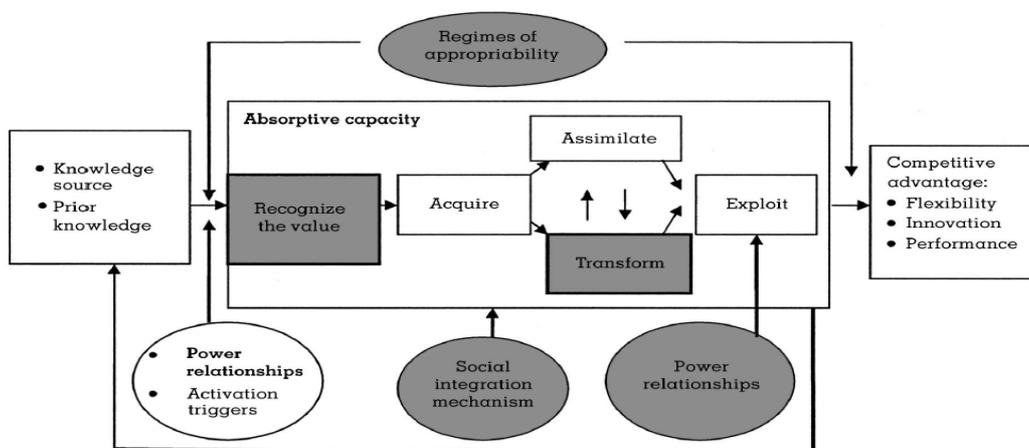


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The review of Lane et al. emphasised again the multidimensional nature of the construct and addressed various *antecedents* to ACAP such as environmental conditions or internal and external knowledge characteristics and *outcomes* of ACAP such as firm performance or commercial and knowledge outputs. It was rather important because it disaggregated a number of implicit assumptions behind the ACAP concept and offered a new research direction from learning and process-oriented perspectives.

A learning perspective was also taken by another interesting and reconceptualised model of ACAP that came from Todorova and Durisin (2007) who changed the focus of attention on both, the dimensions of ACAP and their inter-relationship (see Figure 8). Todorova and Durisin critically examined Zahra and George's model, claiming that it was mainly based on Cohen and Levinthal's seminal work, and presented a model of their own. More specifically, the authors reintroduced the original first component of Cohen and Levinthal's conceptualisation (i.e., *recognising the value*) and they considered this component to be one step before acquisition. Todorova and Durisin claimed that Zahra and George's knowledge transformation is not a step after knowledge assimilation or does not necessarily occur only if assimilation has taken place but instead, it represents an alternative process to assimilation.

Figure 8: A Refined Model of ACAP
(Source: Todorova and Durisin, 2007: 776)



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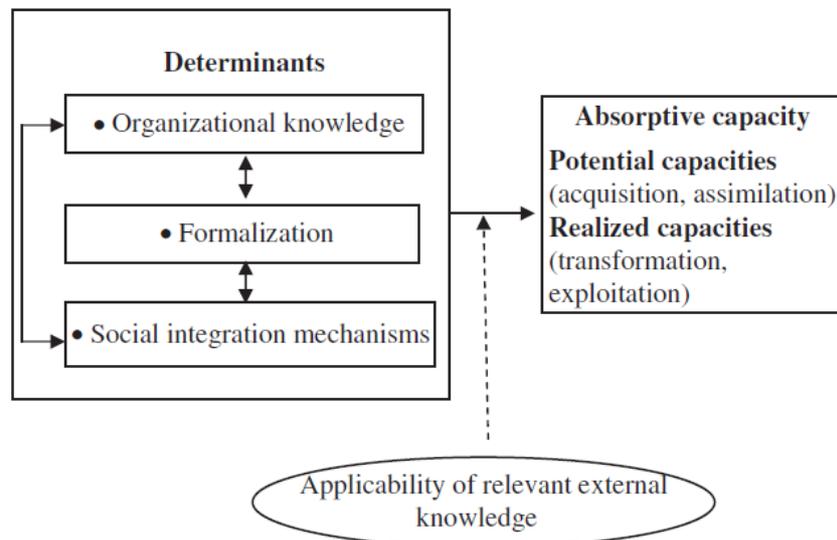
Todorova and Durisin based their argument on cognitive theory and Piaget (1952) viewing assimilation and accommodation through transformation as alternative operative learning principles in which their application was determined by the type of external knowledge. According to Todorova and Durisin, the neat distinction between PACAP and RACAP did not hold any more. In my opinion, their work was extremely important and comprehensive because it combined the learning, cognitive and process aspects of ACAP, changing in that way the assumptions around Zahra and George's four dimensions and those concerning the two subsets of ACAP. However, their conceptual assumptions were not empirically tested and their model was actually a combination of Cohen and Levinthal's and Zahra and George's frameworks.

Vega-Jurado et al. (2008) enhanced the concept of ACAP by turning the research attention to the effect of external knowledge. The authors compared Van den Bosch et al.'s conceptualisation and Zahra and George's model and observed that even Zahra and George did not address organisational mechanisms as antecedents to ACAP. As they claimed, the ACAP concept lacked a widely accepted measure and this had created difficulties in comparing the results obtained regarding its determinants, components, and consequences. According to Vega-Jurado et al., there were variations on the capacities needed by a company to absorb external knowledge depending on the nature of the knowledge to be absorbed. Therefore, they decided to explore the links between the antecedents to and the components of ACAP at firm level and to operationalise their model through an empirical examination of these components.

With their revised model (see Figure 9), they attempted to analyse the antecedents to ACAP in organisations and they suggested that ACAP was determined not only by research and development activities but also by a set of internal factors that they categorised as: organisational knowledge (i.e., firms' skills, knowledge and experience), formalisation (i.e., extent to which behaviours are determined by formal rules), and social integration mechanisms (i.e., practices that enable information sharing).

Figure 9: ACAP Model

(Source: Vega-Jurado, Gutiérrez-Gracia and Fernández-de-Lucio, 2008: 395)



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Vega-Jurado et al. also believed that ACAP not only had different components but also different ‘shades’ depending on the applicability of the external knowledge being absorbed. However, applicability is an attribute among a number of other traits that could potentially characterise knowledge. Other, for example, characteristics of knowledge can be its *complexity* (Hansen, 1999; Todorova and Durisin, 2007) or *its source* (Zahra and George, 2002). Vega-Jurado et al. though, defined their newly added concept of knowledge applicability as the degree to which the external knowledge targets an organisation’s specific needs and they connected the construct with Cohen and Levinthal’s (1989) “*ease of learning*” concept. However, knowledge can be applicable without being easy to be learned. Similarly, knowledge might not be applicable although it is easy to be learned.

In summary, the above mentioned studies were chosen as the main theoretical basis of this paper because of their extensive citations as well as their definitional clarity in operationalising the components of ACAP and, in some cases, in referring to its multidimensional diastases. Table 5 presents the dimensions and the ideas that were drawn by each of these studies

under an organisation unit of analysis. However, my reading of these works leads me to agree with Vega-Jurado et al. (2008) that there is still a lack of widely accepted measures and this phenomenon creates difficulties in comparing results obtained on determinants, components, consequences as well as contingent factors that have a strong impact on ACAP. Although the concept of ACAP has received much attention by researchers the last two decades merely based on Cohen and Levinthal's work there is still much conceptual confusion and limited coherent empirical evidence. Therefore, the next section will address in detail the issues of ACAP research up to date and the underlying assumptions.

Table 5: ACAP Research

Study/Citations	Title	Unit of Analysis	Theoretical Basis	Sampling Method	Modelling	Measurement	Outcomes
Cohen & Levinthal, 1990 / 22:213	Absorptive Capacity: A New Perspective on Learning and Innovation	Organizational	Learning and economic theory	1,719 units of 318 US firms in 151 lines of manufacturing business	ACAP predicts innovation	R & D intensity and responsiveness to learning incentives in terms of relevance, ease and appropriability	Learning increase R & D intensity. Ease of learning effects the effect of spillovers.
Szulanski, 1996 / 6:194	Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm	Organizational	Organizational Learning and Strategic Management	271 respondents comment of 122 transmitters or 38 practices/technologies	ACAP predicts intra-firm's best practices transfer	9 measures of firm's ability to value, assimilate and apply new technology	Lack of ACAP of the recipient is a major source of best practices' imitating difficulties between firms (stickiness)
Lane & Lubatkin, 1998 / 3:846	Relative absorptive capacity and inter-organizational learning	Inter-organizational	Organizational Learning and Resource Based Theory	69 R & D non-equity learning alliances between 60 firms from which 48 pharmaceutical and 12 biotechnology	ACAP predicts organizational learning in an alliance dyad	2 measures for valuing new knowledge, 3 for assimilating and 2 for commercializing.	Importance of relative similarities between two firms knowledge and knowledge processing systems
Cohen & Levinthal, 1989 / 6:730	Innovation and Learning: The Two Faces of R&D	Organizational	Learning and economic theory	1,719 units of 318 US firms in 151 lines of manufacturing business	R & D effort predicts ACAP. Base of learning predicts technological opportunities spillovers and R & D intensity	Percentage of business company financed business unit R & D expenditures for a period of 3 years.	R & D creates capacity to assimilate and exploit new knowledge. The ease of learning and the character of extramural knowledge affects investment in ACAP and R&D.

Table 5: ACAP Research (continued)

Study / Citations	Title	Unit of Analysis	Theoretical Basis	Sampling Method	Modeling	Measurement	Outcomes
Cohen & Levinthal, 1994 / 580	Fortune Favors the Prepared Firm	Organizational	Learning and economic theory	N/A	Stylized model on firms' decisions to invest in their ACAPs. Two-period model (path dependence) of investment in ACAP under uncertainty. Impact of entry on an incumbent's investment behavior	ACAP as a byproduct of R&D	Market competition in the form of prospective entry may lead to an underinvestment in ACAP when it is not terribly cumulative or where updating is its primary function. Investment in ACAP is based on explicit, rational calculations from firms.
Van Den Bosch, Volberda & De Boer, 1999 /1.084	Co-evolution of Firm Absorptive Capacity and Knowledge Environment: Organizational Forms and Combinative Capabilities	Organizational	Firm-environment coevolution	Longitudinal case studies of two Dutch publishing firms	ACAP related to micro and macro coevolutionary effects	Organization forms and combinative capabilities as determinants of ACAP	Knowledge environment coevolves with the emergence of organization forms and combinative capabilities that are suitable for absorbing knowledge
Zahra & George, 2002 / 4.507	Absorptive Capacity: A Review, Reconceptualization, And Extension	Organizational	Dynamic Capabilities	N/A	Re-conceptualized model of ACAP with realized and potential capacities	Efficiency factor	Dynamic creation and sustaining of competitive advantage depends on their potential and realized ACAPs.

Table 5: ACAP Research (continued)

Study / Citations	Title	Unit of Analysis	Theoretical Basis	Sampling Method	Modelling	Measurement	Outcomes
Liao, Weisich & Stoica, 2003 / 238	Organizational Absorptive Capacity and Responsiveness: An Empirical Investigation of Growth-Oriented SMEs	Organizational	Organizational Responsiveness	1000 SMEs from various sectors from Washington State. 284 responded.	ACAP predicts organizational responsiveness	ACAP as multi-item construct formed by external knowledge acquisition (12 items), and internal knowledge dissemination	SMEs' ACAP (acquisition and dissemination of external knowledge) increases responsiveness under proactive strategy and turbulent environment
Jansen, Van Den Bosch & Volberda, 2005 / 802	Managing Potential And Realized Absorptive Capacity: How Do Organizational Antecedents Matter?	Unit	Combinative Capabilities	One large European multi-unit financial services firm	Three types of combinative capabilities (coordination, systems, and socialization) predict potential or realized ACAP	Acquisition (6 items), assimilation (3 items), transformation (6 items), exploitation (6 items)	Organizational mechanisms associated with coordination capabilities primarily enhance a unit's potential ACAP while mechanisms associated with socialization capabilities increase a unit's realized ACAP.
Lane, Koka & Pathak, 2006 / 989	The Reification of Absorptive Capacity: A Critical Review And Rejuvenation of the Construct	Organizational	Reification and Learning	N/A	ACAP as exploratory, transformative and exploitative learning	N/A	ACAP has been used in a reified manner in the literature.

Table 5: ACAP Research (continued)

Study / Citations	Title	Unit of Analysis	Theoretical Basis	Sampling Method	Modelling	Measurement	Outcomes
Todorova & Durisin, 2007 / 573	Absorptive Capacity: Valuing a Reconceptualization	Organizational	Cognitive theory, Learning	N/A	ACAP as value recognition, acquisition, assimilation or transformation, and exploitation of new external knowledge	N/A	Reintroduction of recognizing the value dimension. Alternative understanding of transformation and clarification of potential ACAP. Impact of socialization mechanisms and the role of power relationships including feedback loops
Vega-Jurado, Gutiérrez-Gracia & Fernández-de-Lucio, 2008 / 69	Analyzing the determinants of firm's absorptive capacity: beyond R&D	Organizational	Knowledge attributes	84 SMEs located on two industrial estates in Valencia (Spain)	The nature of knowledge and its applicability predicts ACAP	ACAP as a firm's use of different mechanism to acquire external knowledge and the firm's use of external agents as knowledge sources to develop innovations	ACAP is determined not only by R & D, but also by a set of internal factors, (organizational knowledge, formalization, and social integration mechanisms)

3.2.1 Assumptions and Issues Underlying ACAP Theory

After introducing ACAP, it is very important to highlight the theory's key assumptions and issues and clarify how these are addressed in the present thesis. To begin with, the ACAP theory assesses the firms' capability to find, integrate and apply valuable external knowledge that is considered crucial for business success particularly under current globalisation, competition, demand for innovation and time-to-market pressures (Lane et al., 2006). More specifically, a number of researchers have revealed that ACAP affects new product development (Stock et al., 2001), entrepreneurial wealth creation (Deeds, 2001), managerial capability development (Jones and Craven, 2001), inter-organisational learning (Lane and Lubatkin, 1998), performance in international joint ventures (Lane et al., 2001), performance and innovation of business units (Tsai, 2001) or organisations (Cohen and Levinthal, 1990; Lichtenthaler, 2009), intra-organisational and inter-organisational knowledge, technology or best practices transfer (Szulanski, 1996; Gupta and Govindarajan, 2000; Lichtenthaler and Lichtenthaler, 2010), and the firms' competitive advantage and long term survival (Zahra and George, 2002; Lane et al., 2006). However, despite the broad effects of ACAP on different research areas there are some endogenous assumptions and misconceptions behind the construct that will be discussed in this section in order to highlight how this research addresses them.

Starting with the underlying assumptions, recent research has claimed that ACAP has been conceptualised idiosyncratically and inappropriately thus creating concerns about the definition as well as the validity of the construct (Roberts et al., 2012). More specifically, it has been assumed that ACAP (1) depends on prior knowledge, (2) is path dependent, and (3) is variable to the absorptive capacities of individuals. Regarding the dependence of ACAP on prior knowledge, the assumption is that new knowledge can be identified, evaluated, acquired, assimilated and utilised if it is related, at least partially, with prior knowledge (Cohen and Levinthal, 1990; Todorova and Durisin, 2007). Therefore, an important postulation is that prior knowledge permits ACAP in general.

Moving to the path dependent nature of ACAP, it has been assumed that knowledge absorption in one period affects future ACAP, since the initially absorbed knowledge has become prior knowledge for any potential knowledge absorption in the future, and the formation of expectations, since companies will know, through the previously absorbed knowledge, how to be on top of developments. In other words, provided that prior knowledge underlies ACAP in general, then the accumulation of ACAP in one period of time will permit a more efficient knowledge accumulation in the future and this will affect innovative performance within uncertain business environments (Cohen and Levinthal, 1989; 1990). Similarly, ACAP stimulates the formation of expectations because it allows the firm to predict more accurately the nature and commercial potential of technological advances (Cohen and Levinthal, 1990). Therefore, ACAP's cumulateness and expectation formation characterise its path dependent nature.

The dependence of organisational ACAP on individuals' ACAPs was also addressed by Cohen and Levinthal who claimed, however, that it is not just the sum of the employees' absorptive capacities (other organisational aspects can also affect ACAP). Focusing on the communicational structure between the organisation and the external environment as well as between various subunits within the organisation, Cohen and Levinthal highlighted as a distinctive organisational aspect of ACAP the role of the firm's internal mechanisms in fostering communication and relationships among its members. Therefore, the overlap in individuals' knowledge structures and the transfer of knowledge across and within various units in a company are two important components that characterise the ACAP of organisations (Roberts et al., 2012).

Based on the aforementioned assumptions, ACAP has been measured by scholars in different and, quite often, inconsistent ways creating difficulties for researchers to compare prior findings and establish their theoretical and managerial relevance (Flatten et al., 2011). For example, Cohen and Levinthal treated ACAP as a static resource or asset using the proxy of R&D spending to measure it. This static perspective that equated ACAP with the

firm's knowledge base or the level of knowledge the firm possessed at one point of time (this view faces knowledge as an object) was followed by operationalisations and measurements that used "knowledge base proxies" such as R&D intensity, patents and/or investments (e.g., Cohen and Levinthal, 1990; Rocha, 1999; Stock et al., 2001). Other studies went beyond the R&D financial aspects and used different, but still R&D related, proxies (e.g., R&D headcount, activities, education, patents, publications, etc.) (Schmidt, 2009).

Furthermore, the concept of ACAP has also been treated as a process or capability referring to an organisation's ability to learn (Lane et al., 2006). Treating ACAP as a learning ability, two conceptual and measurement approaches have been followed by scholars: (1) as a substantive and/or ordinary capability (2) as a dynamic capability. As a substantive and ordinary capability, ACAP reflected the routines, practices and processes that firms follow in order to absorb external knowledge, therefore, the measures that have been used by various academics (e.g., Szulanski 1996; Lane and Lubatkin, 1998; Lane et al. 2001; Jansen et al., 2005) included competencies, compensation policies, HRM practices, knowledge sharing routines and dominant logic (Roberts et al., 2012). As a dynamic capability ACAP reflected the capacity of a firm to purposefully create, extend, or modify its resource base (Helfat et al., 2007). Therefore, in order for a company to change its resource base it must be able to reconfigure existing substantive capabilities (Roberts et al., 2012). A number of these studies handled ACAP with one-dimensional questionnaires that measured the construct either as a whole or in parts, using different theoretical backgrounds and as either an independent or a dependent variable (Schmidt, 2009).

Another issue related to the ACAP theory was the level of analysis and measurement (i.e., individual, unit, organisational, etc.). Although organisational level studies dominate IS research, most of them use ACAP as a minor or background citation without explicit conceptualisations while others conceptualise ACAP as a capability (Roberts et al., 2012).

Furthermore, prior knowledge is a very important and necessary condition but not a sufficient one and the conceptualisation and measurement of ACAP as a stock of relevant prior knowledge fails to consider the processes that underlie the absorption of new knowledge (Lane et al., 2006). Also, ACAP has to be empirically explored in non-R&D contexts with metrics that capture each dimension of the ACAP process in a way appropriate for that context (Lane et al., 2006).

Therefore, for this thesis to address the definitional, operationalisation and measurement matters underlying the complex construct of ACAP the following assumptions and actions were applied: (1) it did not follow a static perspective of ACAP viewing it as a knowledge base or the level of knowledge that the firm possesses at a specific point of time and did not use knowledge base or R&D proxies to measure it, (2) it considered prior knowledge and experience as an important but not sufficient condition for the development of ACAP for e-HRM and social media, (3) it faced ACAP as a dynamic capability that resides at the operational level within the firms, (4) it focused on the actual processes that underlie the ACAP, of a large sample of organisations, specifically for e-HRM and social media knowledge or beyond the R&D context, (5) it captured ACAP as a whole without focusing only on specific dimensions, (6) it analysed ACAP at an organisational level, as both an independent and dependent variable (see Chapter 7), within the specific HR setting and context in Greece (see Chapter 4).

In summary, recognising the norms as well as the issues that underlie the complex and multidimensional concept of ACAP allows the formation of a clear research strategy that is based on specific operational definitions, measurements and assumptions. The aim of this thesis is to draw on the notion of ACAP and explore the adoption, diffusion and exploitation of e-HRM and social media and their effect on the HRMIO among organisations in Greece. Therefore, the next section describes how the ACAP of organisations which is formed by capabilities and processes at an operational level has been applied in the HRM context.

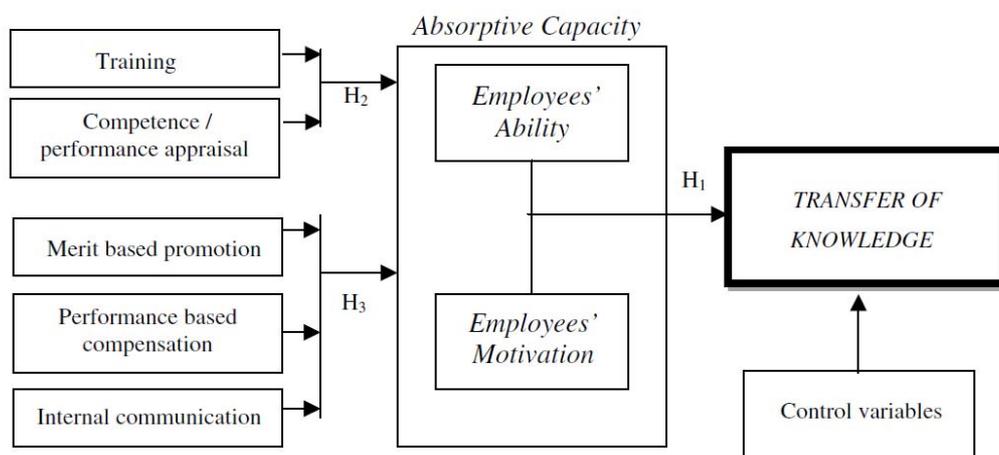
3.3 ACAP Theory and HRM

It is surprising that the ACAP theory has been rarely used by academics to explain the organisations' capacity to innovate and even more rarely to explore the HRM innovations that derive from the adoption, diffusion and exploitation of HR technology. Although Minbaeva et al., 2003; Martin et al., 2003; Martin and Reddington, 2009; Martin and Reddington, 2010 and Weeks and Thomason, 2011 have attempted to do so, their use of ACAP has some important shortcomings, which provides the theoretical gap that I seek to address in this thesis.

To begin with, Minbaeva et al. (2003) investigated the relationship between HRM practices, ACAP, and knowledge transfer. More specifically, the authors examined ACAP as a factor that can support or inhibit the transfer of knowledge between MNC units of three countries and suggested that ACAP's conceptualisation should include *ability* and *motivation*. Therefore, by theorising ACAP as the employees' competency and motivation the authors identified the HRM practices (e.g., training, performance appraisal, etc.) that affected the development of the organisation's ACAP based on the assumption that these practices influence the employees' ability and motivation, thus, the level of knowledge transfer increases (see Figure 10).

Figure 10: Conceptual Model

(Source: Minbaeva, Pedersen, Bjorkman, Hyeon Jeong and Fey, 2003:591)

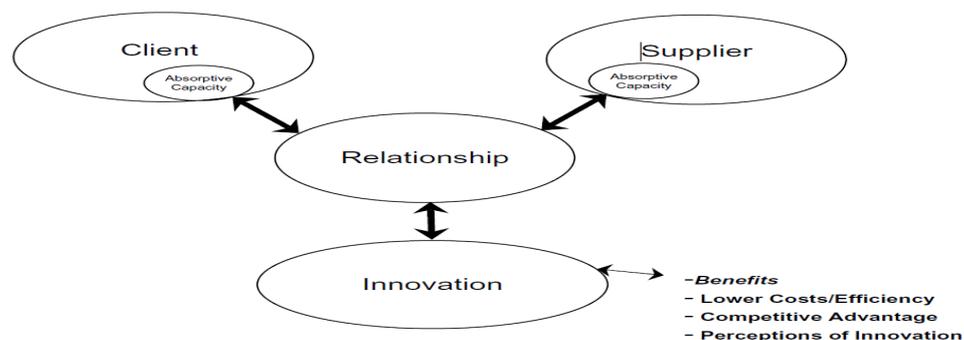


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Although Minbaeva et al. (2003) provided some evidence that the extensive use of HRM practices contributes to MNC knowledge transfer through investments that increase the employees' ability and motivation, it was not clear why the employees' ability and motivation constituted the firm's ACAP (e.g., construct validity) or why PACAP was expected to have a high content of employees ability and RACAP a high content of employees motivation. In other words, why *ability* mainly deals more with PACAP and *motivation* with RACAP (i.e., authors' argument based on Zahra and George). For example, the ability to recognise and evaluate external knowledge (PACAP) does not necessarily mean that companies, units or employees have the motivation to engage themselves in this process. Additionally, having the motivation to utilise absorbed knowledge (RACAP) does not necessarily mean that employees have the ability to do so.

Weeks and Thomason (2011) also explored the relationship between HRM practices, ACAP and innovation in outsourcing relationships within a knowledge transfer framework. The authors aimed to discover the range of factors such as trust, governance, and organisational structures that influence innovation within outsourcing relationships between *client* (i.e., retained IT staff of the company that outsources) and *supplier* (i.e., account teams of IT vendor that provide technology to their clients) and provide evidence of HRM practices in these relationships that support the increase of ACAP and thus, enhance innovation outcomes (see Figure 11) from IT outsourcing activities.

Figure 11: Initial Research Framework
(Source: Weeks and Thomason, 2011: 308)

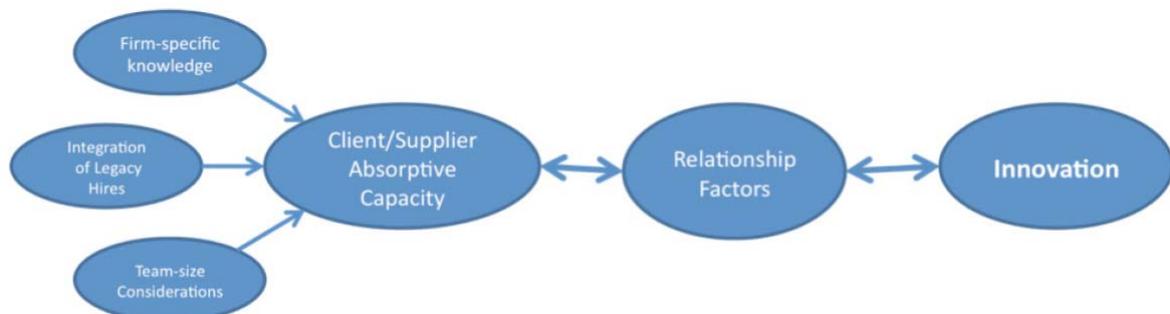


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As it can be seen in their model, ACAP was embodied within the human capital of both, the client and the supplier firms. Based on this assumption, the authors found that three main HRM practices can develop ACAP to support innovation activities from the relationship of these two firms. These were: the retention of employees in the client firm which had firm-specific knowledge and not just technical knowledge; the minimisation of legacy hiring practices that suppliers followed from their clients, since process knowledge occasionally becomes dated; the maintenance of an optimal work group size for relationship management teams on both firms. Therefore, the authors summarised their results from four case studied multinational organisations in their inductively created final framework (see Figure 12).

Figure 12: HRM influence on ACAP in Outsourcing Relationships

(Source: Weeks and Thomason, 2011: 328)



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An important finding of their study was that other relationship factors can filter the effects of ACAP while successful innovation attempts create new knowledge from which companies derive ACAP that can be used in future efforts. The authors also assessed ACAP through interviews with key practitioners instead of using survey and mechanistic proxy measures, they provided evidence on the necessity of business process knowledge and on the optimal size of project teams in outsourcing projects and linked ACAP with HRM processes. However, their research implied a causal and direct relationship between HRM practices, ACAP and innovation without much support from their qualitative results in some of their cases (i.e., moderate

innovation outcome despite the minimal legacy hiring) and without specifying what constitutes the ACAP of client and supplier firms.

Within a similar perspective, Vinding (2006) examined the link between HRM practices, the development of ACAP and innovative performance focusing on the ways employees experience and education level affected the firms' innovative outcomes. The author analysed the data from 1,544 companies in Denmark's manufacturing and service industries using an ordered probit model and found that the sharing presence of highly educated employees, the application of HRM practices and the development of closer relationships with vertically related actors and knowledge institutions were positively correlated with the firms' ability to innovate and negatively correlated with the degree of innovative imitation.

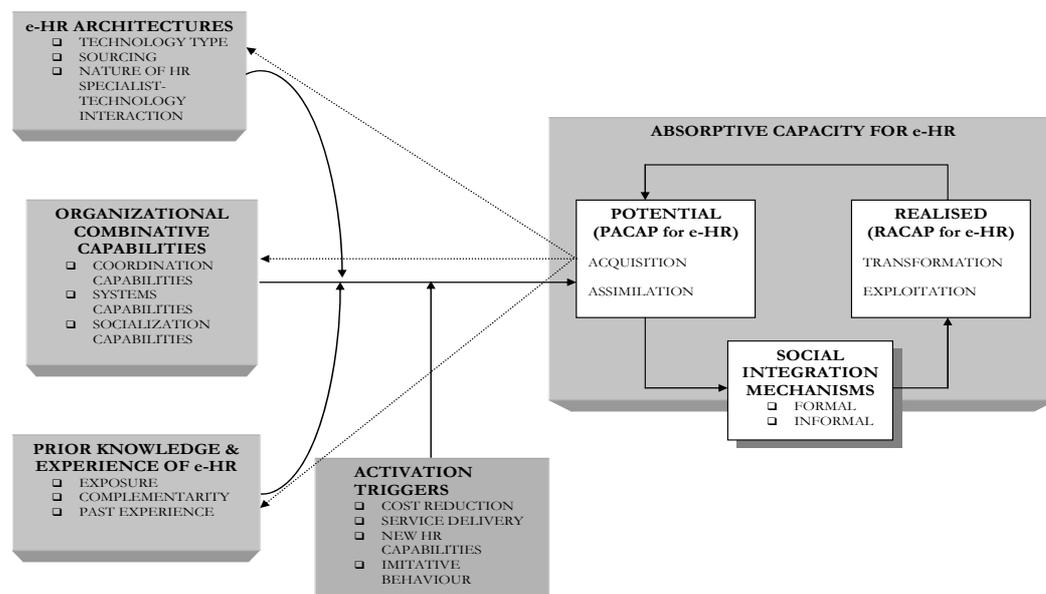
Finally, ACAP scholars such as Lane and Lubatkin (1998) and Jansen et al. (2005) also linked indirectly different HRM practices to the development of organisational ACAP. For example, Lane and Lubatkin found that compensation practices were positively related to inter-organisational learning while Jansen et al. found that job rotation, participation in decision-making, and socialisation tactics affected ACAP. However, these academics examined factors that affected organisational ACAP and did not apply ACAP in the HRM context. For example, Jansen et al. implied a connecting link between ACAP and HRM practices (as it can be seen in the questionnaire they used) but these authors simply aimed to test and measure ACAP and its antecedents using HRM related proxies. In other words, their study was purely based on ACAP and not ACAP and HRM. Therefore, based on the above mentioned literature, ACAP theory has been used in the HRM context either for connecting the effect of different HRM practices to the development of organisational ACAP or as a way to measure the ACAP construct.

Continuing with the application of the ACAP theory to the electronic aspects of HRM, Martin and Reddington (2009) draw on the ACAP concept in order to explain some of the problems that organisations face in moving from face-to-face HRM practices to a technology-mediated, e-HRM model. As the

authors claimed, there is not much evidence in the literature regarding both the application of socio-technical systems thinking and information technology architectures in the current e-HRM and the application of innovation models to e-HRM. Therefore, the authors applied the notion of ACAP to e-HRM in order to explore the reasons some organisations were better able to continuously innovate in e-HRM (see Figure 13).

Figure 13: A Dynamic Model of ACAP for E-HR in Organisations

(Source: Martin and Reddington, 2009: 520)



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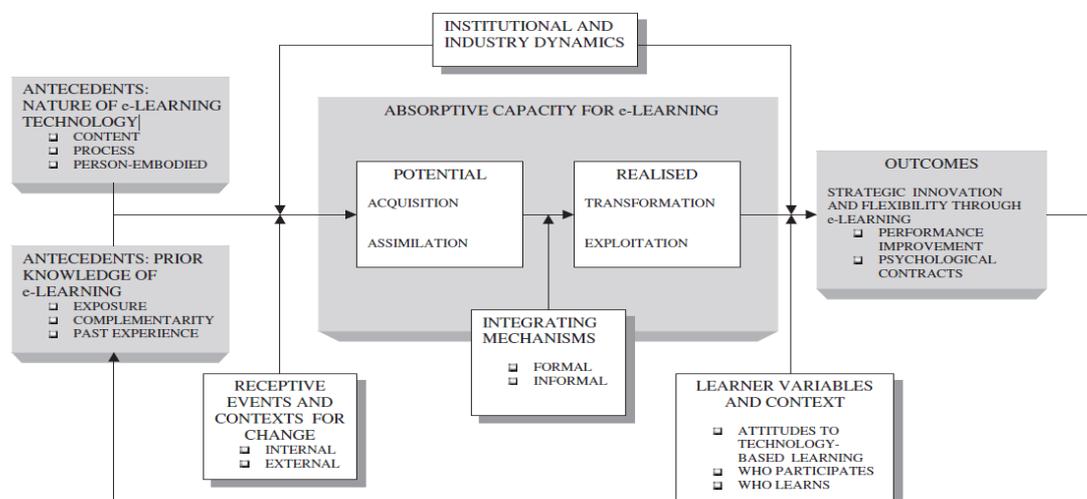
In their model, Martin and Reddington combined research findings from both literatures, ICT and ACAP and reworked the dynamic interpretation of ACAP to examine the factors likely to influence HR departments' innovative capacities for e-HRM. Their work, however, was only based on Zahra and George's (2002) conceptualisation following Shrivastava and Shaw's (2003) insights as well as Martin et al.'s (2003) earlier work on e-learning. More specifically, Martin and Reddington used Zahra and George's categorisation between PACAP and RACAP as well as the "social integration mechanisms" and assumed that formal and informal integration methods were needed to lower the resistance towards e-HRM change by certain groups of HR people that may lack specific competencies (i.e., ICT or project management) and to increase the efficiency of e-HRM knowledge sharing and exploitation. In

addition, their model included important antecedents to ACAP for e-HRM such as organisational combinative capabilities, e-HRM architectures, and prior knowledge and experience.

Martin et al. (2003) draw also on Zahra and George's work and focused on the organisations' capacity to adopt, diffuse and exploit e-learning (see Figure 14). The authors added to their conceptual framework a range of exogenous variables to describe the industrial and the institutional dynamics of competition, some barriers to change that affected the relationship between transformation and exploitation, key strategic outcomes of improved flexibility and innovation at work that could potentially derive from the capacity of organisations to absorb e-learning, and the relationship between acquisition, assimilation and a firm's prior knowledge of e-learning or stated differently, the relationship between specific antecedents to ACAP and ACAP's dimensions.

Figure 14: A Dynamic Model of ACAP for E-HR in Organisations

(Source: Martin, Massy and Clarke, 2003: 230)



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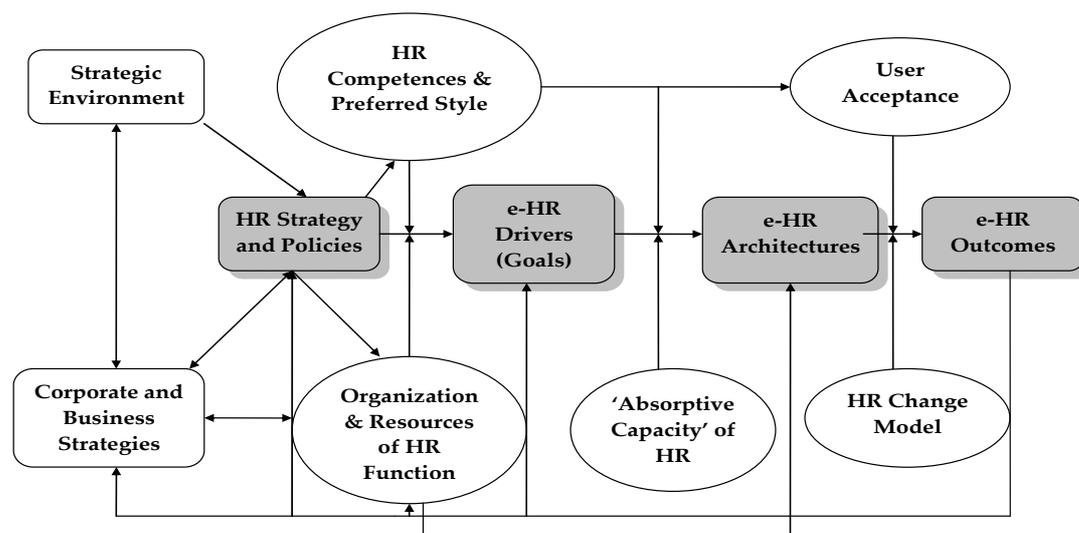
Martin et al.'s and Martin and Reddington's models represent two early academic approaches in applying the ACAP theory to the electronic aspects (e-aspects) of HRM context, or to the e-HRM in general. In addition, both models transferred important operational classifications of ACAP's antecedents, dimensions, and outcomes to the HRM context and

specifically, to e-HRM related features. However, Martin and Reddington's and Martin et al.'s models inherited some debatable elements from Zahra and George's work. For example, they did not include the value recognition as the first dimension of ACAP and assumed a sequential relationship between assimilation and transformation or PACAP and RACAP in general. In addition, the propositions for e-learning or e-HRM absorption were not empirically tested while a conceptual parallelism between the concepts of "adoption, diffusion and exploitation" and that of "ACAP" was implied without clarifying its theoretical linkages (see Section 3.5 for further details).

Finally, the last academic work that connected e-HRM and ACAP was again by Martin and Reddington (2010) who tried to theorise the links between e-HRM and strategic HRM. Their model actually focused on the relationship between HR strategy, e-HRM goals and architectures, and positive or negative e-HRM outcomes. However, although this paper was based on these authors' previous work, ACAP was mainly examined as a moderator between e-HRM goals and e-HRM architectures (see Figure 15). Therefore, although ACAP was clearly addressed in this framework, it was not actually examined in their empirical study that partially confirmed the validity of their model.

Figure 15: A Model of E-HR

(Source: Martin and Reddington, 2010: 1555)



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In summary, although to my knowledge there is not enough literature to connect ACAP and HRM in general, several academic works have examined the link between HRM practices, ACAP and innovation. Similarly, although there is not enough literature that applies ACAP theory to the electronic aspects of HRM, some scholars have already tried, by drawing on ACAP theory, to explain some of the problems that organisations face in moving to a technology-mediated e-HRM model. However, it seems that there is an important gap in the literature because there is no academic work that explores empirically the HRMIO that derive from the adoption, diffusion and exploitation of e-HRM and social media technology through the operationalisation and measurement of the ACAP construct. Therefore, this thesis aims to address the aforementioned gap starting with the analyses of the ACAP's dimensions in the HRM context.

3.4 The Dimensions of ACAP for E-HRM and Social Media

Schmidt (2010) claimed that defining ACAP at an organisational level is not very difficult and simply refers to the firm's ability to deal with external knowledge. In this paper, ACAP is also defined as the firm's ability to deal with external e-HRM and social media knowledge.

As it was mentioned in Section 3.2, the multidimensionality of ACAP has created some important research debates concerning the first component of the ACAP theory as well as the exact number of the components that shape it. Regarding the former, various academics considered that the first component of ACAP is the "*value recognition*" of external knowledge (Cohen and Levinthal, 1990; Todorova and Durisin, 2007; Lane et al., 2006) while others, the *acquisition* (e.g., Zahra and George, 2002; Martin and Reddington, 2009). Regarding the latter, the number of components described by various academics is *two* (Liao et al., 2003), *three* (Cohen and Levinthal, 1989, 1990; Lane and Lubatkin, 1998; Van Den Bosch et al., 2003), *four* (Zahra and George, 2002; Martin and Reddington, 2009) which are *grouped in two subsets* (i.e., PACAP that includes acquisition and assimilation and RACAP that includes transformation and exploitation) or even *five* (Todorova and Durisin, 2007).

One of my core arguments in this thesis is that ACAP is a dynamic capability which includes the absorption processes at an operational level and adopts Todorova and Durisin's (2007) *five* dimensions of ACAP for e-HRM and social media. These are: (1) value recognition, (2) acquisition, (3) assimilation or, (4) transformation, and (5) exploitation. Although the reasons for adopting these authors' dimensions are analysed in the following sections, they can be summarised under the following assumptions: (1) companies will not acquire new external knowledge on e-HRM and social media technologies without prior recognition of their value, thus, value recognition is the first dimension of ACAP and acquisition the second, (2) assimilation or transformation of e-HRM and social media are alternative processes that are variable to the firms' prior related knowledge and experience in ICT, and (3) exploitation follows assimilation or transformation as the last process of absorption.

3.4.1 Recognising the Value of E-HRM and Social Media

Todorova and Durisin (2007) in agreement with Cohen and Levinthal (1990) believed that *value recognition* is the first dimension of ACAP. These authors claimed that being able to identify or recognise the value of new external knowledge is an important component of ACAP because the valuing is biased and not automatic while it needs to be fostered in order to allow the beginning of absorption. Moreover, the barriers to being able to judge the potential of the new knowledge can stem not only from the cognitive and capability limitations on the processes of searching and formatting expectations but also from the ways key stakeholders use the values in the form of evaluation criteria (Todorova and Durisin, 2007).

Following the above pattern of thought, organisations need to be able to recognise the value of e-HRM and social media. This value practically captures all the premises and/or expected positive outcomes (mentioned in Chapter 2) that may lead an organisation to adopt these technologies. For example, people that work in the HR or IT departments as well as any manager or employee who has prior experience in e-HRM and/or social media can foster the process of searching and formatting the expectations

of key stakeholders and decision makers in an organisation. However, if for any reason (e.g., incapability, disinterest or ignorance) there is no recognition that e-HRM and social media can be beneficial and valuable, then, in agreement with Todorava and Durisin, absorption is less likely to begin. Therefore, I consider the dimension of “value recognition” to be the first step in developing a new framework of organisational ACAP for e-HRM and social media.

3.4.2 Acquisition of E-HRM and Social Media

Martin and Reddington (2009) defined *acquisition* as the dynamic capacity of HR departments to identify and acquire external knowledge of e-HRM, referring mainly to the speed, intensity and direction of searching and collecting knowledge about e-HRM. This means that the authors considered acquisition to be the first component of ACAP and indirectly connected knowledge identification with knowledge acquisition. However, if the ability to acquire and then absorb external knowledge depends on the ability to identify or recognise the value of this knowledge then speedy, intensive and focused search and/or knowledge collection may never happen because the potential benefits of the new external knowledge have not been seen or realised.

From a practical standpoint, Martin and Reddington, based on Jansen et al., considered the frequency of interactions between HR departments and potential sources of e-HRM knowledge (e.g., technology vendors, consultants, headquarters, etc.) as a good way to operationalise acquisition. Martin and Reddington (2009) also argued that the assignment of a budget and people resources for e-HRM developments was also a good way to measure acquisition. However, within a tough economic environment, I propose that companies would be less likely to spend money on searching for knowledge that has not been previously identified as valuable and beneficial.

In other words, companies will not budget additional staff resources and will not pay for travelling, consultant and/or training expenses just to form an

idea on whether it would be useful to acquire, or not, e-HRM technologies. On the contrary, I further propose that they will most probably spend money only if they have already decided to acquire these technologies as part of their project implementation plan. Therefore, although this thesis adopts Martin and Reddington's operationalisation of acquisition because of its strong theoretical and practical rationale, it considers the reliability of this operationalisation justifiable only if acquisition is a second step in the absorption process.

3.4.3 Assimilation or Transformation of E-HRM and Social Media

Drawing on cognitive theory and research on learning, Todorova and Durisin (2007) considered organisational-level processes to be more complex than individual-level learning and suggested that *transformation* is not a consequent but an alternative process to *assimilation* and firms transform their knowledge structures when knowledge cannot be assimilated.

“Assimilation and accommodation through transformation are the alternative operative principles of learning that applied according to the type of external knowledge. Both learning processes involve some degree of change of the new knowledge and its combination with the existing knowledge” (Todorova and Durisin, 2007: 778).

More specifically, according to Todorova and Durisin, when the new idea fits the existing cognitive schemas well, there is a slight alteration of the new idea to improve the fit and be incorporated into the existing structures of cognition. These structures do not change, and the knowledge is assimilated. However, when new situations or ideas cannot be realistically altered to fit the existing knowledge structures then, not assimilation, but accommodation through transformation as an alternative process to assimilation occurs. In this case, the cognitive structures of the individuals themselves must be transformed to adapt to an idea or a situation that they cannot assimilate.

Furthermore, Todorova and Durisin proposed that the pieces of knowledge that have been absorbed by a company can move forward and backward between the processes of assimilation and transformation before they are

successfully incorporated into the organisational knowledge structures and actually be ready for exploitation. From an HR perspective Martin and Reddington (2009) defined *assimilation* as the HR department's overall culture (e.g., routines, social capital or HR employees' professional identities) which formulates the understanding and processing of external e-HRM information and *transformation* as the capability to merge and develop new insights from existing "people oriented" HR knowledge and practices (e.g., face-to-face contact) with the newly-acquired "technology oriented" knowledge and practices (e.g., technology-mediated solutions).

However, my thesis follows Todorova and Durisin's approach in seeing transformation as an alternative process to assimilation. From an HR point of view, this means that the potential e-HRM and social media users will transform their knowledge structure when e-HRM knowledge cannot be assimilated. If e-HRM and social media knowledge does not fit the already existing cognitive schemas of its users, the existing cognitive structure will change/transform to adapt to the new knowledge that cannot be assimilated, thus, transformation will prevail. In other words, if the e-HRM and social media concepts cannot realistically be altered to fit the existing knowledge structures then, not assimilation, but accommodation through transformation as an alternative process to assimilation will occur.

On the other hand, if e-HRM and social media knowledge fits the already existing cognitive schemas of its users, the existing cognitive structure does not change and the knowledge is assimilated. In other words, when the idea of e-HRM and social media fits well the existing cognitive schemas of the users, there will be a slight alteration of the new idea to improve the fit and be incorporated into the existing structures of cognition. The users will not change their structures of cognition and the knowledge will be assimilated leading to the next step of absorption, that of exploitation. Therefore, this thesis views assimilation or transformation as alternative processes that practically highlight the dissemination of the newly available knowledge within the firm.

3.4.4 Exploitation of E-HRM and Social Media

As soon as the knowledge is identified, acquired and disseminated, whether assimilated or transformed, then, it must be exploited and applied in practice in order to generate some benefits for the company. According to Zahra and George,

“Exploitation as an organisational capability is based on the routines that allow firms to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired and transformed knowledge into its operations” (Zahra and George, 2002:190).

Similarly, Martin and Reddington viewed e-HRM exploitation as the HR function’s capacity and routines to use its new, transformed knowledge of technology-mediated HR solutions to refine and expand on existing HR services and/or combine existing and new e-HRM knowledge to produce a transformed HR business model of greater strategic value to the company.

Todorova and Durisin (2007) accepted in their model the distinct concept of exploitation and without providing a more comprehensive clarification, referred only to the lack of definitional clarity on Zahra and George’s PACAP and RACAP conceptualisation. However, Todorova and Durisin mentioned Baker et al.’s (2003) argument that firms might have a strong capability in identifying new knowledge and a weaker capability in exploiting it, and this makes them fail to translate new knowledge into new products and processes. Thus my thesis also adopts exploitation as a distinct dimension of ACAP for e-HRM and social media and refers to the ways that e-HRM and social media users exploit the potentials of these technologies by refining, extending and leveraging existing capacities, practices or routines and then creating new uses, practices, routines, services or products.

Specifying the details of organisational ACAP for e-HRM and social media allows the connection of ACAP dimensions with the concepts of “adoption, diffusion and exploitation”. This process takes place through the lens of the innovation diffusion theory which is a broad framework which deals with the adoption of any technology or innovation. However, the innovation diffusion theory is only used to operationally define the terms of “adoption, diffusion

and exploitation” and not as the main, or even secondary, theoretical basis of this thesis.

3.5 ACAP and Innovation Diffusion Theory

Rogers (2003) defined *adoption* as the process through which a decision maker such as an individual or a unit passes from first knowledge of an innovation (e.g., technology, practice, etc.) to forming an attitude towards this specific innovation and deciding whether to adopt or reject it. This is followed by implementation and confirmation of this decision. Moreover, Rogers used the term “innovation” interchangeably with the term “technology” and argued that its objective newness does not necessarily need to involve new knowledge:

“someone may have known about an innovation for some time but not yet developed a favourable or unfavourable attitude toward it, nor have adopted or rejected it” (Rogers, 2003: 11).

As mentioned in Chapter 2, my thesis uses the term innovation not to describe the process of bringing into use new technology but instead to describe the objects that derive from the adoption, diffusion and exploitation of technology.

According to Rogers, the decision-making process for the adoption of an innovation involves five steps: *knowledge* (i.e., initial understanding); *persuasion* (i.e., attitude formation); *decision* (i.e., adoption or rejection); *implementation* (usage of innovation); *confirmation* (i.e., seeking reinforcement on the innovation decision). Also, the attributes of innovation include five characteristics: *relative advantage*; *compatibility*; *complexity*; *trialability*, and *observability* (see Table 6). Moreover, Rogers defined five adopter categories on the basis of innovativeness: *innovators*, *early adopters*, *early majority*, *late majority*, and *laggards*.

Table 6: Characteristics of an Innovation
 (Source: Loukis, Spinellis and Katsigiannis, 2011: 135)

Characteristic	Definition
Relative advantage	The degree to which an innovation is perceived as better than the idea, work practice or object it supersedes
Compatibility	The degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters
Complexity	The degree to which an innovation is perceived as difficult to understand, implement and use
Trialability	The degree to which an innovation may be experimented with on a limited scale basis
Observability	The degree to which the results of an innovation are visible to others

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Continuing with the concept of diffusion, it refers to:

“the process by which an innovation (idea, practice, or object that is perceived as new by an individual or other unit of adoption) is communicated through certain channels over time among the members of a social system” (Rogers, 2003: 11).

This definition implies that diffusion, communication or dissemination of an innovation includes alteration in the structure and function of a social system and takes place before it is decided whether an innovation will be adopted or not. In other words, the new idea is invented first, then it is diffused and if, there is a decision to adopt the idea, it leads to certain consequences that create social change. In addition, Rogers distinguished between centralised and decentralised diffusion systems to practically differentiate between two decision-making processes.

In a centralised diffusion system, decisions about the time, the evaluators and the diffusion channels are made by a small number of decision makers and/or technical experts. In a decentralised system, decisions of this kind are more widely communicated to the clients and the potential adopters, thus the innovations spread through horizontal networks among the clients. As Rogers claimed, the potential adopters of an innovation are solely responsible for the self-management of the diffusion of innovations while new ideas may develop from the practical experience of certain individuals

in the client system, instead of coming from formal R&D activities. For example, the self-service components of e-HRM and the widespread usage of generic social media technologies place the diffusion of these technologies through decentralised systems. In other words, my argument is that e-HRM and social media technologies will be diffused not only in (and by) the HR function but also in (and by) the “clients” of the HR function (e.g., managers and employees).

Comparing the innovation diffusion and ACAP theories, a number of similarities are observed. More specifically, the value recognition and acquisition dimensions of organisational ACAP can be actually paralleled with the adoption process that involves first the initial knowledge and understanding of the potential benefits that can derive from an innovation and then the formation of an attitude and decision on acquiring or not this technology. In addition, Rogers’ attributes or characteristics of an innovation such as complexity or compatibility that affect the innovation diffusion process can be similarly paralleled with the knowledge antecedents to ACAP mentioned by a number of scholars (e.g., Zahra and George , 2002; Vega-Jurado, et al., 2008).

Furthermore, Rogers’ implementation stage that comes after the stage of an innovation adoption involves the active information seeking through the use of that innovation. Practically, it is the stage where individuals have to use and work with the innovation and through this practical contact and experimentation with that innovation, ask questions about its utilisation, its potential issues and/or solutions. Therefore, the stages of implementation can be paralleled with the assimilation or transformation capacities of an organisation since the dissemination (e.g., assimilation or transformation of new knowledge) of technology or innovation requires the adoption decision first and then the beginning of the implementation.

Finally, Rogers argued that the last stage of the innovation diffusion process, called re-invention, involved the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation. Re-invention can be paralleled with the organisational

capability to exploit new knowledge since it captures new and expanded usages and utilisations of an innovation.

However, diffusion of an innovation can also continue during the implementation and confirmation stages of the innovation adoption process. In other words, communication and dissemination of an innovation as soon as it has been decided to adopt it would mean that the intra-firm's ability to assimilate or transform new knowledge actually involves the diffusion and internalisation of this knowledge across the company. For example, Liao et al. (2003) in order to describe one of their two components of ACAP used the term *intra-firm knowledge dissemination* referring to the transfer of external knowledge (i.e., innovation) within the organisation and then the transformation of that knowledge through the internalisation process that requires dissemination (i.e., diffusion) and assimilation. As the authors claimed,

“the second component of ACAP—dissemination—involves the communication of the generated knowledge to all relevant departments and individuals” (Liao et al., 2003: 67).

In summary, this thesis parallels the “capability/process perspective of ACAP theory” with the “process perspective” of the innovation diffusion theory. More specifically, it connects five ACAP dimensions (Todorova and Durisin, 2007) with three major processes (Cohen and Levinthal, 1990; Lane et al., 2006) under the lens of the innovation diffusion perspective (Rogers, 2003). Therefore, the process of adoption includes the value recognition and acquisition of external knowledge, the process of diffusion includes the intra-firm knowledge assimilation and/or transformation and the process of re-invention/exploitation includes knowledge exploitation. The first process (adoption) defines the capability of a company to evaluate and acquire new knowledge, the second process (diffusion) implies the capability of a company to disseminate, assimilate or transform the new knowledge within the organisation, and the third process (exploitation) defines the capability of a company to implement and use this knowledge (Schmidt, 2009).

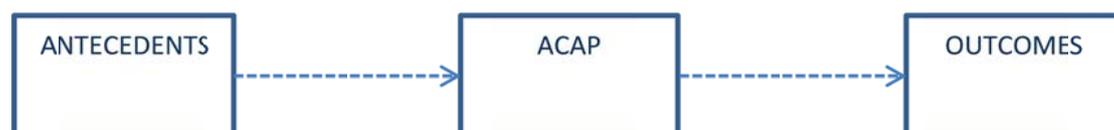
After defining the adoption, diffusion and exploitation of e-HRM and social media through the claimed parallel between ACAP and innovation diffusion theories, the next section moves on to the creation of a new integrative framework for HRM innovation.

3.6 A Model of Organisational ACAP for E-HRM and Social Media

The development of the theoretical framework of the thesis followed a progressive and deductive process. It combines the literature review on ACAP and e-HRM (including social media) and led to the generation of research hypotheses that predict explicit relationships between different variables.

From the general literature on ACAP (see Section 3.2), there are three major elements the relationships of which have been modelled or clearly implied. These elements are: the antecedents to ACAP, ACAP itself, and the outcomes of ACAP. Figure 16 provides a simple depiction of the relationship between these three elements. As it can be seen in this simple conceptual representation, the notion of ACAP is placed in the middle showing its mediating effect on the relationship between the antecedents and the outcomes, the antecedents to or determinants of ACAP on the left and the outcomes of ACAP on the right part of the model. ACAP was initially framed this way by academics because of their intention to explain the factors that influence the adoption, diffusion and exploitation of ideas, knowledge and technologies in organisations or countries (Martin et al., 2003) and understand the reasons some organisations are able to absorb and exploit knowledge better than others (Cohen and Levinthal, 1990).

Figure 16: A Simple ACAP model



This paper follows the framework logic of ACAP literature and transfers the three ACAP elements mentioned above to the HR context in order to understand whether the adoption, diffusion and exploitation of e-HRM and social media explain different HRMIO among organisations in Greece (see

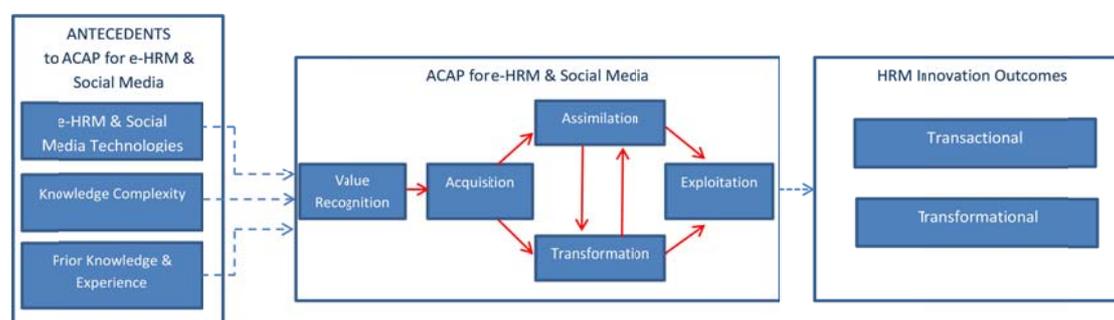
Figure 17). The major assumptions behind the connection of ACAP and HRM are the following: the knowledge that is absorbed refers specifically to e-HRM and social media technologies; the antecedents to ACAP refer to the organisations' ACAP for e-HRM and social media technologies; the outcomes from the organisations' capacity to absorb e-HRM and social media refer to new, for the company, HRM innovations that derive from the process of absorption.

Figure 17: A simple ACAP model for E-HRM and Social Media



Moving further to the development and analysis of the research framework (see Figure 18), the following have been adopted: (1) Todorova and Durisin's conceptualisation of ACAP which is at the heart of the model, (2) Martin and Reddington's conceptualisation of HRMIO which is on the right part of the model and differentiates between transactional and transformational outcomes, (3) Van den Bosch et al.'s conceptualisation on prior related knowledge and Zahra and George's experience, (4) Martin and Reddington's e-HRM technologies including social media, and (5) Vega-Jurado et al.'s and Cohen and Levinthal's conceptualisations of knowledge complexity which are on the left part of the model and shape the antecedents to ACAP for e-HRM and social media.

Figure 18: A Model of Organisational ACAP for E-HRM and Social Media

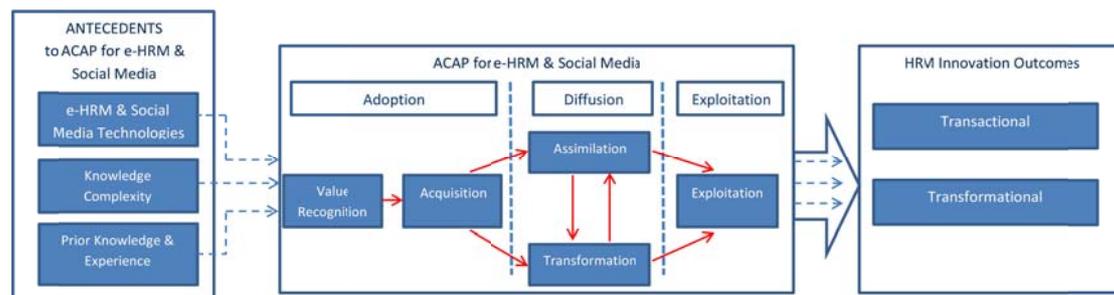


This thesis drawing on existing models of ACAP (Todorova and Durisin, 2007; Zahra and George, 2002) further posits that ACAP for e-HRM and social media mediates the relationship between the antecedents to ACAP and

firms' HRMIO. Following these frameworks and the points mentioned previously, it is postulated that ACAP enables firms that have some prior knowledge and experience to innovate in HRM from, otherwise purposeless, external or even complex e-HRM and social media technologies. In other words, it is suggested that ACAP is an overall mediator between the antecedents and the final outcomes hence a firm that is unable to absorb e-HRM and social media will not derive any HRMIO from these technologies (see section 3.7.1). As Kostopoulos et al. (2011) mentioned, even the most “ready to use” external knowledge such as the adoption of a new information system has to go through a process phase in which new knowledge is absorbed to yield tangible results. Thus, ACAP permits firms to identify more available knowledge flows, as well as to exploit more innovatively a given quantity of acquired external knowledge inflows.

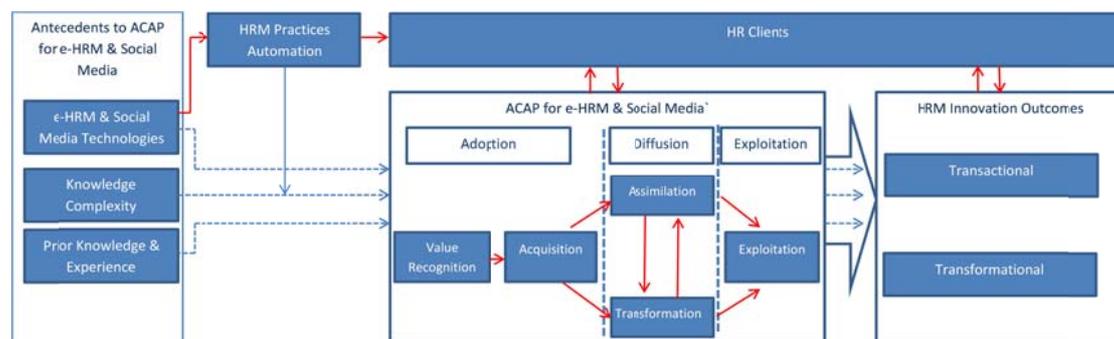
Considering the adoption of e-HRM and social media as a decision-making process that involves first the transfer of an initial knowledge or opinion to an attitude towards these technologies and then the adoption or reflection decision, my thesis draws on and matches Rogers' adoption process with Todorova and Durisin's value recognition and acquisition capacities of an organisation (see Figure 19). Since the diffusion, communication or dissemination of e-HRM and social media technologies can continue after the adoption process, my thesis also matches the intra-firm's ability to assimilate or transform e-HRM and social media technologies with the diffusion and internalisation process of this knowledge within and across the company that will eventually determine the process of exploitation.

Figure 19: A Model of E-HRM and Social Media Adoption, Diffusion and Exploitation



As mentioned in Chapter 2, Lepak and Snell (1998) referred to the operational, relational and transformational automation of HRM. This thesis also aims to examine the effect of e-HRM and social media technologies on the automation of HRM practices and how this effect is related to: (1) the amount of service received, and (2) the number of people -outside the HR function (called HR clients)- served through automated HRM practices (see Figure 20).

Figure 20: A Model of E-HRM and Social Media Absorption



In summary, the deductive development of this thesis' conceptual framework followed a "step-by-step approach" combining the literature on e-HRM, social media and the ACAP theory embraced, for definitional clarity, with the innovation diffusion theory. Having presented the progressive development of the main research model, this allows me to propose research hypotheses that are reflected in the relationships between the constructs included in the model.

3.7 Research Hypotheses: A Complete Model for Exploring the Adoption, Diffusion and Exploitation of E-HRM and Social Media

This section aims to set out the storyline of this thesis' complete conceptual framework (see Figure 21) focusing, however, specifically on the development of the research hypotheses. The framework addresses the relationship between the various dynamic capabilities, and its determinants, associated with the organisations' ACAP for e-HRM and social media and the innovation outcomes related to HRM.

A simple way to describe the general logic and assumptions of the model is that organisations have different capacities for recognising the value,

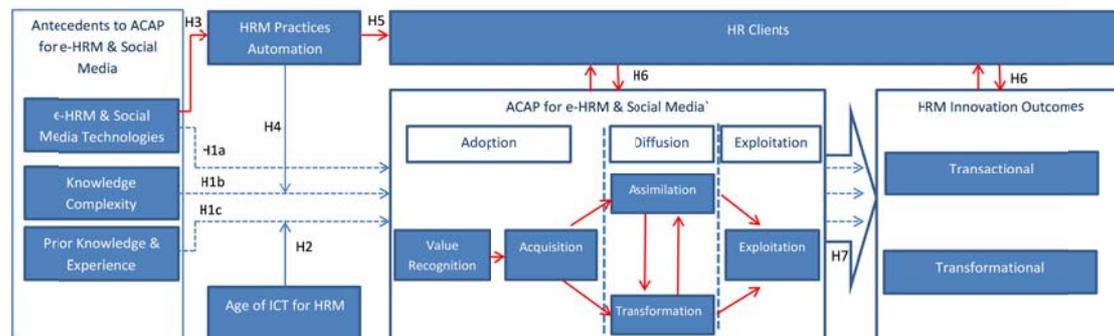
acquiring, assimilating or transforming and then exploiting e-HRM and social media in order to achieve HRM innovation. This different capability is affected by (1) the number of e-HRM and social media technologies, (2) the complexity of these technologies, and (3) the level of the organisations' prior knowledge and experience in technology-based HRM. Moreover, a number of moderating variables affect the relationship between the organisations' capability and the aforementioned determinants or antecedents to absorption. Similarly, the organisations' ACAP influences the relationship between the antecedents to absorption and the HRMIO, setting out specific conditions under which the theory is most or least likely to hold within the HR context.

The specific patterns that are drawn in the conceptual model assume the following major relationships and dynamics: (1) the organisation's ACAP mediates the relationships between the three antecedents and HRMIO, (2) the relationship between an organisation's degree of prior knowledge and experience and ACAP is influenced by the age of the ICT that is available for HRM (i.e., the time that a system is in place for a company), (3) the number of e-HRM and social media technologies in organisations affects the degree of automation of HRM practices, (4) the degree of automation of HRM practices influences the relationship between knowledge complexity and the organisation's ACAP, (5) the degree of service received and the number of HR clients served will be both affected by the degree of automated HRM practices, and (6) the amount of service received and the number of HR clients served influence ACAP and HRMIO.

After setting out the main features of my research framework, I come up with some important research hypotheses related to the adoption, diffusion and exploitation of e-HRM and social media that will be presented in four sections to address four main relationships of variables: (1) the antecedents to ACAP for e-HRM and social media and their effect on HRMIO through the mediating role of ACAP, (2) the antecedents to ACAP for e-HRM and social media and their effect on ACAP, (3) the clients of HR and their influence on

ACAP and HRMIO, and (4) the dimensions of ACAP for e-HRM and social media and their impact on HRMIO.

Figure 21: A Complete Model of E-HRM and Social Media Absorption



3.7.1 The Antecedents to ACAP for E-HRM and Social Media: Impact on HRM Innovation Outcomes through ACAP

Research on ACAP has been characterised as mainly focused on *outcomes* such as innovation or competitive advantage while less emphasis has been given to the *antecedents* (Lane et al., 2002; Jansen et al., 2005) and the effect of external knowledge on ACAP (Vega-Jurado et al., 2008). As it was mentioned in the previous section, my thesis draws equal attention to the antecedents to ACAP, ACAP itself, and the ACAP's outcomes as well as the variations on the capacities of companies to absorb external knowledge based on the nature of knowledge absorbed.

Starting with the premise that external knowledge is the primary input of ACAP (Cohen and Levinthal, 1990) this study, in line with Kostopoulos et al. (2011), adopts a broader perspective on external knowledge inflows to denote the collective amount of tacit and explicit complementary knowledge on e-HRM and social media pertaining to various domains such as technology, products, or processes that a company receives or gathers from external sources. Complementary knowledge means that knowledge is new and external while it relates to and, at the same time is different from, the existing knowledge base of the company (Lofstrom, 2000). Explicit knowledge refers to knowledge that is transmittable in formal and systematic language while tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context thus, is hard to

articulate and be transferred and can be mainly acquired through experience (Edmonson et al., 2003).

As discussed in Chapter 2, e-HRM (including social media) contains various integration mechanisms, contents and information technologies and creates value to various employees and managers within and across organisations. Therefore, considering e-HRM and social media as “knowledge to be absorbed”, it can include a range of domains such as advanced HR applications or modules, a new ERP or HRIS system, a new process, or product or tool, a new intranet portal or even a new access to a web site that was restricted before. These domains may share some degree of similarity with existing HR systems, tools or processes but at the same time they will be new for the company and somehow different from what the company used to have in place. In order for a firm to communicate new e-HRM and social media knowledge, it will have to transmit the new aspects of this knowledge across the firm in a formal and systematic way or language (explicit knowledge) but at the same time it will have to be rooted in the action of learning about, acquiring and using this kind of technology within the specific organisational contexts (tacit knowledge).

Furthermore, my thesis draws on the propositions of the ACAP models analysed in Section 3.2 and suggests that new external knowledge (i.e., e-HRM and social media technologies), the complexity of this knowledge, and the organisations’ prior related knowledge and experience function as antecedents to ACAP, which, in turn, impact HRM innovation through the mediation effect of ACAP. In other words, the thesis, in line with ACAP research, postulates that the organisations’ ACAP for e-HRM and social media enables the creation of innovation from, otherwise purposeless, external e-HRM and social media knowledge flows (based on Kostopoulos et al., 2011). For example, a firm that is not able to identify, acquire, assimilate or transform, and then exploit new external e-HRM and social media knowledge will not derive any HRM innovations from external knowledge flows.

In this thesis external knowledge flows refer to the technologies or knowledge related to e-HRM and social media. Using the terminology of Vega-Jurado et al. (2008), e-HRM and social media would refer to scientific or technological knowledge that derives from universities, technology institutes, and public or private research centres. More specifically, this type of knowledge is embraced, based on Martin and Reddington (2009), by data, systems and technologies. Therefore, since firms require higher ACAPs for scientific knowledge compared to other types of knowledge (Becker and Peters, 2000) and the nature of technology itself has been considered as an important antecedent to organisational ACAP for technology driven innovation (Martin and Reddington, 2009), it is hypothesised that:

Hypothesis 1a: *The impact of e-HRM and social media technologies on HRMIO is mediated by the organisations' ACAP.*

Companies may also find it difficult to absorb new external e-HRM and social media technologies (i.e., knowledge) particularly if that knowledge is complex and difficult to comprehend. The level of complexity of an e-HRM system captures the benefits of complex designs that generally include enhanced features, increased data integrity, and complete administrative reporting (Wickramasinghe, 2010). Based on Cohen and Levinthal (1989; 1990) the complexity of scientific and technological knowledge determines the ease of learning or the absorption of that knowledge. Therefore, although complex e-HRM and social media may have the technological potential to bring HRM innovation due to their enhanced systems, data and features, a firm that is not able to absorb them may not derive the expected or potential HRM innovation benefit. Therefore, it is hypothesised that:

Hypothesis 1b: *The impact of e-HRM and social media knowledge complexity on HRMIO is mediated by the organisations' ACAP.*

Cohen and Levinthal claimed that:

“...outside sources of knowledge are often critical to the innovation process, whatever the organisational level at which the innovating unit is

defined and that the ability to exploit external knowledge is thus a critical component of innovative capabilities” (Cohen and Levinthal, 1990: 128).

The sources of e-HRM and social media knowledge can include universities, technology institutes, public and private research centres, technology vendors, consultants, communities (Vega-Jurado et al., 2008; Martin and Reddington, 2009) or even the Internet. However, in order for companies to create noticeable benefits and innovate from external e-HRM and social media knowledge that can derive from different sources, they need to be able to identify that knowledge first and then absorb it (Cohen and Levinthal, 1989). Therefore, companies need to have some prior related knowledge and/or experience in e-HRM or related ICT structures (Martin and Reddington, 2009) so as to be able to see and identify the potentials of e-HRM and social media knowledge.

Organisations’ past positive or negative experiences (Massy, 2001) with e-HRM shape their attitudes and willingness to search for and experiment further with these technologies because such experiences will be internalised as organisational memories (Martin et al., 2003) and will have the potential to influence future acquisition and/or assimilation efforts (Martin and Reddington, 2009). Although companies may reach a level of HRM innovation from their prior knowledge and experience in absorbing ICT for HRM, their future absorption efforts will be determined by this past knowledge and experience that has been memorised. Therefore, it is hypothesised that:

Hypothesis 1c: *The impact of prior knowledge and experience in ICT for HRM on HRMIO is mediated by the organisations’ ACAP.*

3.7.2 The Antecedents to ACAP for E-HRM and Social Media: Impact on ACAP

Wickramasinghe (2010) assumed that the time an e-HRM system is in place for a company (referred to as the age of the web-based HRM system) influences the user satisfaction and system usage. Therefore, by measuring the overall acceptance of the web-based HRM system through user

satisfaction and system usage, the author found that users were more likely to be satisfied with “younger” e-HRM systems, meaning that the age of the system was small because it was in place for less time. According to the author, this finding suggested either that more recent systems were better designed and suited to the needs of the users or that the level of users’ satisfaction was reduced with the age of the system because users tended to become familiar to it and forgot about the benefits over their past manual system.

These findings as well as the interpretation of Wickramasinghe were very important and valid from a technology acceptance perspective (Davis et al. 1989). However, interpreting the same findings from an ACAP perspective may reveal additional reasons that e-HRM users appeared to be more satisfied with younger ICT and less satisfied with older ICT. For example, the adoption of a new e-HRM system will increase the knowledge base and experience of users (e.g., prior knowledge and experience) which means that their capacity to absorb this new knowledge will also increase from the interplay between assimilation and transformation. However, as the system becomes older and obsolete users may stop exploiting further its potentials thus their satisfaction and usage will be reduced. In other words, the years of ICT adoption or the age of the system dampens the positive relationship between users’ prior knowledge and experience and their ACAP. Therefore, from an ACAP perspective it is hypothesised in this thesis that:

Hypothesis 2: *The age of the ICT system for HRM adopted in organisations moderates the relationship between prior knowledge and experience in ICT for HRM and ACAP.*

Besides a main ICT system for HRM, organisations may also use other systems or technologies such as standalone web tools, Business to Employee (B2E) Portals, intranets or telephony based applications for automating various HRM practices such as recruitment, training or performance appraisals (Florkowski and Olivas-Lujan, 2006). In theory, this means that the HRM practices that organisations aim to automate will ideally determine the number and the nature of technologies adopted by these organisations.

Consequently, the increasing number of technologies adopted by organisations will be followed by an increasing automation effect on HRM practices in general (see operational, relational, transformational effect by Lepak and Snell) beyond their direct effect on the organisations' ACAP and HRMIO (see hypothesis 1a). Therefore, it is hypothesised that:

Hypothesis 3: *The adoption of more e-HRM and social media technologies in organisations is positively correlated to the degree of the automation of HRM practices.*

Research on the acceptance of e-HRM technology has also shown that increased usage of technology may also depend on the organisation's change management approach or the features of the technology itself (Bondarouk et al., 2009). E-HRM users may be more interested in the adoption of an e-HRM system that is better designed and suited to their needs compared to a past system that required manual handling of HRM practices. This might be the case even if the past system includes enhanced and complex features but is introduced and communicated through a methodical change management process. Therefore, from an ACAP perspective the companies that have few automated HRM practices at the time that more complex technologies are introduced will demonstrate a higher increase of their ACAP compared to the companies that have more automated HRM practices thus more prior knowledge and experience with such technologies. In other words, the ACAP of these companies will increase when the complexity of knowledge increases, however, the increase will be higher for companies with fewer automated HRM practices that used to handle manually HR routine practices in the past. Therefore, it is hypothesised that:

Hypothesis 4: *The degree of automation of HRM practices in organisations moderates the relationship between knowledge complexity and ACAP.*

3.7.3 Internal and External Stakeholders of E-HRM and Social Media (HR Clients): Impact on ACAP and HRMIO

According to Kovach and Cathcart (1999), many of the computerised enhancements of information systems are designed to produce required

information faster and at a lower cost while the overall purpose of an HR related information system is to provide information to HR stakeholders to support HR decision-making. Hendrickson (2003) used the term “multiple stakeholders” to describe the different groups of people whose needs have to be met by contemporary HRISs. As the author claimed, three categories of intercompany employees interact with the HRIS: (1) HR professionals, (2) managers in functional areas and, (3) employees.

The increased research attention not only to the HR function but also to the multiple stakeholders of HR has been generated from the growing use of computer-based technologies that allowed the placement of HR activities in the hands of the “HR customers” (Gainey and Klaas, 2008) or the people across the company whose needs have to be met by HR through the use of technology. As mentioned in Chapter 2, e-HRM actually refers to the application of any technology that enables managers and employees to have direct access to HR and other workplace services for communication, performance reporting, team management, knowledge management, learning and other administrative applications. This thesis uses the term “HR clients” to describe the multiple stakeholders or customers that the HR is expected to serve and cover their needs through the use of ICT (i.e., e-HRM and social media). Therefore, the increasing number of technologies will lead to an incremental automation of HRM practices and consequently to an increasing service received by more HR clients. In other words, more technologies automate more practices and serve more clients. Therefore, it is hypothesised that:

Hypothesis 5: *The degree of the automation of HRM practices by use of e-HRM and social media technologies is positively correlated to both, the degree of service received and the number of HR clients served by these technologies.*

This thesis adopts the notion that the automation of HRM practices by use of e-HRM and social media technologies and the consequent increase in service delivery and extraversion of the HR function towards its different clients is closely related to the organisational ACAP and the resulting HRMIO. Past

research has assumed that e-HRM involves the ACAP of the HR function only (Martin et al., 2003) without including in the equation the different HR stakeholders and clients who are involved in and work with the automated HRM practices that can be delivered electronically. For example, Martin and Reddington (2009) defined ACAP in the e-HRM context as the potential of the HR function (through the support of ICT specialists) to acquire and assimilate knowledge on e-HRM technologies into the vision of the HR function for change and the capacity of the HR function to realise e-HRM potential and transform e-HRM technologies by developing and fusing them with existing HR processes.

However, the re-organisation of traditional HR processes -essential to the business- through the online self-service applications available to employees and the broader availability of social media technologies through the web, call for a decentralised diffusion system (see Section 3.5) that innovations (in this case e-HRM and social media technologies) spread among the clients of the system (in this case the HR clients). In simple terms, since e-HRM and social media technologies will be used not only by the HR staff but also by managers and employees across the company, the ACAP of organisations involves the individual capacities not only of the HR staff but also of managers and employees (i.e., what is called in this thesis “HR clients”). Similarly, the HRMIO will not be only for the HR function but instead for the entire organisation. For example, bureaucracy through the absorption of e-HRM technologies will be minimised for the whole organisation and not only for the HR function if employees are capable of viewing and updating online their personal records, payroll information, payslips and salary history through e-HRM technologies. Therefore, it is hypothesised:

Hypothesis 6: *The degree of service received and the number of HR clients served by these technologies is positively correlated to both, ACAP and HRMIO.*

3.7.4 The Dimensions of ACAP for E-HRM and Social Media: Impact on HRMIO

A number of ACAP researchers have proposed that ACAP and its dimensions exists in two subsets (PACAP / RACAP) that have a distinct, combinative, coexisting and complementary character (e.g., Zahra and George, 2002; Jansen et al., 2005; Carlo et al., 2012). For example, firms will exploit knowledge as soon as they acquire it but may also acquire and assimilate knowledge without having the capability to transform and exploit it (Zahra and George, 2002). Therefore, the existence of two subsets of ACAP reveals both, the knowledge exploration process of PACAP, and the knowledge exploitation process of RACAP (Parjanen et al., 2011), and explains cases where firms are good in one process and not so good in the other.

From an HR perspective, according to Martin and Reddington (2009) there might be organisations with HR functions willing and capable of improving the employees' services through the acquisition and assimilation of e-HRM state-of-the-art knowledge but not so capable of transforming, exploiting and consequently gaining the benefits of that knowledge. In other words, the existence of HR leadership and initiative as an indication of PACAP was followed by resistance and negative attitude of the wider inter-company's HR community or line managers indicating limited RACAP. So, based on these authors' assumption that ACAP is formed by two subsets (PACAP / RACAP), some organisations will be more capable of acquiring and assimilating e-HRM and not so capable of transforming and exploiting it (i.e., good in PACAP but not so good in RACAP).

However, if (1) the pieces of knowledge that have been absorbed by a company move backward and forward between the processes of assimilation and transformation before being successfully incorporated into the organisational knowledge structures and be actually ready for exploitation, (2) assimilation and transformation are two alternative dimensions or operative principles of learning and not sequential, (3) assimilation and transformation do not conceptually belong to two different subsets, (4) all dimensions of organisational ACAP for e-HRM and social media involve the

broader HR community, line managers and employees within the company and not only HR leaders on acquisition and assimilation (e.g., PACAP) and non-HR employees on transformation and exploitation (e.g., RACAP) and, (5) the interplay between the new external e-HRM and social media knowledge and the company's knowledge base and structures is a continual process that involves different e-HRM users (e.g., HR, managers, employees); then, it can be argued that companies which have the prior knowledge and experience to identify and acquire new e-HRM and social media technologies will be also able to assimilate, transform and exploit that knowledge and consequently gain its benefits. Therefore, considering the dimensions of ACAP as combinative in nature that build upon each other to produce a dynamic capability (Zahra and George, 2002 p. 188) and in line with Thérin (2007) -Thérin also assumed that the four ACAP dimensions are correlated- it is hypothesised that:

Hypothesis 7: *All dimensions of ACAP for e-HRM and social media are positively correlated to HRMIO.*

3.8 Summary of the Chapter

In this chapter the following have been reviewed and critically discussed: the theoretical framework of ACAP; its endogenous conceptual, operationalisation and measurement issues; the research gap regarding the application of ACAP framework to the HRM context; the dimensions of ACAP for e-HRM and social media and their conceptual parallelism with the innovation diffusion theory; the progressive and deductive development of the research framework for this thesis; and the generation of research hypotheses. The main issues identified in the ACAP literature can be summarised as follows:

1. ACAP is a rich and dynamic concept the conceptualisation and definition of which includes various antecedents, dimensions and outcomes and is affected also by the nature of the external knowledge that is under examination.

2. The concept of ACAP has been reified and separated in the literature from the basic and initial premises that formed its creation based on amended, different or limited assumptions regarding, for example, the number of dimensions and their interrelationships.
3. ACAP's validity has been questioned since the concept has been defined and measured idiosyncratically and inappropriately based on the assumptions that are dependent on prior knowledge, path and the absorptive capacities of individuals.
4. ACAP has been treated or measured as a static resource or asset using the proxy of R&D spending along with "knowledge base proxies" such as R&D intensity, patents and investments as well as "R&D specific", "R&D human capital" or "output oriented" proxy indicators. It has also been treated as a process and as a substantive, ordinary or dynamic capability.
5. A number of studies handle ACAP with one-dimensional questionnaires that measure the construct either as a whole or in parts, using different theoretical backgrounds and as either an independent or a dependent variable.
6. ACAP has been empirically researched mainly in R&D contexts and measured through multiple levels of analysis.
7. The ACAP theory has been rarely used by academics to explain HRM innovation that derives from the adoption, diffusion and exploitation of HR technology.
8. Although ACAP for e-HRM has been rarely discussed in the literature, these discussions are focused exclusively on the capacity of the HR function to absorb e-HRM (assuming that e-HRM is absorbed only by the HR staff) while a conceptual connection between ACAP and the terms of "adoption, diffusion and exploitation" has been implied without clear theoretical or definitional linkages.

Regarding the assumptions or decisions made on the literature discussed in this chapter, the present research in relation to the above mentioned issues:

1. Uses a specific operational definition for ACAP and studies it from HR and IS perspectives, paying equal attention to the antecedents to ACAP, ACAP itself, and the ACAP's outcomes. Also, the nature of the external knowledge that is examined specifically refers to e-HRM and social media.
2. Adopts a five dimensional approach of ACAP and considers *value recognition* to be the first component of ACAP, *acquisition* the second, *assimilation* or *transformation* as alternative processes and not sequential and *exploitation* as the last dimension of ACAP for e-HRM and social media.
3. Addresses the validity of the ACAP construct in a separate chapter (see Chapter 6) that explains the questions as well as the measurement scales used in the present research.
4. Creates from scratch a questionnaire that is used to measure specifically the organisations' ACAP for e-HRM and social media (see Appendix I), does not follow a static perspective of ACAP viewing it as a knowledge base and does not use R&D proxies to measure it.
5. Handles ACAP with a multi-dimensional questionnaire that measures the construct as a whole (all dimensions) using specifically the theoretical background of e-HRM and social media (as external knowledge inflows) and ACAP as a *mediator* between antecedents and outcomes.
6. Empirically researches ACAP from an HRM perspective and measures the construct at an organisational level of analysis within the HR domain.
7. Uses ACAP theory to empirically explore the organisations' capacity to innovate in HRM by adopting, diffusing and exploiting of e-HRM and social media and examines seven hypotheses.
8. Parallelises the terms "adoption, diffusion and exploitation" with the construct of "ACAP" through the lens of the innovation diffusion theory and justifies their operational and conceptual linkages. Additionally, it considers not only the capacity of the HR function but also the capacity of the HR clients (e.g., managers, employees, etc.).

In conclusion, an important and revealing number of ACAP papers was reviewed and assessed in order to form the theoretical basis of this thesis. This process led to the understanding of the conceptual, definitional or statistical concerns around the ACAP theory and the creation of a research strategy that transferred the concept of ACAP to the HR context. As soon as similar research attempts (e.g., ACAP in HR) were reviewed, it was revealed that there was no academic work that explores empirically the HRMIO that derive from the absorption of e-HRM and social media technology. After assessing the strengths and limitations of the ACAP theory, it was considered to be the most appropriate framework to examine HRM innovation that is generated from the capacity of organisations to absorb e-HRM and social media. As Strohmeier (2007) claimed after reviewing e-HRM literature, only one fifth of the e-HRM studies rest on theoretical bases. Building on specific research assumptions and acknowledgements, a reconceptualised model of ACAP for e-HRM and social media was created which included an important number of components related to the ACAP theory (i.e., antecedents, dimensions and outcomes). The development of this model and the combinative literature review (e.g., between HR, IS and ACAP) led to a set of research hypotheses that were empirically tested and analysed (see Chapter 7) in Greece (see Chapter 4). Therefore, the next chapter provides specific information on the adoption of e-HRM and social media technologies in Greece as well as the decisions to run the research in this context.

Chapter 4: Research Setting - Greece

4.1. Introduction

The present thesis deals with the behavior of companies that operate in Greece around the absorption of e-HRM and social media technologies and the outcome of this behavior in terms of innovation in HRM. As it will be described in Section 4.4.1, research on e-HRM and social media in Greece has been underdeveloped. Therefore, the purpose of this chapter is to present the current economic, institutional and cultural conditions in Greece, as well the gradual development and establishment of e-HRM practices in the country. This chapter aims at elucidating the context in which the present research took place in order to explore specifically whether the adoption, diffusion and exploitation of e-HRM and social media can explain different HRMIO among organisations in Greece. Consequently, one of the purposes of the present thesis is to contribute to closing the gap created by the lack of e-HRM and social media research in companies that operate Greece. This objective is aimed to be achieved by examining HRM innovation that derives from these technologies and are realised by these companies.

However, in order to research companies that operate in Greece a prior understanding of their specific contextual circumstances is required. For example, the business environment for the majority of these companies has been affected significantly by the economic recession that has occurred in the country since 2009. This situation may have implications on any kind of Greek related, business or management, research. Therefore, the purpose of this chapter is to give an overview of the main characteristics of the Greek context by: describing the current economy in Greece and its effects on the HRM function; discussing the cultural characteristics of Greece and their potential intersection with the absorption of e-HRM and social media technologies by Greek operating companies and; presenting the institutional environment of Greece and the analogous research on HRM, e-HRM and social media. Therefore, this chapter explains the reasons for undertaking

the present research in Greece starting with the country's economic context.

4.2. Greece - Economic Context

Greece became the tenth member of European Union (EU) in January 1981 and was accepted into the Eurozone in January 2001 (Bourantas and Papadakis, 1996; Pappas, 2011). It has a mixed capitalist economy with the public sector accounting for approximately 40 percent of the gross domestic product (GDP) (Migdalovitz, 2011). As a small country, Greece represents only 2.6 percent of the total GDP and 3.7 percent of total government debt in the Eurozone (Eurostat, 2009a). The country's population is approximately 11.2 million while the Athens area, which is the capital of Greece, concentrates more than 60 percent of the Greek GDP and 40 percent of the population (Nakos and Hajidimitriou, 2009).

The acceleration of the GDP's growth in Greece was higher than the EU average since the 1990s (Belegri-Roboli et al., 2011). Two important trends of the Greek economy, after the country joined the Eurozone and further to the arrival of the Euro, were the fast economic growth (i.e., rates of growth between 4 and 5 percent) and the loss of the international competitiveness of Greek organisations (Nakos and Hajidimitriou, 2009). More specifically, since the 1990s the Greek economy presented an exceptional international paradox that combined, on the one hand a strong economic performance as indicated by its rapid GDP growth rate and its strong productivity growth, while on the other hand a very weak performance on poor labour product market institutions, low competitiveness, poor environmental protection and high levels of corruption (Mitsopoulos and Pelagidis, 2009).

The strong economic performance and the rapid growth of Greece were considered to be: the results of better macro-economic policies and structural reforms, the country's entry in the Economic and Monetary Union (EMU), the liberalisation of the financial market, the growing export activities, and the incentive of the Olympic games in 2004 (Belegri-Roboli et al., 2011). The result of this rapid growth made Greece a prosperous

country similar to many advanced countries but with a performance on a wide range of issues such as competitiveness, governance quality and social coherence closer to that of a developing country (Mitsopoulos and Pelagidis, 2009). For example, Greece was 22nd in the world in terms of high standard of living and 25th in the world in terms of high Human Development Index (Belegri-Roboli et al., 2011).

However, as of late 2009 Greece has been facing a unique financial crisis which is the most severe in the country's modern history. More specifically, the Greek economy shrunk by 2.3 percent in 2009, 3.5 percent in 2010, 6.9 percent in 2011, and 6.0 percent in 2012 while it experienced the second highest budget deficit and the second highest debt to GDP ratio in the EU (Belegri-Roboli et al., 2011). Unfortunately, the high deficit was only part of the problem because the country was also criticised severely about the unreliability of its economic statistics. For example, after the Greek parliamentary elections on October 2009 the newly appointed financial minister reported a 12.5 percent government deficit of Gross Domestic Product (GDP) and accused the previous government for misleading the European Commission (EC) since it had reported a 6.7 percent as an official estimation for 2009 (Kasimati, 2011). By the end of 2010, Moody's, Standard and Poor's and Fitch, the world's leading financial services and credit rating agencies, downgraded Greece and the spread of the 10-year sovereign bonds *vis-a-vis* the German bond soared from 135 bps one day before the Greek elections to 353 bps on February 2, 2010 (Kasimati, 2011) leading the country to the last place among individual Eurozone members with a negative real growth rate in 2010 (i.e., -4.2 percent) because of the governmental efforts to raise revenue and reduce public expenditure entraining at the same time domestic demand (Hodson, 2011).

This situation led the EU and international market participants to press the Greek government to transform rapidly the country's economic system through the application of an aggressive austerity plan. More specifically, in May 2010 and in October 2011 the International Monetary Fund and Euro-Zone governments, in exchange for the application of austerity measures

until 2015, offered Greece two large bailout loans for the country to repay its debts to its creditors. The austerity plan, however, included: major structural changes; the cutting of social expenditures; tax raise; tax evasion control; public companies' privatisation; health-care and pension systems' improvement (e.g., minimising health benefits or cutting pensions); labour market reforming (e.g., minimising base salaries). The application of these measures created social unrest, public dissatisfaction, and significant turbulence initiated by the country's labour unions to counteract the increasing levels of unemployment. Furthermore, the country also demonstrated reduced productivity, increased unemployment and ongoing increase in the prices of the majority of products and services (Lazaridis and Livanis, 2010).

In an attempt to improve the situation, Greece embarked upon a fiscal consolidation policy to reverse its debt path through an ambitious strategy designed to reduce the government deficit to below 3 percent of GDP by 2014 and 1 percent of GDP by 2015 using policies/measures for controlling expenditure and increasing revenues (Greece Country Profile, 2012). These policies included: rationalising public sector wage bills, downsizing the public sector, controlling healthcare and social benefits, extending the tax base and, cracking down on tax evasion (Greece Country Profile, 2012). These measures had both, positive and negative political, economic, social, technological, legal and environmental (PESTLE) consequences for the country. The negative consequences included: continuous fear for social unrest and political instability, weak export competitiveness and rising fuel imports, poverty for around 20 percent of Greek population, freeze on social security support and recruitment by government, pension cuts and lack of innovation through R & D. (Greece Country Profile, 2012).

The positive consequences included: write off 50 percent of Greek debt variable to the implementation of further austerity measures and a debt reduction plan by 2020, creation of an interim coalition government between various parties to implement the measures, the trade deficit narrowed in 2010, the tax structure was revised, new legislations were

created related to the labour and HRM practices and, Greece planned to bring the share of energy from renewable sources up to 20 percent and reduce energy consumption levels by 15 percent of expected levels in 2020 (Greece Country Profile, 2012).

However, despite some positive signs of Greek recovery, the business forecast report of Business Monitor International (BMI) in the second quarter of 2013 was not very optimistic about the country's next ten years. More specifically, it clearly stated that:

“Greece's political landscape is likely to become more tumultuous in the coming years. The legacy of fiscal profligacy and economic distortions will leave an indelible mark on the Greek economy and society, with political voices potentially becoming more fragmented” (Business Monitor International, 2013: 9).

Therefore, the BMI projected a decade of economic stagnation, prolonged austerity and instability that Greece would follow after the depression faced in 2009.

The fiscal austerity measures and the economic outlook of Greece affected directly or indirectly not only the public, governmental or political environment of the country but also the whole private sector and Greek operating private companies. Antzoulatos (2011) mentioned that in order for the Greek government to reduce expenses, increase revenues, and improve competitiveness through a fall in demand and domestic prices, it minimised pensions and wages and increased the value added taxes (VAT) hauling the private sector to a downward adjustment of nominal wages. Kretsos (2011) referred to the dramatic labour market reforms that resulted from the decentralisation of collective bargaining, the abolishing of restrictions in the number of company level dismissals, the lower minimum wages for young workers and the increase in retirement age.

Paris et al. (2011) described the practical effects of austerity measures in some of the HRM practices of the private sector specifically focusing on compensation, benefits and labour law. These were: freeze of inflation increases, facilitation of employees redundancy (e.g., lower severances and

notice periods), contractual and temporary employment with less benefits for younger people, lower wages, opening of highly regulated professions with limited licensed people and fixed price practices (e.g., lawyers, architects, etc.), increase of employers' social security contributions, changes in the pensions scheme in terms of entitlement criteria, retirement standards or amounts and increase in taxes. These changes and the overall recession resulted to unemployment, decline in average gross earnings of private firms, business closures, business relocations from Greece to other Balkan countries and minimisation of self-employed earnings (Matsaganis and Leventi, 2011).

Although, this thesis does not aim to describe the strategic actions that Greek operating companies pursued in order to cope with the recession nor to depict the challenges for the established practices and patterns of HRM (or e-HRM), it is very important to mention that the research took place in 2012 (see Chapter 5 for details), that is, during a period of turbulent political and economic atmosphere in Greece. Therefore, with the focus of this thesis being on HRM innovation through the absorption of e-HRM and social media technologies by organisations operating in Greece during a turbulent period, it is very interesting to examine whether specific economic and environmental conditions affected the adoption, diffusion or exploitation of these technologies.

In other words, one of the aims of this thesis is to identify the reasons and the ways organisations which operated in Greece absorb e-HRM and social media, thus, it is expected that some explanations will derive from the external environment of these organisations. These explanations can vary and have a number of "extension leads" in the adoption, diffusion and exploitation process. For example, the constant changes in compensation and labour law practices in Greece may lead Greek companies to adopt specific e-HRM technologies to calculate a complicated, and often changing, payroll system and minimise headcount or transactional costs. On the contrary, companies may freeze investments on ICT and/or HR specific technologies and use more generic and inexpensive social media

technologies (e.g., use of LinkedIn for candidate search instead of paying for job advertisements). Finally, the financial crisis may force HRM departments to adopt specific strategies that can be implemented more effectively and efficiently through technology.

Regarding the application of HRM strategies during economic crisis, Susaeta, Lourdes et al. (2013) analysed the internal (employee-directed) and external (union representative-directed) communication strategies that HR managers of Spanish companies applied in response to the economic crisis. The effects of the crisis on Spain's labour market were devastating since millions of people lost their jobs (Susaeta, Lourdes et al., 2013), a situation very similar to the Greek case. According to these authors, the efficiency of an appropriate communication policy and strategy for employees and union representatives during crises constituted a crucial factor which could be defined as the strategic role adopted by the HR function. For example, constant, fluid and transparent communication which explained the reasons behind potential terminations in Spanish companies minimised surprises, prevented rumours and led to an estranged and trusted work climate allowing both the reputation of the company and the motivation of the managers during restructuring processes. Therefore, the authors concluded that the financial crisis enhances or can enhance the strategic role of HR.

Similarly, Shen and D'Netto (2012) researched the HRM practices that export-oriented organisations followed in response to the financial crisis in China. The authors focused on recruitment, selection, training, development, performance appraisal, rewards and compensation and found that "retrenchment measures" was the most popular HRM strategy adopted to reduce staffing costs. Therefore, for survival reasons many companies, had on the one hand frozen recruitment, did not renew labour contracts, used casual workers and flexible working schedules, outsourced some of their businesses, terminated employees unselectively, reduced training budgets, prevented breach of labour laws and minimised certain pay contributions.

On the other hand, the authors also found that a few companies (although not too many) capitalised on the economic crisis by searching for and recruiting qualified employees to achieve growth after it had ended, did not reduce training or performance appraisals for employee retention reasons, did not minimise salaries and did not freeze salary increases. The authors concluded that the retrenchment measures benefited organisations but affected negatively the employees' job security, their behaviour, opportunities for full time employment and engagement, particularly when their sample companies did not communicate to their employees the challenges of financial crisis effectively and did not consider their employees' long term survival and growth. Therefore, economic crisis may affect the employees' psychological contract negatively and seems to require open communication between companies or HR and employees.

Firms that operate in unstable financial environments may adopt HR technology to enhance their HRM practices (e.g., improve communication, cope with changing payroll requirements) but employees may also be less receptive to embedding these technologies. On the grounds that the HR function could theoretically have a more strategic role during financial crises by developing a strategic and open communication between the company and the employees to apply difficult HRM measures (e.g., staffing cost reductions), the adoption of e-HRM and social media technologies could be one of the strategic options or tools available to the HR departments in their approach during an economic crisis. As mentioned in Chapter 2, e-HRM and social media can: improve the quality and quantity of communication between the company and its employees, reduce staffing or administrative costs, and improve decision-making related to staff changes of any nature. Therefore, no matter how positively or negatively companies respond to the challenges of recession in terms of their HRM approaches it is rather thought-provoking to examine through this thesis the role of ICT in improving communication and consequently the strategic role of the HR function during financial crises. For this reason, Greece was purposefully selected as this thesis' research context.

In summary, the Greek economy was under significant pressure and debt crises at the time that this research took place. The approaches of the Greek governments in the past, the existence of a weak political system and the constant mismanagement of the domestic economy added government debt at a rate which was much higher than the rest of the Eurozone (Kouretas and Vlamis, 2010). To ease its liquidity problem, the country requested and received important financial assistance by the EU and IMF in exchange for reforming or redesigning the country's economic and fiscal policies through the application of strict austerity measures. These measures affected both, public and private sectors in Greece and included the transformation of many HRM, compensation, benefits and labour law practices. This transformational economic and political environment created a unique situation which allowed to investigate how companies that operated in this context adopted, diffused and exploited e-HRM and social media technologies and why. This situation becomes more distinctive when considering the cultural or institutional dimensions of the nation that is under investigation. Past research has indicated the moderating and mediating effect of cultural and institutional factors on the impact of economic crisis to HRM (Rowley and Warner 2004; Smith and Abdullah, 2004). Therefore, the next section addresses the concept of "culture" first focusing, however, on the cultural characteristics of Greece.

4.3 Greece - Cultural Context

Hofstede (1991) offered an influential and useful interpretation of culture and more specifically the concept of national culture. According to Hofstede, there is an analogy between people's mind and culture, thus he defined culture as the collective programming of the mind that distinguishes the members of one group or category of people from another. More specifically, Hofstede initially devised four and then five dimensions of culture in order to define it and identify relativity between nations (1984; 1991; 2001). These dimensions affect individuals, organisations and the relationship between individuals and organisations (Hofstede, 1991) and are classified as: (1) power distance, (2) uncertainty avoidance, (3)

individualism, (4) masculinity, and (5) long-term orientation. According to Hofstede (1980), national culture is deeply embedded in everyday life, is relatively difficult to change, and evolves from generation to generation.

Regarding the dimensions of culture, *power distance* refers to the level of acceptance between citizens that the power in institutions and companies is distributed unequally. In other words, it is an index of power inequality and the degree that people submit to authorities. The *uncertainty avoidance* refers to the degree to which the members of a society feel uncomfortable in addition to their level of tolerance with uncertainty and ambiguity. For example, new, unknown, unusual and surprising situations may lead members of a society to embrace beliefs and approaches that promise certainty (e.g., laws, bureaucracy, etc.) and institutions that protect conformity (e.g., religion and axiom of one absolute truth). *Individualism* refers to the degree of favouritism towards a loosely integrated social framework (i.e., individuals not tied to a cultural group) and is the opposite of collectivism or the preference for a strongly integrated social framework. Similarly, *masculinity* refers to the need for achievement, success, heroism, and assertiveness (i.e., nations with assertive and competitive characteristics) and is opposed to femininity that covers the need for relationships, modesty, caring for the weak and quality of life (i.e., nations with caring values). Finally, *long-term orientation* refers to people who value actions and attitudes that impact the future such as persistence, caution, and shame and opposes to short-term orientation which refers to people who value actions and attitudes that are affected by the past or the present, such as tradition, fulfilling social obligations, and protecting one's reputation or "face" (Hofstede, 2001).

According to Tsatsou (2012), Hofstede's framework has attracted praise from the IS field because of its pioneering character, its global scope of application, and its potential for spawning in the future systematic approaches to analysis of national cultures on a global scale. Although this thesis does not involve a cross-cultural research, it considers Hofstede's work to be a useful framework in understanding the role of Greek culture on

(or some of the reasons related to) the adoption, diffusion and exploitation of e-HRM and social media among companies that operate in Greece. In other words, I do not suggest that the Greek culture is homogenous but Hofstede's work provides a useful way to characterise the dominant dimensions of the country that may also have an impact on ICT adoption. This is because his framework includes a rich quantitative measurement of culture that is based on data, it has been applied in studies of ICT and Internet adoption rates (Erumban and Jong, 2006; Tsatsou, 2012) and it has already been used to investigate the cultural characteristics of Greece.

More specifically, Hofstede (1980) found that Greece, among the fifty-three countries that were included in his sample, was a culture with the highest uncertainty avoidance and masculine indices. However, this study can be considered to be outdated and influenced by a number of socioeconomic phenomena at the time such as low levels of industrialisation and growth rate or high levels of unemployment and immigration (Bourantas and Papadakis, 1996). Today, Greece appears to have higher rates in two of Hofstede's cultural dimensions. These are the Power Distance Index (PDI) and the Uncertainty Avoidance Index (UAI).

“The high rates of the Power Distance Index indicate that in Greece there is a high degree of inequality of power distribution between lay people and leaders, with centralized decision structures and authority discouraging advances in technology, among other developments, since in such cultures decision makers are less innovative and open to change and consultation, while ordinary people and especially those who work for the country's authorities are less active and likely to take initiatives because they lack autonomy and fear punishment” (Tsatsou, 2012:176).

Probably the most interesting and noticeable finding is that the uncertainty avoidance index still remains high all these years or after Hofstede's initial work, indicating that the members of the Greek society feel uncomfortable with and do not tolerate high uncertainty or ambiguity. More specifically, Greece as a country with a rich history and tradition has been blamed for being a culture reluctant to change or risk taking (Hofstede, 1984). It is also a collectivistic country with an emphasis on interdependence, duty, family, and respect (Georgas, 1989; Triandis, 1995) having as a distinct value the

notion of “philotimo” which is the “love for honor” (Bakopanos & Gifford, 2001; Georgas, 1989) that practically means, or involves, cooperative and self-sacrificing behavior (Triandis et al., 1968). Other characteristics of the Greek culture include: the strong family bonds (Papalexandris et al., 2002), the patriarchal family and the parallel respect to hierarchy with the father being the central feature and decision-maker that protects the rest of the family members (Myloni et al., 2004), family or in-group collectivism characterised by trust and solidarity between close friends or relatives and competition and mistrust towards strangers (Georgas, 1993), and reluctance for long-term planning (Makridakis et al., 1997).

The different characteristics of the Greek culture may offer different interpretations in different phenomena. For example, the uncertainty avoidance characteristic can offer a partial explanation for the resistance of labour unions, the social unrest and the public dissatisfaction towards the labour and economic reforms mentioned in the previous section of this chapter. Similarly, the in-group collectivism can explain in-group hiring decisions by owners of small Greek companies who decide to recruit lower skilled people that they know and trust, instead of “risking” and hiring highly skilled, but unknown to them, professionals (Makridakis et al., 1997). Last but not least, the power distance and uncertainty avoidance dimensions can explain different levels of ICT adoption (Erumban and Jong, 2006).

The relationship between culture and e-HRM adoption in Greece has been mainly examined by Panayotopoulou et al. (2010). Their study is the only cross-cultural work that explored the effects of national background on the adoption of e-HRM in 13 European countries, including Greece. The authors distinguished between *back-end* (e.g., HR data warehouses, ERP etc) and *front-end* (e.g., web-based systems that include portals, self-service applications, etc.) e-HRM systems and tried to find similarities or differences in four cultural dimensions (i.e., power distance, in-group collectivism, uncertainty avoidance, performance orientation) related to the adoption of these systems. More specifically, they wanted to explore

differences or similarities in the level of e-HRM adoption among different countries associated with different socio-cultural factors, and establish whether the prediction of back and front-end systems' usage can be differentiated in the international context.

The authors clustered Greece with Spain, Italy and Slovenia (Southeastern European Cluster) as the countries with a lower GDP per capita and Internet penetration rate, a higher in-group collectivism and power distance and a lower uncertainty avoidance and performance orientation. Companies of that cluster appeared to use their HRIS as a more integrated management service system covering multiple HRM needs. According to Panayotopoulou et al., this was due to these countries' late adoption rate of these systems meaning that their introduction in management practice was realised later making the integrated IS possible at the time. Contradictory to the high deployment of back-end systems, companies in these countries also reported a lower, on average, deployment of front-end HR systems. According to the authors, this was due to their higher power distance and collectivism, meaning that their degree of acceptance for power inequality and the degree of individuals' loyalty and cohesiveness were negatively correlated to the information sharing that these front-end systems could potentially offer to the firms' total workforce. Also, due to the characteristic of users in power distant cultures to make decisions by themselves and not by relying on the systems. Therefore, the need to centrally sustain formal communication through the Internet or intranet was not imperative in these countries, thus justifying the low deployment of front-end HR systems.

The study of Panayotopoulou et al. (2010) was important because it connected, through a cross-cultural research approach, the HRM characteristics of organisations and the e-HRM with organisational contexts and socio-cultural dimensions, differentiating also between two levels of e-HRM technologies (i.e., back-end and front-end). However, culture may present unique features in one country that are not present in another, while many of these features can be invisible or non-measurable in research

(Tsatsou, 2012). For example, Panayotopoulou et al. examined Greece together with the southern European cluster although it appeared to be separated from this cluster. For example, Greece has a high uncertainty avoidance index according to Hofstede, while Panayotopoulou et al. clustered the country with nations that appeared to have low uncertainty avoidance, risking in that way (in my opinion) some generalisations of their predictions. Last but not least, their study was based on data from the CRANET survey which means that, although it was published in 2010, the country's economic context at the time (see Section 4.2) was not taken into consideration.

Since one of the aims of this thesis is to identify the reasons and the ways organisations that operate in Greece absorb e-HRM and social media it is important to consider whether there are cultural dimensions or elements that affect the adoption of these technologies and are unique to the Greek context. Therefore, by drawing on Hofstede's categorisation and by examining the adoption of e-HRM and social media through the lens of the ACAP theory it may offer insight into the effect that different cultural dimensions apparent in Greece -power distance and uncertainty avoidance- have on the different stages of absorption (i.e., value recognition, acquisition, assimilation or transformation, exploitation). For example, (1) Greek managers may prefer to cooperate with and acquire new technologies from vendors they have already done business with in order to minimise uncertainty and ambiguity in relation to new vendors, (2) they may also entail a "natural" negative predisposition to new technologies and the changes these technologies can bring to their lives (Tsatsou, 2012) thus, neglecting or not recognising their value, (3) the diffusion of new e-HRM and social media may be accompanied with resistance or prevention by Greek employees or organisations, and (4) the firms' ACAP for e-HRM and social media and any potentially derived innovation may be affected by HR professionals, employees and managers' degree of uncertainty avoidance.

In summary, Greece is a country with a long history and some specific cultural characteristics that remain unchanged over the years. These

characteristics, according to Hofstede, are the uncertainty avoidance, the masculine, and the power distance indices. Although the primary goal of this thesis is not to identify the cultural characteristics that could be related to ICT adoption in Greece, some of the cultural indices (if not all) may offer a set of explanations regarding the absorption of e-HRM and social media in this context. Therefore, due to the lack of a culture specific research regarding e-HRM and social media technologies in Greece this thesis aims to explore -based on Hofstede's framework- whether there are certain cultural reasons that are related to and affect the adoption, diffusion and exploitation of e-HRM and social media technologies between Greek operating companies.

However, the cultural factors that may influence e-HRM and social media adoption interact with institutional or structural forces (e.g., size, industry, ownership, workforce features, labour laws, etc.). For example, Aycan (2005) examined the interplay between cultural and institutional/structural contingencies in HRM practices based on the assumption that this was a virtuous way to assure external validity of cross-cultural or culture specific research. The author used a self-explanatory example regarding the effect of these forces which goes as follows: Consider that companies in collectivistic cultures hypothetically prefer internal recruitment channels instead of external. Assume also that small organisations, instead of large ones, prefer internal sources in recruitment. In order to test the effect of culture in this example, it is required to control the effect of size statistically (or through design); and by examining the interaction between cultural and institutional or structural factors the conditions under which culture matters the most may be potentially induced. This thesis, in agreement with Aycan, also considers that both cultural and institutional factors can explain variations in the absorption of e-HRM and social media practices. Therefore, the next section describes specifically from an HRM perspective the institutional context of the country that this research took place, the one of Greece.

4.4 Greece - Institutional Context

Greece is a country the industrial development of which has occurred at a much slower pace than other European countries (Galanaki and Papalexandris, 2007). The delay in the country's transition from an agricultural to an industrial economy and its overall slow industrial growth is attributed to historical, geographical and other reasons (Galanaki et al., 2008). This situation has affected the establishment and standardisation of the HRM function (Galanaki et al., 2008). Although HRM in general along with the majority of management practices and functions has its roots in high-volume industrial production and has followed a slow pace of development (Galanaki and Papalexandris, 2007), HRM in Greece has demonstrated an even further delay in its evolution (Papalexandris, 1992; Papalexandris and Stavrou, 2004; Galanaki and Papalexandris, 2007).

As Conner and Ulrich (1996) claimed, the historical evolution of business and economy in which companies operate affect the evolution of HRM. Regarding the interplay between institutional and cultural factors, Myloni et al. (2004) investigated whether HRM in Greece was maintaining its national character or whether it was converging towards a model that potentially contradicts with the country's traditional societal values. The authors compared two groups of companies (i.e., Greek firms and subsidiaries of MNCs located in Greece) on specific HRM practices to show how HRM practices of Greek firms differed from those of MNC subsidiaries and examine the degree to which and the way these HRM practices reflected Greek national culture. Their results indicated that various HRM practices in Greek firms reflected a lot their national culture and concluded that due to the country's strong national cultural norms and values, cultural factors prevailed over the institutional.

According to Szamosi et al. (2010), institutions refer to the embedded sets of formal and informal rules that shape behaviour within and among work organisations and other social actors. As the authors stated, Greece belongs to the area of southeastern Europe, referred to as the Balkans. The core institutional features of this area have been defined in different ways. First,

as the relative *private property rights* which determine what firms do based on the rational choice economic assumption that institutions are rational-hierarchical and their actors make choices because of specific institutional incentives and disincentives (Goegen et al., 2009; Psychogios and Wood, 2010). More specifically, private property rights focus on legal origins and can be determined by countervailing power of other societal interest groups within or outside the firm such as employees, electoral systems, or the political orientation of ruling parties (La Porta et al., 1999; Botero et al., 2004; La Porta et al., 2002; Szamosi et al., 2010). Second, as *relationships* or networks of social ties between key actors which determine what firms do based on pragmatic socio-economic approaches that reflect complex webs of ties between owners, employees, associations, the wider society and the state (Goegen et al., 2009; Psychogios and Wood, 2010).

Regarding the rational hierarchical approaches to institutions, the broader assumption is that strong property rights are necessary for growth and any variable that weakens them (e.g., employees' power) will detract from it (North, 1990). For this reason, a legal system can act as an important institutional mechanism to prevent this imbalance from happening (Psychogios and Wood, 2010). Based on this logic and by classifying further the countries under individual employment laws (i.e., level of individual employment rights) and collective relations laws (i.e., collective negotiation and organisational rights related to the unions' power over working conditions), there are countries advocating the *common law ideal* that pursue stronger owner rights and weaker employee rights and other countries close to the *civil law and French tradition ideal* that place emphasis on the importance of property rights (La Porta et al., 1999). More specifically, the German, Scandinavian and French legal systems belong to the "civil law category" and the English system to the common law category (La Porta et al., 2002).

Based on this legal classification of the countries, Greece belongs to the French legal tradition with an archetypical civil law having relatively weak owner rights (Djankov et al., 2004) but also weak individual and collective

employee rights (Psychogios and Wood, 2010) representing a distinct sub-variation of Mediterranean capitalism (Szamosi et al., 2010) categorised by a large agricultural sector, histories of state intervention and relatively deregulated employment relations (Hall and Soskice, 2001). For example, Greece is characterised by high employment protection in the large firms and state sectors and lower employment protection in smaller, family-owned businesses (Psychogios and Wood, 2010).

The Greek market mainly encompasses micro companies, with an average size of two employees per company representing a very small number compared to the average of EU (Eurostat, 2006). More specifically, small and medium sized enterprises (SMEs) constitute the vast majority of total employment in Greece (Psychogios and Wood, 2010). The European commission defines SMEs as:

“the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million” (Commission recommendation, 2003: 39).

In Greece, 95 percent of the operating companies are mainly family owned and employ less than 10 employees (Psychogios and Wood, 2010).

It could be argued that one of the reasons for the slow development of HRM in Greece is the apparent high proportion of small companies. Some academics have claimed that small companies are less likely to have employees designated for HR matters (e.g., Forth et al., 2006) while family-owned firms use less professional HRM practices (e.g., De Kok et al., 2006). Consequently, the large number of small companies in Greece has been rationally considered to be an obstacle to the overall development of HRM because these companies -irrespective of their level of productivity and profitability- cannot and do not need to build up such management functions (Galanaki and Papalexandris, 2007). However, Greece is a developed country within the broader context of the European Union (EU) with a small, peripheral economy (Barbosa and Louri, 2005) that has been

characterised as dualistic, meaning that it is divided between larger state or private companies and SMEs (Szamosi et al., 2010).

Although there is no considerable literature on HRM in Greece (Myloni et al., 2004), there are some significant exceptions (Papalexandris, 1987; 1991; 1992; Papalexandris et al., 2002; Papalexandris and Stavrou, 2004; Galanaki and Papalexandris, 2007; Nikandrou and Papalexandris, 2007) of which many are aligned to the idea of the country's dualistic economy. For example, Papalexandris (1987) compared HRM in Greek firms and MNC subsidiaries and found differences between the two samples concluding that Greek firms use less systematic HRM practices than foreign subsidiaries which implement guidelines coming from their parent companies. Nikandrou and Papalexandris (2007) examined the strategic HRM practices among top-performing from non-top performing companies in Greece with experience in domestic or cross-border acquisitions and concluded that the main practices that differentiate effective and successful companies are the increased HR involvement in strategic decisions, formalisation of HR practices, building organisational capability through training and development activities, line management devolvement, and internal labour market opportunities.

Based on these two indicative studies, it can be inferred that despite the lack of substantial literature on HRM in Greece there are various large Greek operating firms, MNCs or MNC subsidiaries that adopt specific HRM practices for different reasons. As Szamosi et al. claimed,

“Whilst larger firms are more closely bound by regulation, and are more likely to pioneer the adoption of perceived best practices from abroad, again informal networks and ties remain important. Reflecting incomplete and yet embedded institutional frameworks, bounded diversity in HR is likely to persist, reflecting pressures towards modernization and better regulation on the one hand, and towards informal ‘coping’ on the other hand” (Szamosi et al., 2010: 2526).

Based on the same logic, institutional factors can explain variations in the adoption of e-HRM practices between MNCs and their subsidiaries. In other words, the same “modernisation trend” or “mimetic behaviours” in embedded institutional frameworks may be observed not only in the

adoption of specific HRM practices but also in the adoption of e-HRM practices (Heikkilä, 2013).

Therefore, since this thesis aimed to research HRM innovation through the ACAP of Greek operating organisations towards modern ICTs, a logical judgment of the studied population was required. Although the sampling methodology of this work is discussed in Chapter 5, it needs to be mentioned that it was determined by a number of important factors such as the institutional framework of the research (HRM in Greece), the organisational context (i.e., large versus small companies), and the degree of e-HRM and social media adoption in companies which operate in Greece. For this reason, this thesis will examine the adoption, diffusion and exploitation of e-HRM and social media in large organisations, defined as firms that employ more than 250 employees (or non SMEs), within the reality of the Greek institutional framework that is characterised by some unique economic and HRM elements.

In summary, Greece is a country in the area of southeastern Europe with a slow transitional rate from an agricultural to an industrial economy, slow development of HRM among other professions, strong national cultural norms and values, French legal tradition with an archetypical civil law that includes both weak owner and weak employee rights, distinct sub-variation of Mediterranean capitalism, deregulated employment relations, high employment protection in the larger firms and state sectors, lower employment protection in smaller and family-owned firms, many micro, as well as large state or private companies and SMEs, limited literature on HRM, and common institutional dynamics, such as modernisation and mimetic behaviours, with other European countries. Although Greece is predominated by SMEs, I do not intend to generalise to all Greek operating companies but instead to those that fall within the sampling criteria of this thesis. The existence of large companies and the particularities of the country's institutional framework create a distinctive research context to examine the adoption, diffusion and exploitation of ICT particularly when

considering that e-HRM and social media research in Greece is very limited, as described in the next section.

4.4.1 Research on E-HRM and Social Media in Greece

As far as e-HRM and social media are concerned, there are only two independent and unrelated research energies that have taken place in Greece. One study on e-HRM adoption and one conference work on social media. Regarding the former, Panayotopoulou et al. (2007) examined the reasons organisations in Greece adopt e-HRM practices, the effect (and the problems) of this process on organisations and the way e-HRM adoption shapes the role of HRM function in general within the new economy. More specifically, the authors investigated the transformation of the HR function's role in Greek firms from the use of the Internet and technology. They found that the main reasons Greek companies adopt e-HRM were *strategic* such as the reduction of operating costs or the enhancement of the company's image, and *process oriented* such as the control and management of time. In addition, the successful e-HRM adoption was variable to technology awareness, organisational culture, and collaboration between HR and IT. As they claimed,

“e-HR is a tool that can facilitate the transition from an administrative to a more strategic role for HRM, enabling it to improve the quality of its services (Panayotopoulou et al., 2007: 292).

Therefore, Panayotopoulou et al. concluded that e-HRM adoption can promote the context that integrates technology in organisational processes or functions and the collaboration between different departments such as HR and IT in order to institutionalise this change.

Their work was the only e-HRM specific study in Greece and, although descriptive in nature, it highlighted a number of interesting institutional and HRM related characteristics of Greek operating companies. For example, considering the large number of micro companies in Greece, only 5 percent of the organisations in their random sample did not have an HR department and only 17.6 percent had a “one-man show HR department”. In other words, 77.4 % of the companies had a well-staffed HR department.

Furthermore, the results of their research showed that the use of technology in various HR functions would become more widespread shortly, meaning until 2009 or 2010. For example, 30 percent of the HR departments that were not using e-HRM at the time the research took place demonstrated their intentions to do so in the near future particularly in relation to performance appraisal, training and development practices. Finally, the authors clearly stated that despite the low level of technology utilisation in Greece, the encouraging message regarding the future exploitation of e-HRM was that the majority of respondents believed that e-HRM would potentially allow the transformation of HRM and almost 90 percent of them expected this to happen in the near future.

Despite these positive e-HRM adoption indications, it seems that there is no other research that dealt with e-HRM in Greece after the work of Panayotopoulou and her colleagues. This may be due to the economic recession that struck Greece shortly after this study (see Section 4.2) and probably changed the overall research focus. In addition, although these authors' work implied indirectly the use of social media technology as part of e-HRM practices (e.g., *assessing or recruiting people through online video conferencing and testing* - Panayotopoulou et al., 2007: 279), they did not mention social media at all in their explanation of e-HRM technologies, forms and processes. Therefore, despite the evidence and the positive signals for the existence of well-organised HR functions in Greek operating organisations and their intentions to increase their e-HRM practices in the future, there is no integrated e-HRM and social media research in Greece during country's financial recession except one conference paper that focused exclusively on social media.

More specifically, the Centre of Research in Organisational Behaviour and Leadership (CROB-L) of the Athens University of Economics and Business, presented at a conference in April, 2010 the results of the first research in Greece on the use and applications of social media (e.g., Facebook, LinkedIn, Twitter, etc.). The participants of the survey were 122 HR specialists and managers and 417 employees as passive job searching

candidates. The purpose of this research was to examine the use of social media in HRM practices and the ways these web networks were used by employees or candidates for job searching processes. This work showed that social media had started to be used more intensely in Greece by companies as well as by employees searching for a job. In addition, it demonstrated that there was significant room for further development and use of social media in the future.

However, the survey focused mainly on social media use for recruitment purposes and not for other activities such as information or media sharing, virtual communication, multimedia gaming, etc. (see Chapter 2). Also, it did not provide any information about the outcomes when using social media. For example, did social media use increase the quality and speed of the recruitment process? Last but not least, it covered mainly generic social media web sites and not technologies that companies create specifically for their employees (e.g., intranet wikis). Therefore, despite the evidence and the positive signals for the increasing use of generic social media by the HR departments of Greek operating organisations, there is no research that examines various generic or company specific social media technologies in Greece and their effect on automating specific HRM practices.

4.5 Summary of Chapter

In this chapter a number of issues been reviewed and critically discussed; the economic course of Greece focusing on the financial crisis that the Greek economy has been facing since September 2009, the transformation of the country's economic system through the application of austerity measures and a fiscal consolidation policy; the positive and negative effects of these austerity measures on the country's political, economic, social, technological, legal and environmental areas; the impact of these measures on the private sector; the practical changes applied to the HRM practices in the private sector; the strategic role of HRM department during economic crises; Hofstede's definitions and dimensions of national culture; the cultural characteristics of Greece; the relationship between culture and e-HRM adoption in Greece; the interplay between cultural and institutional

forces and their effect on the adoption of HRM practices; the institutional context and features of Greece; the development of HRM in Greece; and the literature on HRM, e-HRM and social media in Greece.

The main issues identified in the economic, cultural and institutional literature in Greece can be summarised as follows:

1. There is no research in Greece during the financial recession that examines the adoption, diffusion and exploitation of e-HRM and social media technologies.
2. There is no research in Greece during financial recession that examines the HRM strategies or practices that Greek operating companies followed through the adoption, diffusion and exploitation of e-HRM and social media technologies in response to the economic crisis.
3. There is lack of culture specific research in Greece that explores whether there are some cultural reasons that are related to and affect the adoption, diffusion and exploitation of e-HRM and social media technologies among companies that operate in Greece.
4. Although there is enough literature in Greece on the effect of institutional factors on HRM practices adopted by Greek operating organisations, there is limited research on the effect of institutional factors on e-HRM practices adopted by Greek operating organisations.
5. There is no integrated e-HRM and social media research in Greece except two unrelated studies; one on e-HRM and one on generic social media.
6. Greece is predominated by micro or small and medium-sized enterprises that demonstrate slow HRM growth.

Regarding the assumptions or decisions made on the literature discussed in this chapter, the present research corresponding to the above mentioned issues:

1. Examines HRM innovation through the absorption of e-HRM and social media technologies by Greek operating firms during a turbulent

period and the effect of specific economic and environmental conditions on the adoption, diffusion or exploitation of these technologies.

2. Examines the role of ICT in improving communication and consequently the strategic role of the HR function during financial crises.
3. Uses Hofstede's framework in understanding the role of Greek culture on (or some of the reasons related to) the adoption, diffusion and exploitation of e-HRM and social media between companies that operate in Greece.
4. Considers that cultural and institutional factors can explain variations in the adoption of e-HRM and social media practices.
5. Integrates social media and e-HRM (see Chapter 2) and studies various generic or company specific social media technologies in Greece and their effect on automating specific HRM practices.
6. Judges logically the studied population and examines the adoption, diffusion and exploitation of e-HRM and social media in large organisations, meaning firms which employ more than 250 employees (or non SMEs).

In conclusion, a number of country specific factors were reviewed and assessed regarding Greece or stated differently, the research context of the present thesis. These factors were economic, cultural and institutional. As soon as a number of research attempts regarding HRM, e-HRM and social media in Greece were reviewed, it was revealed that there was no academic work that explores empirically the HRMIO that derive from the absorption of e-HRM and social media technology in companies which operate in Greece. Although Greece may initially be considered as an inappropriate research context for exploring ICT due to the existence of many SMEs, the parallel existence of many large companies and the particularities of the country's economic, cultural and institutional characteristics created a distinctive setting for the examination of the adoption, diffusion and exploitation of e-HRM and social media. Therefore,

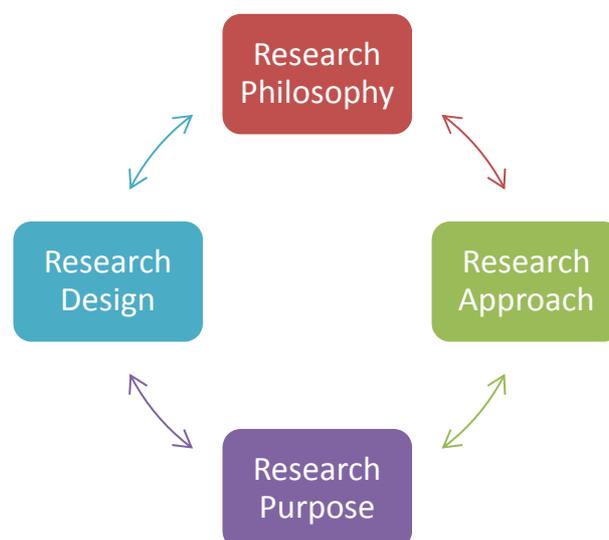
having defined the research setting, the next chapter will analyse the research methodology.

Chapter 5: Research Design and Methodology

5.1 Introduction

In this chapter I describe the methodology used to undertake the study. Before analysing the research design or the general plan for the collection of research data, there are some important areas that need to be discussed as they affect the overall structuring process of the research. The first aspect of the methodology is the *research philosophy* or my ontological view, epistemological position and priorities that determine my personal way of viewing reality in the world and my attempt to develop knowledge about it. The second factor is the *research approach* chosen in generating questions and the ways I try to answer them. The third is the *research purpose* that defines whether to explore new insights into a phenomenon, whether to describe it or whether to investigate the causal relationship between variables involved in a phenomenon. Last but not least, the fourth aspect is the *research design* that determines the methods I use for collecting data. These four factors are interrelated (see Figure 22) and shape the designing process of any research. I will address them in detail to justify my methodological decisions and the choices made for this thesis.

Figure 22: Research Structure
(Source: Author)



5.2 Research Philosophy

Burrell and Morgan (1979) claimed that the *theory of society* and the *philosophy of science* are two dimensions that researchers need to consider in order to develop a philosophical perspective. The theory of society involves the selection between two sociological views: *regulatory* in which the society is unified and cohesive and evolves rationally from status quo, or *radical change* in which society is in a continuous conflict among humans who try to be liberated from societal structures, thus, the society evolves from what it can potentially be. As Holden and Lynch (2004) argued, these contrasting views are the basis of distinct and often completely opposing schools of thought: (1) *modernism* that is based on the rational view of society, and (2) *post-modernism* whereas the perspective of radical change underlies.

The philosophy of science involves either the *subjective* or the *objective* approaches to research (Holden and Lynch, 2004). A subjective approach portrays the position that social phenomena are created from the perceptions and actions of those social actors concerned with their existence while an objective approach demonstrates that social entities exist in reality external to social actors concerned with their existence (Saunders et al., 2007).

The objective or subjective approaches to research are delineated by a researcher's *ontological*, *epistemological*, *human nature* and *methodological assumptions* (Holden and Lynch, 2004). Firstly, based on Burrell and Mordan an ontological assumption questions

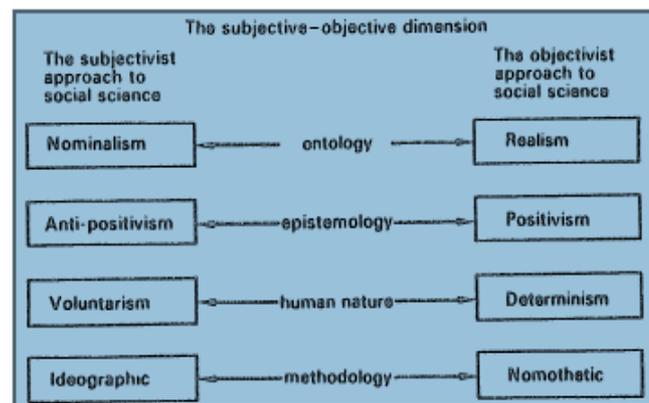
“whether the 'reality' to be investigated is external to the individual - imposing itself on individual consciousness from without - or the product of individual consciousness; whether 'reality' is of an 'objective' nature, or the product of individual cognition; whether 'reality' is a given 'out there' in the world, or the product of one's mind” (Burrell and Mordan, 1979: 1).

Secondly, an epistemological assumption refers to the way someone understands the world and communicates this knowledge to other humans. Therefore, this assumption is based on the nature of knowledge or whether knowledge is hard, real and capable of being transmitted in tangible form

(i.e., it can be acquired) versus a softer, subjective, spiritual or even transcendental kind that is based on experience and insight of a unique and personal nature (i.e., it has to be experienced). Thirdly, the human nature assumption deals with the relationship between humans and environment and questions whether people respond to the environment in a mechanistic (i.e., human beings are products of the environment) or a deterministic way (i.e., human beings and their free will create the environment). Finally, as the authors claimed the ontological, epistemological and human nature assumptions affect the way (methodology) that a researcher aims to investigate and obtain knowledge about the social world (see Figure 23).

Figure 23: Assumptions about the Nature of Social Science

(Source: Burrell and Morgan, 1979: 3)



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To sum up, researchers make philosophical claims about *ontology* or what is knowledge; *epistemology* or how they know it; *axiology* or the values that go into it; *rhetoric* or how they write about it; and *methodology* or the processes for studying it (Creswell, 1994). This is considered to be an important step in the research designing process because researchers' philosophical views entail assumptions made about the nature of reality and the basis of knowledge. All these assumptions are incorporated within *philosophy of science* or the conceptual roots undergirding the quest for knowledge (Ponterotto, 2005). Therefore, the following sections will introduce my philosophical views that led to specific methodological choices

in relation to the present research as well as the underlying assumptions that, based on Holden and Lynch (2004), are consequential on each other; the ontological view affects epistemological persuasion which, in turn, affects the view of human nature and consequently the choice of methodology logically follows.

5.2.1 Ontology

Ontology is concerned with the nature of reality and affects the way a researcher views the world or what considers to be 'real' (Bisman, 2010). As it can be seen in Figure 23, there are two contradictory ontological positions: *nominalism* and *realism*. Based on Burrell and Morgan (1979), nominalism assumes that the social world is external to individual cognition and is made up of nothing more than names, concepts and labels used to structure reality without admitting to there being any real structure to the world which these concepts are used to describe. Realism assumes that the social world is also external to individual cognition but is a real world made up of hard, tangible and relatively immutable structures irrespective of whether people perceive or label them.

Morgan and Smircich (1980) created a network of basic assumptions that characterise the subjective-objective debate within social science. These authors mapped the ontological assumptions around reality using a continuum between subjective and objective perspectives (i.e., number 1 is a purely subjectivist approach while number 6 a purely objectivist). These assumptions were: (1) reality as a projection of human imagination; (2) reality as a social construction; (3) reality as a realm of symbolic discourse; (4) reality as a contextual field of information (5) reality as a concrete process; and (6) reality as a concrete structure (see Table 7).

5.2.2 Epistemology

Epistemology refers to the nature of knowledge which practically means questioning the sources and the underlying assumptions of knowledge or, stated differently, what we “do know” and “can know” (Allison, 2000). The epistemological position of a research captures the way that the researcher develops knowledge about what is being studied or the relationship between the researcher and the research ‘object’ (Saunders et al., 2007). What constitutes acceptable knowledge for the researcher has to do with the way that knowledge is gained and accepted. The choice of research strategy increases research validity and is closely related to the researcher’s epistemological view which in turn is influenced by the researcher’s beliefs (Andersen and Skaates, 2004).

As it can be seen in Figure 23, the epistemological position of a research may lie in the continuum between *positivism* and *anti-positivism*. On the one hand, positivism reflects the philosophical stand typically adopted within the natural sciences which means that social reality is observable, can be discovered through scientific methods, and can result in law-like generalisations without the researcher influencing, or being influenced by, the research (Remenyi et al., 1998). On the other hand, anti-positivism reflects the relativistic aspect of the social world which means that the social reality can only be understood from the point of view of the individuals who are directly involved in the activities which are to be researched (Burrell and Mordan, 1979).

Allison and Pomeroy (2000) mapped four approaches to research (see Table 8): (1) positivism, (2) post-positivism, (3) critical theory and, (4) constructivism. *Positivism* is a form of philosophical realism that adheres closely to the hypothetico-deductive method (Cacioppo et al., 2004). This means that it focuses on efforts to verify a priori hypotheses usually stated in quantitative propositions that can be converted into mathematical formulas that express functional relationships mainly because it considers that reality is objective and understandable (Guba and Lincoln, 1994; Lincoln and Guba, 2000). Therefore, the primary goal of positivistic inquiry

is an explanation that will ultimately lead to prediction and control of phenomena (Ponterotto, 2005). *Post-positivism* also accepts an objective reality and deals with explanation, prediction and control. However, it considers that true reality is only imperfectly apprehendable and cannot be captured, therefore, a theory cannot be verified but instead, it can be only falsified (Guba and Lincoln, 1994; Lincoln and Guba, 2000) and can determine what is “probable” and not what is “fact” (Allison and Pomeroy, 2000).

Critical theory pertains to the purpose and impact of research upon society (Alison and Pomeroy, 2000). It accepts a constructed lived experience that is shaped by power relations within various contexts (e.g., social or historical) and places emphasis on the dialectical interaction that leads to emancipation from oppression as well as a social order which is more egalitarian and democratic (Kincheloe and McLaren, 1994).

“A reality is assumed to be apprehendable that was once plastic, but that was, over time, shaped by a congeries of social, political, cultural, economic, ethnic, and gender factors, and then crystallized (reified) into a series of structures that are now (inappropriately) taken as “real,” that is, natural and immutable. For all practical purposes the structures are “real,” a virtual or historical reality” (Guba and Lincoln, 1994: 110).

Finally, *constructivism* (or interpretivist) follows a relativist view and assumes multiple, intangible mental constructions, socially and experientially based, local and specific in nature, apprehendable and equally valid realities (Schwandt, 1994). More specifically, individuals seek understanding of the world in which they live and develop through their experiences subjective and multiple meanings (e.g., towards certain objects or things) which are often negotiated socially and historically and are formed through interaction with others and through the historical and cultural norms existing in their lives (Creswell, 2003).

Table 8: Four Philosophical Approaches to Research

(Source: Allison and Pomeroy, 2000: 94)

<i>Issue</i>	<i>Positivism</i>	<i>Post-Positivism</i>	<i>Critical Theory</i>	<i>Constructivism</i>
Inquiry Aim	Explanation, Prediction, and Control.	Explanation, Prediction, and Control.	Critique and Transformation, Restitution and Emancipation.	Understanding the subjective meaning of the individual in its various constructions and reconstructions.
Ontology (Nature of Reality)	Naïve Realism ¹ — there is a reality that we are able to apprehend: aims to determine what is there.	Critical Realism— there is a reality but it is only imperfectly apprehendable and therefore, predictable only in terms of probability.	Historical realism— virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallised over time.	Relativism ² — reality is multiple and will be constructed differently by people, depending on the meaning they make of their world.
Epistemology (Nature of Knowledge)	Dualist / objectivist ³ ; findings are “true.” Verified hypotheses are established as facts or laws.	Modified dualist / objectivist; critical traditional / community; findings probably true. Non-falsified hypotheses are probable facts or laws.	Subjective, value—mediated findings which account for cultural and historical insights.	Transactional / subjectivist ⁴ ; created findings. Findings are read as significant when individuals’ accounts of their reality converge.
Methodology	Experimental ⁵ / Manipulative; verification of hypotheses, chiefly quantitative ⁶ methods.	Modified experimental / manipulative; falsification of hypotheses, may include qualitative ⁷ methods.	Methods seen as involving dialogue with participants as sources of information.	Hermeneutic ⁸ : information fed back to participants for confirmation of correct interpretations.

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Creswell (2003) discussed one further position about claims of knowledge, called *pragmatism* (see Table 9). This position

“argues that the most important determinant of the research philosophy adopted is the research question—one approach may be ‘better’ than the other for answering particular questions” (Saunders et al., 2007: 110).

More specifically, pragmatism considers that the problem (to be researched) is more important than the methods (of the research) and if the research question does not suggest clearly the philosophy adopted (i.e., positivism vs anti-positivism) then a pragmatist’s view that is perfectly possible to work with both philosophies is confirmed (Creswell, 2003; Saunders et al., 2007).

“The pragmatic method is primarily a method of settling metaphysical disputes that otherwise might be interminable. Is the world one or many? - fated or free? - material or spiritual? - here are notions either of which may or may not hold good of the world; and disputes over such notions are unending. The pragmatic method in such cases is to try to interpret each notion by tracing its respective practical consequences” (James, 1975: 28).

Pragmatism is considered to be the primary philosophy of mixed methods research and an approach to knowledge (theory and practice) that attempts to consider multiple viewpoints, perspectives, positions, and standpoints (Johnson et al., 2007).

Table 9: Alternative Knowledge Claim Position
(Source: Creswell, 2003: 6)

Postpositivism Determination Reductionism Empirical observation and measurement Theory verification	Constructivism Understanding Multiple participant meanings Social and historical construction Theory generation
Advocacy/Participatory Political Empowerment Issue-oriented Collaborative Change-oriented	Pragmatism Consequences of actions Problem-centered Pluralistic Real-world practice oriented

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In summary, the epistemological question of a research is concerned with the nature of the relationship between the “knower/the research participant” and the “would be knower/the researcher” (Ponterotto, 2005). The way a researcher understands the world and communicates this understanding/knowledge is related to his/her assumptions about the nature of knowledge or whether knowledge is hard, objective and can be acquired, versus subjective and experienced based. Regarding this thesis, the epistemological question is: how can the researcher understand, investigate, and gain knowledge about HRMIO in companies that operate in Greece through the absorption of e-HRM and social media? In other words, can the researcher investigate and gain knowledge about HRMIO in companies that operate in Greece through the absorption of e-HRM and social media independently of the investigated “object”? In order to answer these questions, next section will address both, my ontological and epistemological assumptions that characterise my philosophical position in the present research.

5.2.3 Researcher's Philosophical Positions

My philosophical position in the present thesis is *pragmatic*. This means that the underlying assumptions and the general characteristics of my philosophy, based on Johnson and Onwuegbuzie (2004) can be described as follows: traditional dualisms (e.g., subjective vs objective or positivism vs constructivism) are rejected based on how workable they are in solving practical problems; both natural and social world exist and are important; knowledge can be constructed and be based on the reality of the world that people experience and live in; the epistemic distinction between subject and external object is replaced with the naturalistic and process-oriented organism-environment transaction; current beliefs and research conclusions are rarely, or never, viewed as perfect, certain, or absolute; theories become true and they are true to different degrees based on their workability or how well they currently work in terms of predictability and applicability; eclecticism and pluralism are endorsed which means that different or even conflicting theories, methods and perspectives can be useful; practical theory and practical empiricism are also endorsed in determining what works.

Furthermore, human inquiry is analogous to scientific inquiry which is evolutionary and practical and moves towards large truths; truths are instrumental and provisional, a matter of degree (e.g., some approximations are more true than others), can be falsified, and are obtained through experiences and experiments; the absolute truth will be the final opinion probably at the end of history; a value-oriented approach is taken to research deriving from cultural and shared values such as democracy, freedom, equality and progress; organisms are constantly adapting to new situations and environments and thinking follows a dynamic homeostatic process (i.e., belief, doubt, inquiry, modified belief, new doubt, new inquiry); the researcher constantly tries to improve upon past understandings in a way that fits and works in the world in which he operates, thus, the present is always a new starting point for future research; pragmatic method for making methodological choices.

More specifically, the ontological assumption of my research is that there is a capacity of organisations to absorb e-HRM and social media technologies and innovate in HRM and that the researcher will be able to *determine* this capacity (and the respective absorption process) along with the outcome of this process. Based on this assumption, the research embraces post-positivism in the sense that it aims to identify the relationship between different variables such as the antecedents to ACAP, ACAP and HRMIO. In other words, it is assumed that there is an “objective reality” which is the organisations’ capacity to absorb; however, this reality is only imperfectly apprehendable and, therefore, predictable only in terms of probability. For example, it is highly likely that organisations with prior knowledge and experience in ICT for HRM will be able to absorb e-HRM and social media. It is also highly likely that organisations with prior knowledge of and experience in ICT for HRM or organisations capable of absorbing e-HRM and social media will innovate in HRM.

However, this is not to claim that researching organisations’ ACAP and HRMIO will be carried out objectively and without any predetermined values. For example, I subjectively decided to study e-HRM and social media in Greece through the lens of the ACAP theory due to my pre-existing assumptions at the time (based on my background in psychology and strategic HRM), attitudes and beliefs. As Johnson and Onwuegbuzie argued,

“the conduct of fully objective and value-free research is a myth, even though the regulatory ideal of objectivity can be a useful one” (Johnson and Onwuegbuzie, 2004: 16).

In addition, the absorption of ICT is a dynamic and socially constructed phenomenon and involves various groups of organisational members such as HR professionals, managers and employees (see Chapter 2).

“measurement of value creation for diverse groups of users....is needed as the user focus has already become a core issue in IT development and implementation” (Bondarouk and Ruël, 2009: 510).

In other words, people or users from various departments will absorb and use these technologies in organisations, thus, the absorption process is a socially interactive reality and knowledge can be constructed and be based

on the reality of the world that these groups of organisational members experience and live in. This is what Johnson et al. (2007) called, *pragmatism in the middle*, which means in the middle between realism and pluralism or antirealism.

Moreover, this thesis aims to explore if, by drawing on the notion of ACAP, different HRMIO among organisations in Greece can be explained through the adoption, diffusion and exploitation of e-HRM and social media. This is a complex question as it combines information systems (ISs) and HR as well as e-HRM and social media within a specific cultural context at a point of time when economic and political instability occurred. As Bondarouk and Ruël argued, the e-HRM study

“should clearly address the multidisciplinary nature of the e-HRM field, showing an attempt to assimilate IT and HRM knowledge domains. It implies that researchers are not free to treat one of the fields as ‘black boxes’; on the contrary, they have to offer “conceptualization to unfold them both (IT and HR) in their study” (Bondarouk and Ruël, 2009: 513).

Therefore, I expect that the findings from examining and answering a “multi-conceptual question” will work within a certain degree of predictability and applicability under *circumstances* (i.e., ACAP of large companies), *context* (i.e., in Greece) and *time* (i.e., in between financial crises). In other words, the pragmatic findings of this study will be partially true at the time of investigation, however, they may offer a new starting point for future research.

Furthermore, to answer a complex research question and produce knowledge necessary to inform theory and practice a broader and complete range of research questions were required (see Chapter 6). From an e-HRM perspective,

“research should clearly demonstrate a contribution to theory building and (if applicable) to the practice of e-HRM projects” (Bondarouk and Ruël, 2009: 513).

Therefore, the epistemological question, how can the researcher understand, investigate, and gain *practical and theoretical knowledge* of a newly studied and complex phenomenon regarding HRMIO in large

companies that operate in Greece through the absorption of e-HRM and social media, would require (based on Remenyi et al., 1998) an understanding of “*how questions*” (e.g., how companies absorb), “*why questions*” (e.g., reasons companies adopt e-HRM and social media) and “*what questions*” (e.g., what innovation outcomes derive from this process).

“Pragmatism offers an epistemological justification (i.e., via pragmatic epistemic values or standards) and logic (i.e., use the combination of methods and ideas that helps one best frame, address, and provide tentative answers to one’s research question[s]) for mixing approaches and methods” (Johnson et al., 2007: 125).

Bondarouk and Ruël (2009) argued that studies on e-HRM need to become instrumental in constructing shared thinking, symbols, language, and the epistemological boundaries of this new research area because in this way the professional identity of e-HRM will be framed, the types of e-HRM researchers’ activities will be suggested and the kinds of knowledge that e-HRM researchers recognise, value and produce will be prescribed. Marler and Fisher (2013) reviewed e-HRM studies and claimed that it is useful to observe research design variations because each approach has strengths in answering specific kinds of questions particularly at early stages of an area of inquiry that researchers can experiment with via different or even alternating approaches so as to better understand the phenomenon under study. Finally, Strohmeier (2007) also reviewed empirical studies on e-HRM and argued that the methods used to research e-HRM require pluralism. As the author stated,

“only a combination of different methods seems to comply with the often conflicting requirements concerning findings that are concurrently in-depth, proactive, longer-term, reliable and generalizable” (Strohmeier, 2007: 34).

In summary, pragmatism is the philosophical standpoint of the present thesis. The assumptions behind this philosophy allowed the avoidance of pure ontological and epistemological positions in front of a multidimensional and complex research question around a moderately new area of inquiry. The review of existing e-HRM literature calls for knowledge contributions to

both, theory and practice through the combination of research methods and ideas. Although the advantages and disadvantages of different research methods will be discussed in detail later in this chapter, the philosophical foundations of pragmatism led to a specific research design through a specific research purpose.

5.3 Research Purpose

In general, the focal question of a research quite often provides information about the overall purpose of that research. Although the purpose is not always stable and can change over time (Robson, 2002), its classification lies between exploratory, descriptive and explanatory studies (Saunders et al., 2007). If research aims to examine and evaluate a phenomenon that is new - or little is known about it- and to seek understanding on what is happening with this specific phenomenon then the study is more likely to be exploratory; if the research is to portray an accurate profile of persons, events or situations then the study is more likely to be descriptive (Robson, 2002). Finally, if the research aims to form causal connections between variables and explain these connections then the study is more likely to be explanatory (Saunders et al., 2007).

The main question of this research is: *“Drawing on the notion of ACAP, can the adoption, diffusion and exploitation of e-HRM and social media explain different HRMIO among organisations in Greece?”* In other words, the emphasis of this paper is to study and understand the relationship between a number of variables such as the antecedents, the process and the outcomes that derive from the absorption of e-HRM and social media technologies by companies that operate in Greece. However, although the emphasis of this thesis indirectly leads to an explanatory research purpose, the study is exploratory. In other words, this research examines the phenomenon of HRM technology absorption in Greece and seeks to discover and understand what is happening with this specific phenomenon and its effect on innovation within the HR field.

5.4 Research Approach

The choice to use the ACAP theory in this research derived after an extensive literature review on theories which could potentially explore the correlation between variables such as IS, HR and innovation. The ACAP theory was considered to be a comprehensive theoretical perspective in examining innovation in the HR context under a certain research approach. More specifically, there are two main research approaches or forms of scientific inquiry: *deduction* and *induction* (Mantere and Ketokivi, 2013). As Hamlin (2003) argued, there are important differences between inductive and deductive approaches to theory development. *Deduction* requires researcher's creativity in theory creation and includes its testing through active falsification of propositions that may lead to the creation of a revised theory with greater predictive power. *Induction* includes observation and analysis of existing data for the generation of a theory and through the repetition of observations accepts or rejects the validity of the theory.

This research followed a deduction-based analytical procedure by predicting relationships between variables and by deducing hypotheses from the application of the ACAP theory to the HR context. Therefore, the present work is principally based on a deductive logic of testable propositions followed by an in-depth qualitative stage (see next section). These hypotheses are context-relevant and have been established based on previous empirical and conceptual contributions.

However, for the actual design and data collection of this research it was not possible to operate in an "exclusive theory- or data-driven fashion". For example, while reviewing the literature and connecting the IS and HRM contexts I communicated with various HR directors from the Greek HR community collecting data about the issues they face with HR technology. As Morgan argued,

"the actual process of moving between theory and data never operates in only one direction. Outside of introductory textbooks, the only time that we pretend that research can be either purely inductive or deductive is when we write up our work for publication. During the

actual design, collection, and analysis of data, however, it is impossible to operate in either an exclusively theory- or data-driven fashion” (Morgan, 2007: 70-71).

This practical switching between induction and deduction is in accordance with pragmatism and my philosophical position (see Table 10).

**Table 10: Pragmatic Alternative to Key Issues in Research Methodology
(Source: Morgan, 2007: 71)**

	Qualitative Approach	Quantitative Approach	Pragmatic Approach
Connection of theory and data	Induction	Deduction	Abduction
Relationship to research process	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

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Morgan (2007) claimed that the pragmatic approach relies on a version of *abductive* reasoning that moves back and forth between induction and deduction. This can take place by converting first observations into theories and then assessing those theories through action or by using theories to account for observations as an aspect of inductive inferences that, from a pragmatic point of view, can only be assessed through action. Abduction in pragmatic reasoning furthers a process of inquiry that evaluates the results of prior inductions through their ability to predict the workability of future behaviour through the combination of quantitative and qualitative research methods. Therefore, given that the theoretical hypotheses of this thesis have already been drawn based on inductive and deductive studies (see Chapter 3) while a form of abductive reasoning was followed through the practical collection of data during the literature review process, the present research embraces a more deductive approach to research within pragmatism and under a combination of research methods which will be expanded further in the next section.

5.5 Research Methods-Methodology

There are two major methods to research that can be used in studying the social and/or individual world: *quantitative* and *qualitative* (Yilmaz, 2013). These two terms are widely used in business and management inquiry to differentiate data collection methods and data analysis techniques (Saunders et al., 2007). More specifically, qualitative research refers to

“any type of research that produces findings not arrived at by statistical procedures or other means of quantification” (Strauss and Corbin, 1998: 10-11).

Quantitative research refers to data collection techniques and data analysis procedures that uses or generates numerical and quantified data (Saunders et al., 2007). However, definitions of quantitative and qualitative research that mainly differentiate each other by the existence of numeric or non-numeric data ignore the characteristics of these research approaches such as their epistemological, theoretical and methodological underpinnings (Lee, 1992; Yilmaz, 2013) that can be seen in Table 11.

Table 11: Comparison of Quantitative and Qualitative Inquiry Modes
(Source: Yilmaz, 2013: 314)

Quantitative Mode	Qualitative mode
<p><i>Assumptions</i></p> <ul style="list-style-type: none"> • Reality is single, tangible, and fragmentable. Social facts have an objective reality. • Knower and known are independent, a dualism. • Primacy of method • Variables can be identified and relationships measured • Inquiry is objective, value-free. <p><i>Purposes</i></p> <ul style="list-style-type: none"> • Generalisability (Time and context free generalisations through nomothetic or generalised statements) • Prediction • Causal explanations <p><i>Approach</i></p> <ul style="list-style-type: none"> • Begins with hypotheses and theories • Manipulation and control • Uses formal, structured instruments • Experimentation and intervention • Deductive • Component analysis • Seeks consensus, the norm • Reduces data to numerical indices • Abstract language in write-up <p><i>Researcher Role</i></p> <ul style="list-style-type: none"> • Detachment and impartiality • Objective portrayal • Etic (outsider's point of view) 	<p><i>Assumptions</i></p> <ul style="list-style-type: none"> • Realities are multiple, constructed, and holistic. Reality is socially constructed. • Knower and known are interactive, inseparable. • Primacy of subject matter • Variables are complex, interwoven, and difficult to measure. • Inquiry is subjective, value-bound. <p><i>Purposes</i></p> <ul style="list-style-type: none"> • Contextualisation (Only time and context bound working hypotheses through idiographic statements) • Interpretation • Understanding actors' perspectives <p><i>Approach</i></p> <ul style="list-style-type: none"> • Ends with hypotheses or grounded theory • Emergence and portrayal • Researcher as the instrument • Naturalistic or nonintervention • Inductive • Searches for patterns • Seeks pluralism, complexity • Makes minor use of numerical indices • Descriptive write-up <p><i>Researcher Role</i></p> <ul style="list-style-type: none"> • Personal involvement and partiality • Empathic understanding • Emic (insider's point of view)

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This research used a combination of quantitative and qualitative methods in collecting and analysing data so as to explore the relationship between the ACAP of organisations for e-HRM and social media and the innovation in the HR context. Mixed methods research is

“the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration” (Johnson et al., 2007: 123).

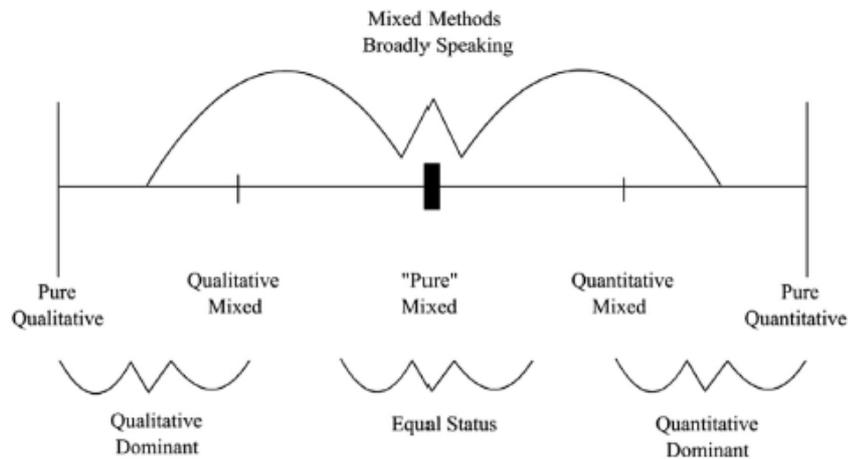
According to Bryman (2007), the research approach may either depend on the research question (particularistic view) or can have a universal suitability (universalistic view). Regarding this study, it did not entail the view that a mixed-method approach would provide better outcomes irrespective of the research aims but instead, it followed a particularistic discourse because the decision to use mixed methods was considered to be the most appropriate one specifically for answering the focal research question. This view along with the choice to use a combination of quantitative and qualitative methods was also based on this thesis' pragmatic assumption that the research question is the most important determinant of the research philosophy adopted (i.e., pragmatism) and that mixed research is 'better' for answering this thesis' research question.

Figure 24 highlights that mixed research can be perceived as generally incorporating several overlapping types of mixed methods. The three main types of mixed methods research, based on Johnson et al., (2007) are: *Qualitative dominant* that relies on a qualitative, constructivist-poststructuralist-critical view of the research process, recognising also the beneficial addition of quantitative data and approaches. *Quantitative dominant* that relies on a quantitative, post-positivist view of the research process, recognising also that the addition of qualitative data and approaches will benefit most research projects. *Equal Status* in which neither quantitative nor qualitative methods dominate. As Johnson and Onwuegbuzie argued,

“in general we recommend contingency theory for research approach selection, which accepts that quantitative, qualitative, and mixed research are all superior under different circumstances and it is the researcher’s task to examine the specific contingencies and make the decision about which research approach, or which combination of approaches, should be used in a specific study” (Johnson and Onwuegbuzie, 2004: 22-23).

Figure 24: Paradigms and Subtypes of Mixed Methods Research

(Source: Johnson, Onwuegbuzie and Turner, 2007: 124)



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In this thesis, Greene’s (2006) work was followed to answer the question of the type of mixed methods used in this thesis. More specifically, a specific “inquiry logic” was adopted (see Domain 2 of Greene) through two “steps of inquiry” or “nature of questions” which were addressed within a single research study. First, the main question referred to the relationship between specific variables from the IS, HR and ACAP perspectives. Quantitative research can be really useful in answering questions of who, where, how many, how much, and what the relationship between specific variables is (Saunders et al., 2007). Therefore, the first part of this study examined the relationship between specific variables referring to the relationship between the ACAP’s antecedents, ACAP process and HRM innovation. As it was mentioned in Section 5.2.3 (philosophy), examining in a specific context and time “*what questions*” or explicitly *what innovation*

outcomes derive through the modelled relationship of specific variables (e.g., adoption, diffusion and exploitation of e-HRM and social media) was considered to be the first and most important step in understanding a rather new research inquiry and a completely newly studied phenomenon in companies that operate in Greece. For this reason, this research is *quantitative dominant* and started with the collection of quantitative data.

However, exploring what is happening in companies that operate in Greece by adopting, diffusing and exploiting e-HRM technologies would not be enough in answering the focal research question or whether the application of ACAP to the “e-HRM world” could explain innovation variances from both, theoretical and practical perspectives. Stated differently, to better understand pragmatically HRM innovation which derives from HR technology absorption would require an in-depth exploration of the ways and the reasons companies absorb these technologies. Therefore, the second inquiry in the present thesis referred to “why” and “how questions” and as Frels and Onwuegbuzie (2013) argued, qualitative research is optimal in answering these types of questions. For this reason, the second research method used in the present thesis is qualitative aiming to examine the *underlying reasons and the specific ways* that organisations operating in Greece absorb e-HRM and social media technologies in order to innovate in HRM.

A key element in the design of a mixed methods research is whether these methods are implemented in *sequential* (i.e., research phases occur in consecutive order) or *parallel* manner (i.e., research phases occur simultaneously) (Teddlie and Tashakkori, 2009). In this thesis, the mixing of quantitative and qualitative data aimed to examine *complementarity* or the overlapping of different facets of the same phenomenon (Greene et al., 1989) regarding the absorption of e-HRM and social media by organisations that operated in Greece. In other words, mixed research was used to address a broad *overarching* research question through quantitative and qualitative approaches (Plano Clark and Badice, 2010).

In complementary mixed methods design the findings from one dominant method are strengthened and improved through findings from another method (Greene and Caracelli, 1997). The deductive, from the literature, creation of a re-conceptualised model that would examine the relationship between variables that had not been empirically researched in the context of HR, required the combination of quantitative (i.e., to get an overview of what is happening in Greece) and qualitative (i.e., to get a deepened knowledge) techniques aiming to answer a complex and not well researched research question about ACAP, IS and innovation in HRM.

Therefore, a *mixed method sequential design* allowed the focus of this research to be allocated to different dimensions of the same phenomenon and the findings of the dominant quantitative methods to be improved and strengthened from the findings of the qualitative stages. More specifically, sequential design was chosen because: the quantitative study (survey) would provide a good base for the succeeding qualitative part (semi-structured interviews); uncertainties concerning interpretations from the quantitative approach could be reduced in the qualitative study; interesting answers from respondents could be easily deepened in the succeeding interviews (see Cronholm and Hjalmarsson, 2011).

In summary, my data collection involved a mixed methods sequential design, firstly by collecting quantitative data for breadth and secondly by collecting qualitative data for depth. The quantitative research was conducted first because the innovation in the HR context due to the ACAP of organisations for e-HRM and social media was underexplored in both, the literature and the Greek context. Since this thesis aimed to examine a rather new research inquiry and a newly studied phenomenon in a specific context and time, it was first needed to understand the relationships between variables by deducing hypotheses (i.e., testing the relationship between ACAP's antecedents, ACAP and HRMIO from the application of the ACAP theory to the HR context in large Greek operating companies) and then the reasons *why* and *how* these relationships occur (i.e., the

underlying reasons and the specific ways that organisations operating in Greece absorb e-HRM and social media technologies to innovate in HRM).

Furthermore, since the main objective of qualitative research was the in-depth exploration of the ways and the reasons Greek operating companies absorb these technologies, the results of the initial quantitative stage could be used to develop and inform the imminent qualitative inquiry. Therefore, starting with a quantitative method in which theories or concepts were tested and continuing with a qualitative method that involved detailed exploration of a few organizational cases allowed: (1) the better understanding of the studied phenomenon, (2) the use of the quantitative findings in partially developing the qualitative method, (3) the elaboration, strengthening, improvement and expansion of the initial quantitative findings, and (4) the examination of intersecting but still different facets of the same phenomenon.

Having narrowed down the research methods employed in the present thesis, the next sections will focus on the research tools used and their implications. More specifically, the next sections describe the use of survey and semi-structured interviews to justify the decision to adopt the survey as the main research strategy and primary data collection technique and then interviews as a secondary and supplementary option.

5.5.1 Survey Research

Pinsonneault and Kraemer (1993) distinguished between a *survey* and a *survey research*. According to the authors, a survey is a means of gathering information about characteristics, actions or opinions of a population (e.g., large group of people) while a *survey research* is differentiated because it: (1) aims to produce a quantitative description of some aspects of the studied population, (2) pertains to the relationship between variables or to projecting findings descriptively to a predefined population, (3) requires as a quantitative methods standardised information from and/or about the subjects being studied, (4) collects information through structured and

predefined questions that people are asked, and (5) uses a sample with the intent to generalise for the population.

There are various ways a survey research can be carried out considering also the technological evolution of some standard data collection methods. These are: face-to-face or phone interviews that are computer assisted or not; mailing or emailing of self-administered questionnaires, web-based questionnaires (Ilieva et al., 2002), mobile-based online surveys (Okazaki, 2007); and structured observations (Saunders et al., 2007). Furthermore, survey research can be used for exploration, description or explanation purposes while each survey method has different advantages and disadvantages. Therefore, a researcher has to make a careful consideration of positive and negative aspects when deciding which survey method is the most suitable for his research. Regarding this thesis, the exploratory survey strategy which can be categorised under the quantitative research methodology was used to obtain primary data through the use of a questionnaire (see Appendix I). The aim of this choice was the exploration of the relationship between the variables of ACAP, ACAP's antecedents and HRM innovation. In other words, the survey research was used for testing the hypotheses that were derived from the re-conceptualised model of ACAP for e-HRM and social media (see Chapter 3).

“The purpose of survey research in exploration is to become more familiar with a topic and to try out preliminary concepts about it” (Pinsonneault and Kraemer, 1993: 79).

Furthermore, given that the present thesis aimed to research at a specific point of time (i.e., cross-sectional study) large firms located all over Greece, personal interviews or postage/mailed questionnaires were rejected as an option. More specifically, a self-administered (via email) questionnaire was used to collect data quickly from a wide audience at a low cost and a good response rate. The decision to use an emailed, instead of a web-based survey was based on the assumption that I would have more control over the data collection process, thus, a better response rate. As Ilieva et al. argued,

“the researcher’s control over respondents entering the web-based survey is lower than for email surveys” (Ilieva et al., 2002: 363).

The weaknesses of survey research include a low response rate, lack of the researcher’s intervention for clarification, size and content limitations (i.e., cannot be complex and long), inaccurate mailing lists and skewed responses (Cooper and Emory, 1995). In addition, as a single-method design, survey can include unsystematic and often inadequate sampling procedures and weak linkages between units of analysis and respondents (Pinsonneault and Kraemer, 1993). The strengths of survey include controllable cost, geographic coverage and anonymity perceptions while they allow approaching busy and difficult to find respondents (Cooper and Emory, 1995). Therefore, survey research was appropriate for this thesis because it represented a wide target population (i.e., large companies that operated in Greece), relied on large scale data that were gathered to enable generalisations about given factors or variables (i.e., ACAP, antecedents to ACAP, HRM innovation), ascertained correlations (i.e., to find out if there was any relationship between variables), and allowed the observation of response patterns and the collection of data which could be processed statistically.

5.5.2 Semi-structured Interviews

The large scale data that was derived from the survey provided a good base for further exploration. After collecting important information about the modelled relationships in this thesis (see Chapter 3), it was examined whether the organisations’ ACAP could help explain variances in HRMIO. Therefore, the exploratory semi-structured interview strategy was a source of searching for explanations using well-grounded and multiple descriptions of the processes behind ACAP and innovation within specific and identifiable local contexts. More specifically, the qualitative semi-structured interviews were used for validating specific measures and for clarifying the meaning of the findings that resulted from the quantitative study (King, 1994).

In addition, the qualitative stage aimed to depict factors that were influencing the absorption of e-HRM and social media in the Greek context

and were not evident in the quantitative stage. In other words, after exploring what was happening using a survey research, the purpose was to depict why and how companies absorbed these technologies, using semi-structured interviews. Therefore, mixing methods of inquiry is

“a process which creates, and analytically exploits, a particular relationship between different sets of data” (Cronin et al., 2008: 127-128)

and is aligned to my philosophical position since

“this approach is a product of the ‘pragmatist paradigm’, rejecting the incommensurate paradigm view of qualitative and quantitative research, and the ‘either/or’ choice between methods” (Waddington, 2005: 222).

More specifically, there was a list of themes and questions to be covered while their usage and order varied from interview to interview depending on the flow of the conversation. Furthermore, some additional questions were generated during the interviews and it was required that they be discussed in order to explore more the research topic considering the nature of events within particular organisations. In addition, the semi-structured interviews were conducted by phone on a one-to-one basis between the researcher and the HR directors of some critically selected companies in Greece (see Section 5.6 on sampling).

Telephone interviewing was chosen because

“this method has many practical advantages, most notably reduced cost, the possibility of quick turnaround time, and the possibility of closer supervision of interviewers to assure greater standardisation of administration” (Holbrook et al., 2003: 80),

considering also that the disadvantages of this method would not affect the particular study. For example, in telephone interviews show-cards cannot be used to make it easier for the respondent to understand questions and remember response categories; a range of non-verbal channels of communication (e.g., misunderstanding, waning motivation, frustration) cannot be available to or easily handled by the researcher (Jäckle et al., 2006); and controlling the pace of an interview and recording might be challenging. However, in the present thesis, the use of show-cards was not

needed, the research topic was not sensitive enough or abstract to generate communication issues, and the recording took place automatically since the telephone was directly connected to a PC (see Section 5.8.3.4).

In summary, this research used mixed methods in collecting and analysing data in accordance with my philosophical position and based on a particularistic view that this was the most appropriate way to answer the focal research question. It was *quantitative dominant* and started with the collection of quantitative data in order to explore the relationship between specific variables (i.e., ACAP's antecedents, ACAP process and HRM innovation). The second research method used was qualitative aiming to examine the *underlying reasons and the specific ways* that Greek operating organisations absorb e-HRM and social media. The mixing of quantitative and qualitative data collection methods aimed to examine the overlapping of different facets of the same phenomenon and took place in sequential order allowing the focus of this research to be allocated to different dimensions of the same phenomenon and the findings of the dominant method to be strengthened and improved from the findings of the other method. Therefore, the dominant quantitative study included a broad survey tool that offered a good base for the succeeding qualitative part. Finally, the qualitative stage included semi-structured interviews with HR directors of different companies. The next section provides the sampling methodology for each of the two aforementioned research methods.

5.6 Sampling

Based on Hinkle et al. (1994), it seems impractical in terms of cost and time to gather information on all members or cases of a population, thus, much research is conducted by studying populations through the use of samples. In general, statistics and quantitative analysis imply that inference will be made from data that represent the total population. Therefore, it is very important to assure that the sample is adequate for drawing conclusions about the whole population. As the authors stated, with inferential statistics researchers test hypotheses about unknown parameters, which are measures of the population sampled. The *population* of a research refers to the full

set of cases or all the units (e.g., people, organisations, etc.) that belong to the category of research interest (Saunders et al., 2007). In this thesis, the population of interest included large (non-SMEs or above 250 headcount) companies, located all over Greece.

There are various sampling techniques that can be grouped in two main categories: *probability* and *non-probability* sampling (see Table 12). Researchers need to decide whether to opt for a probability random sampling whereas the chances of members of the wider population being selected for the sample are known or a non-probability purposive sampling whereas the chances are unknown (Cohen and Holliday, 1996). Probability techniques have an underlying measure of randomness and consequently a degree of generalisability because the degree of difference between the population and the sample (i.e., sampling error) can be calculated while in non-probability sampling methods this error cannot be estimated (StatPac website, 2014). This was the main reason that probability sampling was selected as the sampling technique for the quantitative stage of this thesis.

More specifically, I opted for the simple random sampling which is the purest probability technique that aims to satisfy representativeness and generalisation, and involves the random selection of the required number of subjects from a list of population, called a sampling frame (StatPac, 2014; Saunders et al., 2007). Since the initial aim was to explore ICT in large companies that operate in Greece, an official Greek business directory was required. The ICAP Group is a business services company that manages the main Greek financial directory (Katou and Budhwar, 2006) with more than 60,000 registered companies that operate in Greece (ICAP website, 2014). It also provides financial data for all Plc. and Ltd. firms in Greece based on their press published annual financial statements and relevant data from other sources such as ownership, location, age and employment (Barbosa and Louri, 2005). Of course, this is not to claim that the ICAP database is perfect. For example, it may not include companies that recently entered the Greek market. However, to the best of my knowledge, the ICAP is the most accurate and representative database in Greece and is used for various

research purposes. Also, I had free online access, thus no financial constraints, due to my personal contacts with ICAP's directors. Therefore, ICAP was chosen as the sampling frame of this thesis and after selecting companies with more than 250 employees, a more manageable file was created in a spreadsheet that included 552 firms (population).

Table 12: Sampling Methods
(Source: StatPack website, 2014)

Probability Sampling	
<i>Each Member of the population has a known non-zero probability of being selected</i>	
Random:	Purest form of probability sampling whereas each member of the population has an equal and known chance of being selected.
Systematic:	It is also called an Nth name selection technique. After the required sample size has been calculated, every Nth record is selected from a list of population members. It is simpler than random sampling and is frequently used to select a specified number of records from a computer file.
Stratified:	A stratum or a subset of the population that shares at least one common characteristic is identified and then random sampling is used to select a sufficient (e.g., enough to represent the population) number of subjects from each stratum.
Non-Probability Sampling	
<i>Members of the population are selected in a non-random way</i>	
Convenience:	Used in exploratory research where the researcher is interested in getting an inexpensive approximation of the truth and as the name implies, the sample is selected because they are convenient.
Judgment:	The researcher selects the sample based on judgment which is usually an extension of convenience sampling.
Quota:	Like stratified sampling, the researcher first identifies the strata and their proportions as they are represented in the population and then convenience or judgment sampling is used to select subjects from each stratum. This differs from stratified sampling, where the strata are filled by random sampling.
Snowball:	Snowball sampling relies on referrals from initial subjects to generate additional subjects.

Permission to reproduce this table has been granted by the publisher (StatPac).

In determining the sample size, there are various practical (e.g., cost, time, access) and theoretical (e.g., confidence in data, margin of error) aspects that need to be considered. For many research questions and objectives, the need to undertake particular statistical analyses also determines the threshold and overall sample size (Saunders et al., 2007). In relation to the present study, the newly explored and measured variables of ACAP for HRM

ICT and HRM innovation would inevitably require the exploratory factor analysis or EFA (see Chapter 7). Stevens (1996) argued that the number of participants per variable is a more appropriate way to determine the sample size when conducting EFA, suggesting a minimum ratio of 5:1 (participants: variable or N:p). In this thesis, the number of items used to measure the ACAP were 49 (see Chapter 6), thus, applying the 5:1 rule of thumb would require a minimum sample of 245 firms or 44% of the entire population (i.e., 552 firms). This sample was considered to be adequate recognising also that the majority of Greek operating companies are SMEs (see Chapter 4). Furthermore, for an acceptable margin of error an estimation of the likely response rate or the proportion of cases from the sample that would participate in the survey was required (Saunders et al., 2007). In order to estimate the necessary actual sample size based on the expected response rate, the following formula was used:

$$n^a = \frac{n \times 100}{re\%}$$

Permission to reproduce this formula has been granted by one of the authors (Saunders et al., 2007).

where n^a is the actual sample size, n is the minimum sample size and $re\%$ is the estimated response rate. More specifically, I was expecting a high response rate (around 60 %) due to my large network of HR related contacts in the Greek market since I was an active HR professional in a Greek operating company at the time that the research took place and the use of personal connections is common practice in Greece (Brewster et al., 1996). Therefore, the actual sample size which was randomly selected was; $n^a = 245 \times 100 / 60 = 408$ firms.

Regarding the qualitative stage of this thesis, its emphasis was on depth, thus the sample which was required should be selected with the aim to provide rich information in context and narrative. To identify some indirect factors which did not become evident during the quantitative stage and to discover specific practical examples from the limited companies which had adopted many e-HRM and social media technologies in Greece, the sample for the qualitative stage was small, purposive and non-probability. In other

words, I aimed to identify through an in-depth investigation the underlying issues behind the absorption of specific technologies. This would be possible by gaining the views of some selected stakeholders who had key decision-making roles and positions in the company and were difficult to reach. The selected stakeholders in this study were the HR directors that initially participated in the survey and their companies appeared to be instrumental in initiating and implementing e-HRM and social media technologies. Therefore, these companies were selected as information-rich cases for further exploration.

The sampling strategy for the qualitative stage (e.g., semi-structured interviews with HR directors) was *non-probability, purposive and homogeneous*. Because this thesis principally aimed at generalising to e-HRM context in Greece (see Chapter 6), companies that had adopted e-HRM and social media technologies as indicated by the survey data could provide significant information about the reasons and the logic behind their decisions to adopt such technologies so as to innovate in HRM. More specifically, companies that had participated in the survey were used as the sampling frame for the qualitative part of the research and based on a specific identifier (i.e., their summated answers on question 19 that includes e-HRM and social media technologies) were categorised as high, middle or low ICT adopters. Those companies that were “ICT homogeneous” (i.e., high ICT adopters) formed the selected sample of this thesis (i.e., 21 companies that appeared to have adopted more than 10 e-HRM and social media technologies).

5.7 Ethical Concerns

Research ethics refer to the moral and responsible way that all phases of a research are prepared and conducted by a researcher (Saunders et al., 2007). This encompasses the formulation and clarification of the research topic, the design of the research project, the gaining of access to the data, the collection, processing, storage and analysis of data and the writing, interpretation and presentation of research findings (Saunders et al., 2007).

In this study, a number of protective mechanisms were applied in order to ensure that all potential sources of ethical issues were eliminated or controlled. First of all, all research documents and tools were scrutinised by the Ethics Committee of Glasgow University and were finally approved on May 1st, 2012 after a series of reviews and evaluations. More specifically, the questionnaire used for this research was created to gather data that could have been considered to be confidential by some organisations. In order to minimise potential concerns, the initial email sent to organisations clearly mentioned the purpose of the research and asked receivers (e.g., HR Directors) to read first the plain language statement (i.e., the attached document which included detailed information about the research) and then respond to the questions in the survey questionnaire which was a second attachment in the same email. Furthermore, the email also included a confidentiality statement assuring receivers that their answers would be used solely for the purposes of this study and their reply (e.g., email address and questionnaire) would be permanently deleted from the researcher's account after the completion of the study.

In order to communicate further the moral integrity of the research project, the questionnaire also included an introductory note with a brief description of ethical and confidentiality considerations that aimed to increase the probability for the respondents to become aware of the confidential and scientific nature of the project. This introductory note was by default the first page that the potential respondent would view after opening the attached questionnaire. Therefore, there were three official attempts or protective mechanisms that aimed to assure research appropriateness, confidentiality and anonymity related to the collection of survey data.

However, the interview phase of the study necessitated extra ethical considerations because it involved my direct communication with the research subjects. Therefore, not only a professional and suitable behaviour during the interview was required but also an honest attitude towards the selection of these companies. More specifically, as soon as I identified "high ICT adopters", I personally telephoned the HR directors of these companies,

explained the purpose of the second research stage and requested their participation in the interview. During the telephone call, I emphasised that the main reason for choosing their companies was the fact that they were using e-HRM and social media technologies for HRM purposes and if they verbally accepted to be interviewed, an informative email would be sent officially requesting their participation and providing further information about the details of the study.

The informative email included two attachments, the interview's plain language statement and consent form, and asked receivers to read the plain language statement and then return the consent form signed. This assured their awareness of the main aspects of the study and their conscious decision to participate. The email also mentioned that the receivers' participation would remain confidential and solely for the purposes of the study and assured that their email reply along with the attached consent form would be permanently deleted from researcher's email account after the completion of the study.

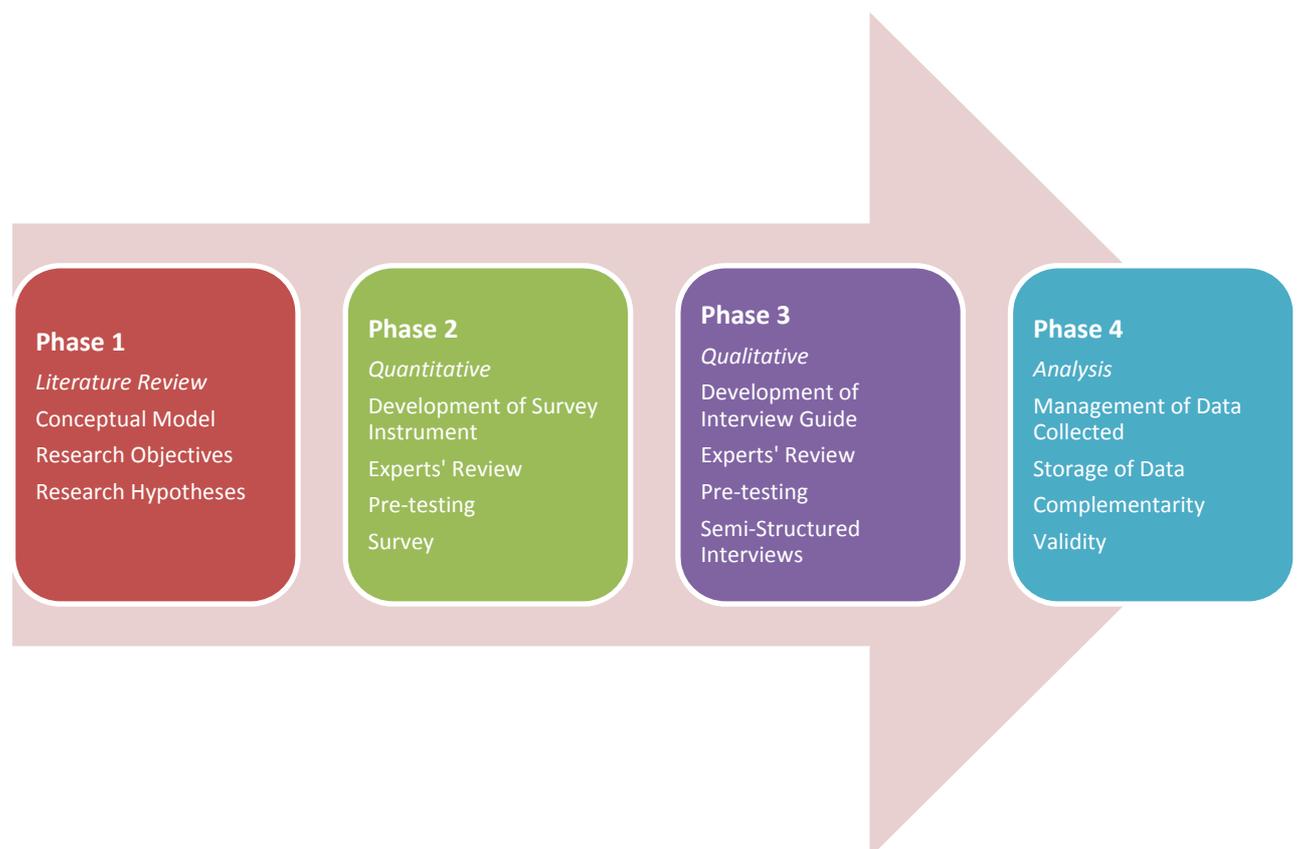
The consent form asked receivers to confirm that they understand the main aspects of the study, recognise that their participation would be voluntary and that they could withdraw anytime, agree with the audio-taping of the interview, acknowledge that the copies of transcripts from the interview process would be returned to them for verification, understand the full anonymity and confidentiality, and finally agree to participate in the study. Therefore, although the interview stage followed a key informant sampling based on the professional network of the researcher, there were a number of official safeguards that aimed to communicate and protect research appropriateness, confidentiality and anonymity related to the collection of interview data.

5.8 Research Design

The design of this research can be characterised as a “four-phase, exploratory design”. As illustrated in Figure 25, it depicts the developmental process of the research formulation as well as the sequential steps in the

data collection. The process began with the literature review and the creation of a re-conceptualised model of ACAP from which specific objectives and hypotheses were generated. In phase two, a survey questionnaire was created, tested and administered to the HR directors of 408 companies which operated in Greece and had more than 250 employees. In phase three, an interview guide was developed, discussed and used as a guiding manual to conduct semi-structured interviews with the heads of HR in companies that operated in Greece and were categorised as “high ICT adopters” from the analysis of the survey data. Finally, phase four included the management, analysis and comparison of all data that was collected in phases two and three.

Figure 25: Research Design Phases
(Source: Author)



5.8.1 Phase 1: Literature Review - Re-conceptualised Model

The literature review process (Chapters 2, 3, 4) gave me the opportunity to examine and understand the topics of ACAP, ICT, e-HRM, social media, innovation, HRM innovation and led to the development of the overall

rationale of this research. The creation of the research rationale took place through the critical evaluation of previous studies that referred to the need for a new research perspective. Therefore, my critical judgment along with the knowledge acquired through an extensive literature review, highlighted gaps in previous research and drove the creation of a re-conceptualised theoretical model. This model aimed to examine the relationship of variables that had not been empirically examined in the context of HR, resolve conflicts in contradictory findings, and contribute mainly to the e-HRM context.

5.8.2 Phase 2: Data Collection - Survey

This phase involved the design, development and validation of a questionnaire that would be used to collect primary data about the organisations' ACAP for e-HRM and social media and HRMIO. The survey strategy: (1) gave the opportunity to question a large number of organisations, (2) was in line with my research philosophy, (3) was a quick and economic approach for collecting an important amount of data, and (4) allowed the exploration of large Greek operating companies' ACAP for e-HRM and social media and HRM innovation.

5.8.2.1 Development of Questionnaire

The questionnaire was developed in 2011 and was an outcome of an extensive literature review the major constructs of which are fully analysed and explained in Chapter 6. It was a self-administered Internet mediated questionnaire (Saunders et al., 2007) which means that it was sent via email through the Internet asking respondents to complete it alone. More specifically, it was administered as an attached document of the email sent to the HR directors of Greek operating companies. Regarding the questionnaire's visual interactive nature, it mainly included forced choice questions (Fox et al., 2003) distributed in an excel spreadsheet (see Appendix I).

The final draft of the spreadsheet consisted of three main sections whereas each section was presented on a different worksheet. The first section was

an introductory note that explained the purpose and details of the research. The other two sections included a total of *twenty-eight questions* divided in eighteen and ten questions respectively. More specifically, the second section encompassed the first eighteen questions that were related to companies' characteristics (e.g., size, organisational structure, sector, profitability, etc.) but also the characteristics of the company's employees (e.g., age, retention, education, ICT knowledge, etc.)

The third section contained the next ten questions and dealt with the absorption of technology and the resulting innovation in HRM. Within this section there were three main parts: (1) the ICTs adopted by organisations for HRM, the automated HRM practices and the characteristics of these technologies (i.e., complexity, applicability or organisational groups that these technologies serve), (2) the way e-HRM technologies had been absorbed by organisations and the different dimensions of the absorption process, and (3) the HRMIO that derived from the absorption of information and communication technologies. Chapter 6 includes specific details about the respective measures.

5.8.2.2 Discussion with Experts

The initial draft of the questionnaire was reviewed extensively by my supervisors and included *thirty-two questions* and one hundred and sixty-six sub-questions. The questionnaire was also discussed with academics that have significant experience in questionnaire development as well as HRM and statistical analysis. A number of personal meetings and phone calls took place in order to receive their feedback. Some of the comments that were provided or the mistakes that were identified were: repeated questions, ambiguity of terms, difficult wording, problematic translation and overall appearance of the questionnaire. The result from these discussions was the modification of the initial questionnaire in order to improve its appearance as well as the quality of its content. However, the supervisors of the researcher believed that the questionnaire should be reviewed and tested by practitioners before submitting it to the university's ethics committee for approval and before administering the survey.

5.8.2.3 Pre-testing of Questionnaire

In order to test the questionnaire that resulted after the researcher's discussions with the academic experts, a pilot survey would have to take place with a small number of organisations and HR practitioners. This practice would provide an opportunity to examine the practical impact of the questionnaire in the chosen data collection method (survey), to assess the practitioners' perspective or issues as regards the questionnaire's content and evaluate their reactions and feedback. As HR and office administration manager for a multinational company that has a presence in Greece, I purposefully selected ten organisations because I knew their HR directors from the Greek HR community personally (past colleagues). More specifically, I contacted them by telephone and informed them about my research, and asked whether they used e-HRM and social media technologies in their companies. Out of the ten practitioners, three claimed that they did not use any kind of technology for people management purposes and two that they would not be able to help me due to their busy schedule. Thus, the questionnaire was administered to five HR directors who were requested to complete as well as to comment on it.

Although the selection criteria of the companies that participated in the pre-testing process of the questionnaire were different from the selection criteria and the sampling methodology of the actual survey (companies that pre-tested the questioners did not have more than 250 employees), all five practitioners actually completed the questionnaire and provided useful advice for improvement. Their comments are classified in three main categories:

1. Too many questions that take more time to be answered than the thirty minutes described in the introductory note.
2. Difficulty in understanding some lengthy questions (e.g. q.26) that creates nervousness to the respondent and will probably result in a low response rate.

3. Some of the questions cannot be answered through the existing answering options (q.15, q.16, q.17, q.18).

4. Some questions are repeated.

Therefore, I reduced the questionnaire from thirty-two questions and one hundred and sixty-six sub-questions to twenty-eight questions and one hundred and thirty-three sub-questions. In addition, some of the questions were rephrased and simplified (q.19, q.26) and some other questions were enhanced by allowing respondents either to leave them blank if they were not applicable to their company (q.15, q.16,) or to mention that they do not know the answer (q.18). Finally, it needs to be mentioned that all respondents characterised the research “innovative for the Greek context” and showed good understanding of the questions despite their comments for improvement.

5.8.2.4 Implementation of Data Collection - Administering the Survey

Before starting the data collection process, I had requested via email official access to the electronic database of ICAP Group. As soon as the authority was given along with the access codes, a master list was exported from this web tool to a spreadsheet and included 552 companies that operated in Greece and had more than 250 employees. These companies were given a unique number ranging from 0 to 551 and 408 companies were selected based on the random application of excel spreadsheets (e.g., one company at a time was given by excel and selected until I reached 408 companies). This spreadsheet did not include the contact details of those responsible for the HR function of these companies. Therefore, additional actions were needed for completing the list and administering the survey. These actions included: (1) the use of a HR magazine (HR professional) with Greek operating companies and the contact details of their HR heads, (2) web search through Google Search Engine, LinkedIn and Facebook, (3) personal phone calls in the call centers of these companies, (4) use of personal network, and (5) face to face meetings with skeptical HR directors.

This process was challenging, time consuming and was completed by the end of April 2012.

The searching process for the contact details of this research's survey respondents occurred simultaneously with the ethical approval process by the Ethics Committee of Glasgow University (see section 5.7) which was also challenging and time consuming. More specifically, the ethical approval process included the assessment of this thesis' research methodology and tools, required three reviews and equal number of amendments before finally approved and lasted approximately six months. Therefore, the reasons that sampling was chosen instead of a census were purely practical because a census would have required much longer administration time and further expense to find the contact details of 144 more HR directors.

The survey was administered at the beginning of May 2012 to 408 heads of HR via electronic mail. The initial email was sent on May 6, 2012 and was followed by six reminders. The first five of them took place between May 6 and July 10, 2012. From July until October 2012 there was a freeze in data collection due to a serious personal health issue. At the end of October 2012, I sent one last reminder in order to complete the data collection. Two hundred out of the 408 companies finally participated in the survey while the dates, content, and outcome of each reminder is presented in Table 13. The respondents of all partially answered questionnaires, irrespective of whether there was one question or one worksheet unanswered, were approached by the researcher either via email or via telephone and were asked either to complete the questionnaire and resend it by any means (e.g., email, fax, etc.) or in several cases to communicate their answers verbally during the call in order for the researcher to keep a hard copied record.

Table 13: Survey Process -Collection of Questionnaires

Survey Process	Dates	Content	Fully Answered	Partially Answered	Total
Initial Email	May 6, 2012	Research details, PLS, Questionnaire	26	34	60
Reminder 1	May 17, 2012	Confirmation Receipt	10	8	18
Reminder 2	May 24, 2012	Submission of Incentives (Training DVD)	22	6	28
Reminder 3	May 31, 2012	Apologizing email for constant reminders	13	3	16
Reminder 4	June 16, 2012	Confirmation Receipt of Incentives	16	8	24
Reminder 5	July 10, 2012	Deadline extension of data collection	3	6	9
Reminder 6	October 22, 2012	Reasoning of freezing data collection	25	20	45
Total			115	85	200

For the 200 companies that actually participated in the survey, an assessment of non-response bias was required since the duration of the data collection actually lasted 6 months (from May until October 2012). Therefore, the non-response bias was evaluated by comparing the means of the key survey constructs (e.g., ACAP and HRMIO) after dividing the 200 participating companies into two main responding categories; those who responded between May and July (mentioned as early respondents) and those who responded after the last reminder in October (mentioned as late respondents). This process, as indicated in Table 14, resulted in insignificant differences in the means.

Table 14: Early - Late Responses Comparison

Variable	Early Responses		Late Responses	
	N	Mean	N	Mean
ACAP	155	74.01	45	69.91
HRMIO	155	41.54	45	38.11

Out of the 408 companies, 37 did not receive the email with the attached questionnaire due to wrong contact details; therefore, the final and actual sample of the survey was 371. Out of these 371 companies, a response was obtained by 200 companies. The total response rate was 49.02% (i.e., $200/408*100$) and the active response rate was 53.9 % (i.e., $200/371*100$). This is a high response rate that allows generalisability for the population of this study (Saunders et al., 2007). Therefore, 171 companies consciously decided not to participate in the research and the reasons are highlighted in Table 15.

Table 15: Non-Response Analysis

Non-Participation Reasons	Number of Non-Participating Companies
Busy Schedule - Lack of time	62
Policy Restriction	27
Bad Timing - Organizational Changes	8
No use of e-HRM or Social Media Technology	7
No explanation	56
Anonymity Concerns	11
Total:	171

5.8.3 Phase 3: Data Collection - Semi-Structured Interviews

This phase involved the design, development and validation of an instrument that would be used as a discussion guide for the collection of secondary in-depth data about the organisations' e-HRM and social media absorption. This phase of the research aimed to explore and understand the underlying reasons and the ways that some specific companies that operated in Greece had adopted e-HRM and social media technology particularly for the management of their human capital. Therefore, gaining responses and information that would not be apparent in a written response on a survey questionnaire but could be developed and clarified further in an interview led to the choice of this research method.

Furthermore, the selection of the semi-structured interview was based on my assumption that a predetermined open-ended questionnaire that would lead to the emerging of other questions through the dialogue between the

interviewee and the interviewer (DiCicco-Bloom and Crabtree, 2006) would be more convenient for the specific research subjects (e.g., mainly Greek managers), would provide more insight considering the complexity of the research topic, and would lead to an understanding of why technology was introduced. Last but not least, the mixed methods sequential design in this thesis and the semi-structured nature of the interviews would also allow the development of complementary questions after the analysis of the survey data.

5.8.3.1 Development of Semi-structured Interview Guide

A semi-structured interview guide was used to manage the discussion with the HR directors. It required flexibility and adaptability in order to obtain the expected information from these busy practitioners, thus, following a standardised pattern of a predetermined questionnaire did not seem to be a suitable method. Furthermore, the fact that there was little research carried out in the area of social media for HRM in Greek operating companies necessitated a flexible type of exploratory interview that would lead to a better understanding of the research topic.

More specifically, a semi-structured interview protocol or guide was created that included 23 questions divided in three main categories: e-HRM questions, generic social media questions, and internally built social media questions (see Appendix II). The e-HRM questions addressed the specific ways and technologies that companies had absorbed to manage their human resources. The generic social media questions addressed the specific social media technologies that these companies used as well as the reasons these tools were used. Finally, the internally built social media questions addressed the specific technologies that these companies had created internally and only for their employees as well as the reasons they had invested in such tailor-made technological solutions.

5.8.3.2 Discussion with Experts

As with the survey instrument, the initial draft of the semi-structured interview protocol was reviewed extensively by the researcher's supervisors

and a few more academics that have long experience in qualitative research methods. There was no change in the content of the guide but an important comment raised was about the necessary comprehension required while executing the interview and the need to pilot the interview with practitioners in order to get their feedback.

5.8.3.3 Piloting the Interview

The piloting of the interviews occurred simultaneously with the pre-testing of the survey questionnaire on the same five HR practitioners. This process took place in 2011 or after the research plan had been designed from the initial literature review and before the university's ethics committee authorisation to start the data collection process. More specifically, the survey and the interview questionnaires were both developed and piloted simultaneously since the main logic of this thesis was to examine different facets of the same phenomenon through mixed methods, so avoiding also the repetition of university's ethical approval process (i.e., one for each questionnaire) and the consequent delay in the data collection process. Moreover, the semi-structured nature of the interview questionnaire allowed for the inclusion of questions that were not initially considered during the creation of the questionnaires allowing the findings of the survey to inform the interviews. Therefore, although the questionnaires were developed, approved and tested simultaneously, the research would take place in a sequential order and the data of the one method could be used to enhance the other.

The 5 piloting interviews were used to rephrase and reduce ambiguities in the interview questions, connect the interview questions with the overall research purpose as well as with the main aspects of the survey questionnaire, test the duration of the interview so as to be accurate in the plain language statement and finally reorganise the interview procedure, guide and approach. The outcome of this process was the reconstruction of the semi-structured interview guide. For example, although the number of questions remained the same, the wording changed in four of them so that they would be more comprehensive and less theoretical in order to be easily

understood by practitioners. In addition, the average duration of the interviews was around 55 minutes and not 30 minutes as initially expected. The final plain language statement of the interview and the semi-structured interview guide were completed and allowed me to create a more accurate communication approach, test my academic interview skills in practice and gain further understanding of e-HRM and social media in Greece.

5.8.3.4 Implementation of Data Collection - Administering the Interview

The sample for the qualitative phase included twenty-one high ICT adopting companies. I aimed to interview these companies' HR directors who were considered as key informants due to their specific knowledge, authority and involvement in the absorption of ICT for HRM. More specifically, an official interview request was sent to these directors via email that included two attachments. The first attachment was the plain language statement (PDF document) and provided specific details about the research and the second one was the consent form (word document). Out of the 21 companies, a response was obtained by 8. The only reported reason that 13 HR directors did not manage to participate was their busy schedule.

All interviews were arranged and executed between January and February 2013 via telephone and not through face-to-face meetings. Telephone interviews are equally effective as face-to-face interviews, achieve successful social interactions, and generate useful data (Irvine, 2011). The phone technology used was Voice-Over IP (VoIP) through the installation of specific software on the researcher's personal computer which was attached to the phone's network. This telephone network captured the Voice packets and records in files that could be saved and processed. Therefore, every telephone conversation was stored as an individual MP3 file which could be saved anywhere and be heard anytime.

Through the use of this software and because the Voice-Over IP was using the same computer network, I was able to scan the network traffic, capture the voice data and store them directly in a digital form. Therefore, the automatic recording added rigor to the telephone interviews because: (1)

there was no need to keep, rely on, and recall notes, (2) the attention and focus was on the discussion, and (3) the transcription was quicker and easier. Finally, it needs to be stressed that I personally conducted all interviews in order to eliminate interviewer biases and assure the consistency of the process and of the reporting of data. The discussions were conducted in the Greek language which was the interviewer and the interviewees' native language and all the interviews were then transcribed and translated into English. Date and time of interviews were arranged according to the interviewees' schedule while each interview lasted 40 minutes on average. The tone of the interview was professional and the schedule was maintained.

5.9 Management, Analysis and Storage of Data Collected

For the storage, coding and analysis of data that derived from the survey, an IBM SPSS and AMOS version 20 was used. The majority of the fields in the questionnaire were numerical fields with the exception of a small number of text fields. All questions of the survey instrument were encoded and were entered into SPSS. When a variable was dichotomic the coding was either 1 or 2 indicating the two axes of answers. For variables described by a five Likert scale a coding from 1 (i.e., strongly disagree) to 5 (i.e., strongly agree) was used. For nominal and hierarchical variables that were not dichotomic or Likert type the coding started from 1 and for continuous variables the scale value was used. All the necessary reversing and missing value treatment was applied through the use of the Bayesian imputation method.

The statistical techniques that were used for analysing the quantitative data were: EFA, CFA, PA, mediation analysis using bootstrapping, moderation analysis, and Pearson's Correlation (see Chapter 7). For the analysis of qualitative data that derived from the interviews, a step-by-step approach was followed in which themes were traced and summarised in the form of indicative verbatim speech marks (see Chapter 8). All email surveys were saved in the researcher's university email account. All hard copies that were sent via fax or mail were kept secure in the researcher's personal cabinets.

All encoded data in SPSS and AMOS will remain stored in the researcher's personal computer for one year after the completion of the study.

5.10 Chapter Summary

This chapter analysed this thesis' research methodology. A combination of *quantitative and qualitative methods* was employed by collecting primary data by means of survey and then secondary data by way of telephone semi-structured interviews. The epistemological approach of this research was *pragmatism* and is fundamentally connected to my ontological assumptions that although there is an intrinsic capacity of organisations to absorb e-HRM and social media that can be studied independently from its social actors, a deeper understanding of a complex phenomenon derives by engaging into these social actors' lives, studying their subjective, interactive and context specific realities. The research purpose of the study was *exploratory* aiming to discover whether the current state of the ACAP theory can explain different HRMIO among large organisations in Greece, specifically focusing on the adoption, diffusion and exploitation of e-HRM and social media.

This study followed a *deductive-based* analytical procedure, despite its practical abductive elements, by deducing hypotheses from the application of the ACAP theory to the HR context. The population in this study included *large companies that operated in Greece*. The sampling frame was *ICAP's database*. The sampling methodology of the survey was *probability random sampling* and the companies for the semi-structured interviews were *homogeneous and purposefully selected*. The ethical concerns of the study were addressed methodologically through a number of *protective mechanisms*. The design of the research was a *four-phase and exploratory*. All research instruments were reviewed or tested by both, academics and practitioners. Throughout the study the researcher followed the appropriate data storage and ethical behaviour protocols. The primary quantitative data was prepared and analysed with the support of IBM SPSS and AMOS version 20 while the secondary qualitative data was prepared and analysed manually by the researcher.

Chapter 6: Research Details

6.1 Introduction

This chapter aims to describe the process by which a focal research question was operationalised to specific research objectives and intentions within the sphere of this research project. Starting from the literature review process that has already been described, this chapter presents the alignment of different research constructs which have been drawn from various bodies of literature within a conceptual model that revealed specific research questions and hypotheses.

More specifically, this chapter starts with a brief reference to the concepts of research interest and the focal research question, outlines the research sub-questions that this thesis aims to contribute to, summarises the research objectives and hypotheses and maps them against the hypotheses. Also, it explains how the different constructs were formed based on the relevant literature, outlines the expected contributions by addressing the research questions, objectives and hypotheses, and connects the conceptual framework of the present research with all the research constructs discussed in this chapter. The ultimate purpose of this chapter is to create a comprehensive understanding for the reader on the main components that formulate the present thesis, summarising at the end all the main areas of research interest, thus making the research process transparent and clear.

6.2 Research Concern: Objectives, Questions & Hypotheses

The starting point of this study was whether the variations in the innovation offered by the HR departments in their respective organisations through the use of technology can be explained. The literature review triggered the specification of the research constructs regarding e-HRM and social media (see Chapter 2), an abstractive and narrowing down process towards the justified selection of a theory and the creation of a research framework (see Chapter 3), the selection of the research context (see Chapter 4), and the clarification of the research gap around HRM innovation through the

absorption of e-HRM and social media in Greece. Stated differently, the literature review process transformed the initial query into a more explicit research project.

More specifically, this study aims to examine HRM innovation among organisations in Greece through the adoption, diffusion and exploitation of e-HRM and social media technologies. Therefore, the focal research question that this study aims to answer is: *Drawing on the notion of absorptive capacity, can the adoption, diffusion and exploitation of e-HRM and social media explain different HRMIO among organisations in Greece?*

Although the development of the main research question was based on abstraction and specification, at the same time it generated a number of sub-questions that also needed to be answered. These questions are:

1. What are the dimensions of organisational ACAP for e-HRM and social media technologies and what is the nature of HRMIO for companies that adopt, diffuse and exploit e-HRM and social media technologies?
2. What are the antecedents to organisational ACAP for e-HRM and social media and how do these relate to HRMIO?
3. What are the main variables that influence the HRMIO through the adoption, diffusion and exploitation of e-HRM and social media?
4. What HRM practices do e-HRM and social media technologies automate and how many stakeholders, and at what degree, are served by these technologies?
5. Why and how do companies that operate in Greece, multinational or local, absorb e-HRM and social media and what are their expectations after adoption?
6. What are the suggestions for HR departments and organisations in order to achieve a successful adoption, diffusion and exploitation of e-HRM and social media?

The focal research question and the resulting sub-questions highlight the overall aim of this thesis which is the development of a new integrative framework on HRM innovation through the adoption, diffusion and

exploitation of e-HRM and social media. In order to achieve this aim a specific agenda of research objectives was created -these are outlined below:

1. To explore and measure the different dimensions of the organisations' ACAP for e-HRM and social media.
2. To explore and measure the different dimensions of HRMIO associated with the organisations' ACAP for e-HRM and social media.
3. To explore and measure the determinants of organisational ACAP and their relationship with HRMIO.
4. To determine the factors which enable or inhibit the adoption, diffusion and exploitation of e-HRM and social media.
5. To describe the level of adoption of e-HRM and social media technologies in Greece.
6. To identify the reasons and the ways organisations which operate in Greece absorb e-HRM and social media.
7. To prepare a set of recommendations for organisations which plan to adopt, diffuse and exploit e-HRM and social media.

Considering the main research question, the consequent sub-questions, the research objectives and the research gaps identified in the literature (see Chapters 2, 3 and 4) a set of research hypotheses was generated (see Chapter 3) and is summarised below:

Hypothesis 1a: *The impact of e-HRM and social media technologies on HRMIO is mediated by the organisations' ACAP.*

Hypothesis 1b: *The impact of e-HRM knowledge complexity on HRMIO is mediated by the organisations' ACAP.*

Hypothesis 1c: *The impact of prior knowledge and experience in ICT for HRM on HRMIO is mediated by the organisations' ACAP.*

Hypothesis 2: *The age of the ICT system for HRM adopted in organisations moderates the relationship between prior knowledge and experience and ACAP.*

Hypothesis 3: *The adoption of more e-HRM and social media technologies in organisations is positively correlated to the degree of automation of HRM practices.*

Hypothesis 4: *The degree of automation of HRM practices in organisations moderates the relationship between knowledge complexity and ACAP.*

Hypothesis 5: *The degree of automation of HRM practices from e-HRM and social media technologies is positively correlated to the degree of the e-HRM service and the number of HR clients served by these technologies.*

Hypothesis 6: *The degree of the e-HRM service and the number of HR clients served are positively correlated to ACAP and HRMIO.*

Hypothesis 7: *All dimensions of ACAP for e-HRM and social media are positively correlated to each other and to HRMIO.*

As mentioned in Chapter 3, the above hypotheses demonstrate the theorised relationships between specific variables. For these relationships and their development process to become more apparent, they are mapped in Table 16 under a quantitative paradigm which is the first research phase of this thesis (see Chapter 5) against the focal research questions, the research objectives and the research sub-questions - each row represents mapped questions, objectives and hypotheses.

Table 16: Mapping Objectives, Sub-questions, Hypotheses - Quantitative Paradigm

Focal Research Question		
<i>Drawing on the notion of absorptive capacity, can the adoption, diffusion and exploitation of e-HRM & social media explain different HRM innovation outcomes among organizations in Greece?</i>		
Research Questions	Research Objectives	Research Hypotheses
What are the dimensions of organizational ACAP for e-HRM and social media technologies and what is the nature of HRM innovation outcomes for companies that adopt, diffuse and exploit e-HRM and social media technologies?	To explore and measure the different dimensions of the organizations' ACAP for e-HRM and social media. To explore and measure the different dimensions of HRM innovation outcomes associated with organizations' ACAP for e-HRM and social media.	Hypothesis 7: All dimensions of ACAP for e-HRM and social media are positively correlated to each other and to HRM innovation outcomes.
What are the antecedents to organizational ACAP for e-HRM and social media and how do these relate to HRM innovation outcomes?	To explore and measure the determinants of organizational ACAP and their relationship with HRM innovation outcomes.	Hypothesis 1a: The impact of e-HRM and social media technologies on HRM innovation outcomes is mediated by the organizations' ACAP. Hypothesis 1b: The impact of e-HRM knowledge complexity on HRM innovation outcomes is mediated by organizations' ACAP. Hypothesis 1c: The impact of prior knowledge & experience in ICT for HRM on HRM innovation outcomes is mediated by the organizations' ACAP.
What are the main variables that influence the HRM innovation outcomes through the adoption, diffusion and exploitation of e-HRM and social media?	To determine the factors which enable or inhibit the adoption, diffusion and exploitation of e-HRM and social media.	Hypothesis 2: The age of the ICT system for HRM adopted in organizations moderates the relationship between prior knowledge & experience and ACAP. Hypothesis 4: The degree of HRM practices' automation in organizations moderates the relationship between knowledge complexity and ACAP.
What HRM practices do e-HRM and social media technologies automate and how many stakeholders, and at what degree, are served by these technologies?	To describe the level of adoption of e-HRM and social media technologies in Greece.	Hypothesis 3: The adoption of more e-HRM and social media technologies in organizations is positively correlated to the degree of automation of HRM practices. Hypothesis 5: The degree of automation of HRM practices by e-HRM and social media technologies is positively correlated to the degree of e-HRM service and the number of HR clients served by these technologies. Hypothesis 6: The degree of e-HRM service and the number of HR clients served are positively correlated to both; ACAP and HRM innovation outcomes.

However, testing these hypotheses within the continuum of a conceptual model will not provide adequate insight into the underlying reasons and the specific practical ways that organisations operating in Greece absorb e-HRM and social media. Therefore, the last objective of this thesis aims to explain why and how companies adopt, diffuse and exploit these technologies, recognising that there might be some practical subtle factors that affect

ACAP and HRMIO and can be understood under a qualitative paradigm. From the analysis of all data collected (quantitative and qualitative), I finally aim to offer a set of recommendations to organisations and HR departments that plan to invest in e-HRM and social media technologies.

Although the overall research methodology is discussed in detail in Chapter 5, Table 17 follows Table 16 and maps those research questions and objectives that will be addressed through a qualitative research paradigm which is the second research phase of this thesis (see Chapter 5).

Table 17: Mapping Objectives, Sub-questions - Qualitative Paradigm

Focal Research Question		
<i>Drawing on the notion of absorptive capacity, can the adoption, diffusion and exploitation of e-HRM & social media explain different HRM innovation outcomes among organizations in Greece?</i>		
Research Questions	Research Objectives	Research Methods
Why and how do companies that operate in Greece, multinational or local, absorb e-HRM and social media and what are their expectations after absorption?	To identify the reasons and the ways organisations which operate in Greece absorb e-HRM and social media.	This goal is aimed at being achieved through the semi-structured interviews with HR managers, line managers and employees.
What are the suggestions for HR departments and organisations in order to achieve a successful adoption, diffusion and exploitation of e-HRM and social media?	To prepare a set of recommendations for organisations which plan to adopt, diffuse and exploit e-HRM and social media technologies.	This goal is aimed at being achieved through the analysis of all data that derived from testing the hypotheses and the interviews conducted.

Finally, before describing the overall contributions of this research to theory and practice, it is very important that all constructs are defined in a clear and explicable way in order to highlight how they are measured. For this reason, Section 6.3 is devoted to analysing the scale development process of the questionnaire used in this research (see Appendix I) focusing, however, only on the main constructs that were included in the conceptual framework of the present thesis.

6.3 Measurement of Research Constructs

As mentioned in Chapter 3, this thesis deals with three major constructs: (1) the antecedents to ACAP for e-HRM and social media, (2) ACAP, and (3) HRMIO. Each of these constructs is measured by items shown analytically in

Tables 18 to 28 -each table includes the items around each construct. All items have derived from the literature and the literature is mapped against each specific question in the “Reference Column” of Tables 18 to 28. In other words, the numbers in the “Reference Column” of these tables represent the analogous articles in the references section of the thesis. Therefore, the numbering of references was specifically applied to present the literature I have drawn on to develop the research questionnaire (i.e., all references throughout the thesis, except in the tables below, are presented with the authors’ names and the articles’ year of publication).

Based on the discussions in previous chapters, HRM innovation through the capacity of the organisations to absorb e-HRM and social media has not been empirically examined. For this reason, the majority of the questions used to measure the constructs of this research have not derived from existing questionnaires or scales but instead they have been created from logical interconnections and interpretations of the existing literature. Therefore, the next sections highlight and explain the development of the questions and the constructs that this thesis aims to measure.

6.3.1 Antecedents to ACAP

This thesis transfers the three major ACAP elements (i.e., antecedents, ACAP, and outcomes) to the HR context and deals with three antecedents to ACAP. These are: (1) e-HRM and social media technologies, (2) knowledge complexity, and (3) organisations’ prior knowledge and experience.

6.3.1.1 E-HRM and Social Media Technologies

The nature of e-HRM and social media technologies is measured through question 19 (see Table 18) which aims to display e-HRM and social media tools that are used specifically for HRM purposes. In other words, question 19 deals with the classification of the technological infrastructure available to companies which operate in Greece. Firms were asked to state which e-HRM and social media technologies were used for the management of HR. In this way, the analysis of the relationship between ICT and the automation of

HRM practices as well as the organisations' ACAP might provide intuitive conclusions.

Firstly, these technologies included the companies' intranet (Alavi and Leidner, 2001; Huang et al., 2004) and the Internet (Panayotopoulou et al., 2007). Also, human resources information systems (HRIS), manager self-service (MSS) (Martin et al., 2008) and employee self-service (ESS_ (Cairns, 2006); Interactive Voice Response Technology (IVR) (Olivas Lujan et al., 2007), mobile technology (Majchrzak (2009) and Enterprise Resource Planning (ERP) for HRM (Strohmeier et al., 2012). The classification of social media technologies was based on Kaplan and Haenlein (2010), Harris and Rea (2009), Mangold and Faulds (2009), Olivas Lujan et al. (2007), Martin et al. (2009), and Andriole (2010). These technologies included: blogs, Really Simple Syndication (RSS), collaborative projects, podcasts, social networking sites, virtual game and social worlds. Based on Andriole (2010), this thesis distinguished between *external* social media tools which are those outside a company's firewalls (e.g., collaborative project such as wikipedia) and *internal* social media tools which are those inside the company's firewalls (e.g., collaborative project such as intranet wikis) or stated differently, only for the company's employees. For example, a company may create a work related wiki on the intranet only for its employees' collaborative publication, knowledge creation and sharing (Majchrzak et al., 2013). All these technologies are presented in Table 18 as appeared in the questionnaire of this research.

Table 18: E-HRM & Social Media Technologies

Question	Description	References
19	Which of the following e-HRM and social media technologies or tools are used in your company specifically for human resources management purposes? Please select one answer for each technology.	
19.1	Company web site - Internet	289
19.2	Intranet	5, 166
19.3	Internet Blogs (or micro blogs) such as Blogspot, Wordpress, Twitter	185, 258
19.4	Intranet Blogs only for company employees	258
19.5	RSS (Really Simple Syndication) through the Internet	185
19.6	RSS (Really Simple Syndication) through intranet	185
19.7	Internet-based collaborative projects such as Wikipedia or social bookmarking	185, 258
19.8	Intranet-based collaborative projects such as company wikis	248, 258
19.9	Intranet podcasts	258
19.10	Internet podcasts	258
19.11	Social networking sites such as Facebook, LinkedIn, Myspace etc.	258
19.12	Social networking "space" only accessible by company employees	185
19.13	Human Resources Information System (HRIS) which is used by the HR function mainly for specific HR processes (i.e., payroll, performance management)	47, 259
19.14	Manager self- service applications	56, 259
19.15	Employee self- service applications	56, 259
19.16	Interactive Voice Response Technology (IVR)	282
19.17	Virtual Game Worlds such as "World of Warcraft"	185
19.18	Mobile technology (e.g., smartphones such as blackberries, i-phones etc.) that allows employees to access company applications	246
19.19	Intranet Virtual Game Worlds only for company employees	185
19.20	Virtual Social Worlds such as "Second Life"	185, 258
19.21	Intranet Social Worlds only for company employees	185, 258
19.22	Enterprise Resource Planning (ERP) that is connected to other departments (i.e., accounting, finance, purchasing)	2, 282, 348

6.3.1.2 Knowledge Complexity

The degree of complexity of a potentially adopted e-HRM system is a determining factor not only in the adoption phase but also in the diffusion and exploitation phases. The extent to which an individual believes that the

use of a particular system would require little or no effort (Davis et al., 1989) or the degree to which a system is perceived as relatively difficult to understand and use (Moore and Benbasat, 1996) are important parameters in the absorption of technology. Rogers (1983) defined complexity or simplicity of a system as a characteristic that influences an individual to use or reject a technology. Consequently, the degree of a system's complexity, referred to as knowledge complexity in this thesis (see Chapter 3), can be an important determinant of ACAP for e-HRM and social media technologies.

As it can be seen in Table 19, what was examined is the extent to which a system is: complex and inflexible (Kossek et al., 1994; Rowley and Warner, 2013); difficult or easy to use (Haines and Petit, 1997; Baker et al., 1998); inconsistent with the company's practices (Panayotopoulou et al., 2007); user-friendly (Ashbaugh and Rowan, 2002); and whether it matched the company's specific needs and demands (Zhang and Wang, 2006). Furthermore, questions 20.8 to 20.11 contradicted questions 20.1 to 20.4 (i.e., opposite meaning) and were used as a "response checking mechanism". Finally, what was also examined is the complementarity and relatedness (Lenox and King, 2004) of technology, the requisite qualifications for dealing with the new adopted technology (Gardner et al., 2003), the use of existing vendors (Wickramasinghe, 2010) and the institutional environment that drives mimetic behaviors on e-HRM adoption (Strohmeier, 2007).

Table 19: Knowledge Complexity

Question	Description	References
20	To what degree do the following statements apply to your company regarding the characteristics of e-HRM technologies?	
20.1	The e-HRM technology was complex and difficult to use	203
20.2	The e-HRM technology was not applicable to company routines and everyday practices	289
20.3	The e-HRM technology was not easily exploited by the users	19, 135
20.4	The e-HRM technology was totally new in relation to systems and tools that were already in place	166, 289
20.5	The e-HRM technology complemented users' previous experience in and knowledge on technology in HRM	119, 228
20.6	The company used existing technology vendors without searching for new options	166
20.7	The company invested in this technology because other close competitor companies used it	345
20.8	The e-HRM technology was simple and user-friendly	14, 320, 390
20.9	The e-HRM technology was applied easily to company routines and everyday practices	277
20.10	The e-HRM technology was used quickly by the users	14, 320, 390
20.11	The e-HRM technology was relevant to systems and tools that were already in place	277

6.3.1.3 Prior Knowledge and Experience

It is commonly argued in ACAP literature that prior knowledge and experience are significant factors that influence the absorption of new knowledge and, consequently, the development of ACAP (Cohen and Levinthal, 1989, 1990; Matusik and Heely, 2005; Narasimhan et al., 2006). According to Cohen and Levinthal, organisations are able to capitalise on the knowledge acquired from external sources if they have prior knowledge to do so and if, as Khoja and Maranville (2010) claimed, firms do not maintain their current know-how capacity, they are likely to result in incumbency and reduction of knowledge. From an HR perspective, companies need to have some prior related knowledge and/or experience in e-HRM or related ICT structures (Martin and Reddington, 2009) so as to be able to see and identify the potential benefits of e-HRM and social media

technology. Therefore, the degree of prior knowledge and experience of potential users in HR related ICT at the time that a company is interested in adopting these technologies (see Table 20) can be an important determinant of ACAP.

Table 20: Prior Knowledge & Experience

Question	Description	References
17	When your company first became interested in the adoption of ICT for HRM purposes, how experienced and knowledgeable in these technologies were your potential users?	66, 255, 275, 367, 389

6.3.2 ACAP

In this paper ACAP refers to the firms' ability to deal with external e-HRM and social media technology or knowledge and operationally captures the firms' dynamic capabilities on recognising the value of, acquiring, assimilating or transforming and exploiting new external e-HRM and social media. For the operational classification of ACAP in this thesis to become apparent, the tables below present the items that have derived from the literature and measure ACAP's dimensions for e-HRM and social media (i.e., within the HR context).

6.3.2.1 Value Recognition

Taking into consideration that the value recognition of new external knowledge is an important component of ACAP (Cohen and Levinthal, 1990; Todorova and Durisin, 2007) strengthens the conclusion that the capability of organisations to absorb e-HRM and social media technologies will depend on their ability to recognise the value of this knowledge. Since an e-HRM system can represent a large investment decision for companies of various sizes its benefits should outweigh its costs (Lengnick-Hall and Moritz, 2003). In other words, it seems to be critical for any company to learn and weigh the advantages and disadvantages of e-HRM before deciding to invest in and acquire it. According to Strohmeier (2009), a general understanding of e-HRM consequences supports practice in its decisions. Although the common

adoption of e-HRM is based upon the expectation of positive benefits and consequences (Parry, 2011), companies have differing abilities in developing general knowledge and making superior guesses on the correct valuation of knowledge assets in the face of uncertainty (Narasimhan et al., 2006). An explicit awareness of the potential benefits and/or problems that may arise from the use of e-HRM technology will theoretically enable a company to select a suitable technology.

Determining the extent to which a company pays attention to the explicitness of the system's advantages and disadvantages is fundamental since it supports, or not, the respective decision making and determines the company's adoption of e-HRM technology. Therefore, a number of variables or parameters can be considered before a company decides to invest in and consequently absorb e-HRM technology. For this reason, question 24 of this thesis' research questionnaire examines how much attention Greek operating companies paid to these parameters in order to recognise the value of e-HRM technology before deciding to acquire it (see Table 21).

Table 21: Value Recognition

Value Recognition	Items (Five-point scale varying from “not at all” to “very much”)	
Question	Description	References
24	Thinking of your company’s adoption of e-HRM technology, how much attention did your company pay to the following factors?	
24.1	To learn about the system’s advantages and disadvantages	227, 346
24.2	To develop a company ‘conception’ of the system’s functionality	334
24.3	To determine the ‘value’ of the system and the benefits for the company through its purchase	115, 227
24.4	To understand the system’s specifications	334
24.5	To recognise the necessity of the system for the company	252, 334
24.6	To quickly collect a great deal of information on alternative technological choices	334
24.7	To examine the extent to which a specific technology can be ‘developed’ or ‘installed’ by the IS or IT department (i.e., without going through an external supplier)	40, 232, 334
24.8	To estimate the depreciation period and/or return on investment	227, 390
24.9	To cover commercial or client interests (e.g., collaboration with existing clients and suppliers in the technology field)	275, 359
24.10	Its functionality (operation) and efficient performance	334
24.11	Its user-friendliness (e.g., if it is easy or difficult to use)	40
24.12	The number and type of potential problems that might arise during its application	163
24.13	The level of user acceptance or rejection of the program (system)	42, 115
24.14	The degree of compatibility with the other programs used by the company	228, 334
24.15	Its complementarity with the other programs used by the company	334, 389, 390
24.16	The degree of complexity in the applications of the system	65
24.17	To what extent the specific program (system) is aligned to the company’s business strategy	232
24.18	The different interests of the users through the use of the specific program (system)	42, 340
24.19	The level of ‘benefits’ that the system (program) ‘promises’ for the companies that use it	227, 275, 299
24.20	The development of the general knowledge level of system (program) users	66, 275
24.21	The degree of the system’s influence on the relationship between the HR department and other departments	115, 194
24.22	The possibility of increasing the work performance of system users	115, 256
24.23	Improving time management of system users	115, 227, 390

6.3.2.2 Acquisition

Acquisition in this thesis is considered to be the dynamic capacity of organisations to acquire external knowledge after, however, identifying and recognising the value of this knowledge (Martin and Reddington, 2009). More specifically, Martin and Reddington's propositions for e-HRM acquisition were practically based on the ACAP conceptualisations of Jansen et al. (2005) and referred to the frequency of interactions between HR departments and the potential sources of e-HRM knowledge. Based on the same logic, question 25 examines a number of different methods Greek operating companies could follow in order to gather information on the principles and benefits of e-HRM technologies through different interactions with various e-HRM knowledge sources. These methods are abridged in Table 22.

Table 22: Acquisition

Question	Description	References
25	Thinking of your company's adoption of e-HRM technology, which of the following methods of gathering information on the principles (e.g., components, functionality, etc.) and benefits of the new e-HRM technology did your company follow?	
25.1	Participation in technology conferences	176, 255,275
25.2	Contact with training organisations	176, 255,275
25.3	Contact with company headquarters	176, 228, 255, 289
25.4	Contact with other companies in your sector	176, 255
25.5	Contact with specialist technology suppliers that the company had collaborated with in the past	176, 255
25.6	Contact with 'new' specialist technology suppliers that the company had not collaborated with in the past	176, 255
25.7	Contact with the company's IS or IT department so as to develop the system within the company	255, 289
25.8	Research through channels that advertised or promoted new technologies	176, 255, 275
25.9	Systematic research on the Internet	71, 255
25.10	Systematic observation of developments in the ICT sector	71, 255

6.3.2.3 Assimilation-Transformation

As discussed in Chapter 3, in this thesis transformation is not regarded as a consequent, but as an alternative process to assimilation. In other words, transformation takes place only when knowledge cannot be assimilated. This is a very important assumption that led me to treat assimilation and transformation as alternative processes. Therefore, it is very important in this section to describe and clarify both, assimilation and transformation of e-HRM and social media knowledge under the assumption that the degree of compatibility between new e-HRM knowledge and the organisation's prior knowledge and experience determine which process will surface.

Based on Todorova and Durisin (2007), prior knowledge and experience is considered to be a decisive factor in designating what follows the

acquisition of new e-HRM and social media technology. It is the existing knowledge and the cognitive processes of the employees that determine whether assimilation or transformation is going to take place. According to Vega - Jurado et al. (2008), organisational knowledge includes the firms' set of skills, knowledge and experience and is determined by the firm's prior knowledge base, the accumulated experience in knowledge search, the individual skills of its employees, and its R&D activities. As they argued, ACAP builds on the firm's existing knowledge and is more probable to be developed and sustained when the new knowledge that the firm wishes to exploit is closely related to its current knowledge base. Similarly, Lenox and King argued that

“the relatedness of the knowledge stock influences which types of new knowledge and practices are likely to be absorbed” (Lenox and King, 2004: 332).

Therefore, the relatedness of previous knowledge on HR related ICT of potential e-HRM users will determine their cognitive processes and consequently the assimilation or transformation processes.

Based on this logic and on the assumption that e-HRM involves not only the HR function but also managers, employees or teams from various departments, the assimilation or transformation of e-HRM can involve selected individuals, teams or even the whole organisation. In other words, although past research has assumed that e-HRM involves only the HR function's ACAP, the self-service on-line applications available to employees and the broader availability of social media technologies through the web, call for a decentralised diffusion system that these technologies will spread among the clients of the system. Therefore, the HR clients -irrespective of whether they are selected individuals, teams or the whole organisation and all employees- will be part of the assimilation or transformation process of e-HRM technology as end users of its functionality.

Little (2012) claimed that in social sciences the “individual” cannot be totally separated from the “social”.

“Social life exists only by virtue of actors who live it; consequently a social fact of any kind must be explained by direct reference to the actions of these constituents” (Demeulenaere, 2011).

Accordingly, the way organisations and HR departments diffuse newly adopted e-HRM technology cannot be illuminated without the study of the employees’ actions either as individuals or in teams. In other words, a macro-to-micro approach or a micro-to-macro level of analysis would limit the scope because e-HRM and social media are open to many actor categories. Therefore, in order to embrace the accessibility aspects of this technology a multi-level approach was needed. Also, individuals are those who form larger institutions, while these larger entities variously influence and affect individuals;

“system-level characteristics have effects on behaviour at the individual level” (Little, 2012: 142)

and vice versa. In this thesis, e-HRM assimilation and transformation are examined at an organisational, team and individual level because the recipients of e-HRM can be organisations as a whole, HR departments, HR clients or other departments and stakeholders.

“Actors of e-HRM are all those who perform e-HRM, as e.g. HR professionals, line managers, employees, consultants, applicant etc. Besides, individual actors on the micro-level, collective actors like groups, organisational units and even whole organisation are incorporated on the macro-level” (Strohmeier, 2007: 21).

According to Lepak et al.,

“research on HR systems at individual level of analysis may prove most appropriate to provide insights into the black box or the intervening mechanisms of how HR systems relate to organisational performance measures” (Lepak et al., 2006: 245).

Therefore, assimilation and transformation were examined from a multi-level perspective and attention was given only to the alternative aspects of cognition and learning that are applied according to the type of new external knowledge (see Todorova and Durisin, 2007). For example, if e-HRM fits the cognitive schemas of the “absorbers”, new knowledge is incorporated without being altered into the existing structures of cognition and is also assimilated. This means that the individuals, teams or

organisations that will have to work with a new e-HRM system will assimilate this technology only if it is compatible with their prior knowledge and experience.

However, when new e-HRM cannot be realistically altered to fit the existing knowledge structures of the “absorbers” then accommodation through transformation as an alternative process to assimilation occurs. In this case, the cognitive structures of the individuals themselves must be transformed to adapt to the new technology that they cannot assimilate. This means that the individuals, teams or organisations that will have to work with a new e-HRM system will redefine, change and transform their knowledge base and/or routines if this new technology is incompatible with their prior knowledge and experience.

Table 23: Assimilation-Transformation

Question	Description	References
26	Considering the degree of compatibility between the new e-HRM technology and the prior knowledge and experience of the employees, to what extent do the following scenarios describe your company's situation?	
26.1	The individuals or teams who had to work with the new e-HRM technology interpreted and understood easily this e-HRM system because its principles (e.g., components, functioning etc.) were compatible with their prior knowledge on and experience in technology	239, 359
26.2	The individuals or teams who had to work with the new e-HRM technology did not interpret and understand easily this e-HRM system because its principles (e.g., components, functioning, etc.) were not compatible with their prior knowledge on and experience in technology	239, 359
26.5	After the acquisition of new e-HRM technology, the company interpreted and understood easily this e-HRM system because its principles (e.g., components, functioning, etc.) were compatible with the company's prior knowledge on and experience in technology, working processes and everyday routines	239, 359
26.6	After the acquisition of new e-HRM technology, the company did not interpret and understand easily this e-HRM system because its principles (e.g., components, functioning, etc.) were not compatible with the company's prior knowledge on and experience in technology, working processes and everyday routines	239, 359

Table 23: Assimilation -Transformation (continued)

Question	Description	References
26	Considering the degree of compatibility between the new e-HRM technology and the prior knowledge and experience of the employees, to what extent do the following scenarios describe your company's situation?	
26.3	The individuals or teams who had to work with the new e-HRM technology redefined and changed a lot from what they already knew about technology in order to eventually adapt to the logic and frame of this technology because its principles (e.g., components, functioning, etc.) were not compatible with their prior knowledge on and experience in technology	239, 359
26.4	The individuals or teams who had to work with the new e-HRM technology did not redefine and change a lot from what they already knew about technology in order to eventually adapt to the logic and frame of this technology because its principles (e.g., components, functioning, etc.) were compatible with their prior knowledge on and experience in technology	239, 359
26.7	After the acquisition of new e-HRM technology, the company redefined and changed a large part of its previous knowledge, routines and processes that were standard aspects of its daily activity because the principles (e.g., components, functioning, etc.) of the new e-HRM system were not compatible with company's previous knowledge, processes and working habits	239, 359
26.8	After the acquisition of new e-HRM technology, the company did not redefine and change part of its previous knowledge, routines and processes that were standard aspects of its daily activity because the principles (e.g., components, functioning, etc.) of the new e-HRM system were compatible with company's previous knowledge, processes and working habits	239, 359

6.3.2.4 Exploitation

Exploitation is an organisational capability that is based on routines (Zahra and George, 2002) and captures in this thesis how e-HRM and social media users and organisations exploit the potentials of these technologies by refining, extending and leveraging existing capacities, practices or routines and then how they create new uses, practices, routines, services or products. In other words, it refers to the practical experimentation of users and organisations with new e-HRM and social media technologies and the adaptation process that they go through by experimenting with and exploiting these new technologies.

A number of parameters may enhance or impede the exploitation of new e-HRM technologies. For example, new external knowledge that is applicable

and covers a number of the company's needs will be more easily exploited, however, a high level of formalisation in a firm may hinder the exploitation of knowledge as formalisation comprises rigid structures that are difficult to be altered (Vega-Jurado et al., 2008). There is a wide body of literature supporting that e-HRM can improve the efficiency (Parry, 2011; Lepak and Snell, 1998; Hendrickson, 2003; Zhang and Wang, 2006; Gainey and Klaas, 2008; Martin et al., 2008; Martin and Reddington, 2009) and the effectiveness of HRM activities (Lengnick-Hall and Moritz, 2003). However, in many cases a company has to alter its routines to fully exploit the new acquired knowledge and even change its business model (Martin and Reddington, 2009). Although many firms claim that they had initiated HR reengineering in their attempt to cause cultural change (Shrivastava and Shaw, 2003), cultural change is less likely to occur unless companies modify the existing processes and routines. Finally, rather often companies incorporate a system into their standard HRM practices and routines. According to Jansen et al. (2005:1003), routinisation (i.e., routine tasks) provides efficient structures which permit the implementation of new external knowledge into existing sets of tasks. Therefore, question 27 examined the ways e-HRM technology was exploited by its users and the organisations in Greece (see Table 26).

Table 24: Exploitation

Question	Description	References
27	To what degree do the following statements apply to your company regarding the exploitation of e-HRM technology?	
27.1	The individuals who worked with new e-HRM technologies typically exploited their potential to create new uses for them	368
27.2	The individuals who worked with new e-HRM technologies reorganised daily tasks in a more effective way	227
27.3	The individuals who worked with new e-HRM technologies extended and leveraged their existing competencies on technology by incorporating the new system into their standard job	227
27.4	The individuals who were called upon to work with these new technologies continued their work as before without any essential change	227
27.5	After adopting and diffusing new e-HRM technologies within the organisation, the company gradually began to operate more effectively than before	66, 115, 149, 227, 229, 258, 259, 299, 390
27.6	After adopting and diffusing new e-HRM technologies within the organisation, the company created new routines and processes in order to use the system in a better way	258, 334
27.7	After adopting and diffusing new e-HRM technologies within the organisation, the company incorporated the system into its standard HRM practices and routines	176, 367

Finally, I need to stress that the purpose of my thesis was to measure ACAP for e-HRM and social media as a whole in order to examine its mediating effect on the relationship between the antecedents and the outcomes. I did not aim to examine which dimension of ACAP comes first or second and which dimension causes the development of the other. Therefore, in accepting that the dimensions of ACAP are combinative in nature and build upon each other to produce a dynamic capability (Zahra and George, 2002) and assuming that all dimensions of ACAP are positively correlated to each other (see section 3.7.4) this thesis does not aim to examine the direction of causality between ACAP dimensions.

6.3.3 HRM Innovation Outcomes

Broderick and Boudreau (1992) argued that *innovation* or the creation of new management methods, operations, products or services is one of the strategies that the HR must apply in order to add value and assist its company allocate better its resources and gain competitive advantage. Bondarouk and Ruël (2009) defined e-HRM as an integration between HRM and IT that aims to add value within and across organisations.

“An organisation’s e-HRM system may be value producing when it is configured as a combination of Internet-based information technology resources, human resources consisting of IT, HRIS and HR knowledge, skill, and experience and organisational processes that facilitate organisational agility, learning, and innovation” (Marler, 2009: 522).

By treating innovation without assuming its objective newness to the studied context (see Chapter 2) means that the outcomes of new e-HRM technology did not exist in the company before the absorption of this technology. Therefore, the term *value* captures both, the e-HRM technologies and the possible innovation these technologies can potentially bring to organisations if absorbed.

To measure innovation in HRM that resulted from technology or what is called in this thesis “HRMIO”, I used twenty-two items asking respondents to assess the extent to which each item or outcome actually occurred in their organisation (see Table 25).

Table 25: HRM Innovation Outcomes

Question	Description	References
28	To what extent were the following a result of the new e-HRM technologies?	
28.1	Improvement in the quality of HR 'deliverables'	192, 227, 311
28.2	Reduction of human error in HR 'deliverables'	115, 192, 227, 348
28.3	Reduction of administrative expenses in the HR department	51, 88, 106, 256, 315, 324
28.4	Reduction of staff in the HR department	47, 51, 119, 256, 299, 324
28.5	Reduction of operating expenses in the HR department	119, 256, 324,
28.6	The information that the HR department supplied (unilateral communication) to other departments increased	47, 227, 256
28.7	The communication between the HR department and the other departments (bilateral communication) was improved	40, 42
28.8	Improvement in the speed at which HR department's services were delivered	47, 115, 227, 299, 324,
28.9	The employees redefined the way they viewed their personal development	222, 348
28.10	The company reorganised the way it managed the skills and the talents of its people	40, 47, 227, 256
28.11	The company improved its image and reputation internally	192
28.12	The company improved its image and reputation externally	60, 63, 103,
28.13	The employees' relationships were improved	211, 227
28.14	The employees' engagement and loyalty was increased	119, 229, 256, 324
28.15	The employees' satisfaction was increased	47, 115, 256
28.16	The paper work was minimized	47
28.17	Some HR staff found more time to get involved with more strategic work	47, 115, 119, 148, 227, 256, 324, 339, 340
28.18	The company improved the way it managed knowledge	47
28.19	The company's culture towards people management was improved	256
28.20	Employees redefined their need for improving their individual knowledge	229, 256, 382
28.21	The company improved its technology competencies	232
28.22	The HR function improved its reputation	51, 227, 324

6.3.4 Important Variables

Although the main elements of this thesis are three: (1) the antecedents to ACAP, (2) ACAP itself, and (3) the outcomes of ACAP, there are some additional variables that affect significantly the modelled relationship between these three major elements. As described in Chapter 3, these variables are: (1) the degree of automation of HRM practices, (2) the age of ICT for HRM, and (3) the internal or external stakeholders of e-HRM and social media, namely HR clients.

6.3.4.1 Degree of Automation of HRM Practices

According to Schuler and MacMillan (1984), HRM practices include the activities companies perform in order to attract, retain and motivate employees. These authors considered that the key HRM practices include: HR planning, staffing, recruitment, selection, socialisation, appraising, compensation, training and development, and union-management relationships. Similarly, Wright et al. defined HRM practices as

“organisational activities directed at managing the pool of human capital and ensuring that the capital is employed towards the fulfilment of organisational goals” (Wright et al., 1999: 552).

Therefore, HRM practices include the conscious and realised “ways” organisations increase employees skills and make them achieve goals and contribute (Wright et al., 1994; Wright et al., 1999).

This thesis explores which HRM practices are automated through a company’s e-HRM and social media technologies as well as the degree of automation of these practices (see Table 26). Based on the aforementioned definitions, HRM practices are considered those organisational activities companies perform through e-HRM and social media technologies to attract, retain and motivate employees. According to Gardner et al.,

“automation has an established presence within HR” (Gardner et al., 2003: 162).

The major assumption in this thesis is that e-HRM technologies can have an automation impact on every area of HRM, thus, on every HRM practice or

activity. More specifically, this thesis examines the effect of e-HRM and social media technologies on thirteen key HR practices (see Table 18). For example, Parry (2011) examined e-HRM as a means to increase the value of the HR function and listed nine HR practices for measuring e-HRM use. These were: payroll, benefits, time attendance, recruitment, training, performance management, career/succession planning, work scheduling and, health and safety. However, I added in this thesis three supplementary HRM practices: (1) staff search and selection, (2) internal company's communication, and (3) travel management.

Table 26: HRM Practices Automation

Question	Description	References
21	Which of the following HRM practices are at least partially automated through your company's e-HRM system(s)?	
21.1	Staff search and selection	106, 230, 256, 289, 315, 330
21.2	Staff recruitment	88, 162, 184, 230, 289, 315, 330
21.3	Performance evaluation	230, 256, 289, 330
21.4	Internal company communication	256, 330
21.5	Communication with third parties outside the company	211
21.6	Payroll	256, 330, 353
21.7	Benefits	230, 256, 289
21.8	Training	256, 289, 330, 345, 382
21.9	Career development	289
21.10	Time tracking	115
21.11	Travel management	Author
21.12	Health and Safety	299, 345

6.3.4.2 HR Clients

This thesis uses the term “HR clients” to describe the multiple stakeholders or customers that the HR is expected to serve and cover their needs through the automated HRM practices. More specifically, I classify six possible clients of HR that can be served by technology. These are: (1) the HRM

department, (2) company managers, (3) company employees, (4) other stakeholder groups such as shareholders or unions, (5) groups or individuals without a direct relationship to the company such as future job candidates, future investors, potential future clients, potential future suppliers, and (6) groups or individuals who have or had a direct relationship to the company such as former company employees, suppliers, clients, and insurance agencies (see Table 27).

The HR department is the basic “client” of e-HRM (Hendrickson, 2003). Viewing e-HRM as the application of any technology that enables managers and employees to have direct access to HR and other workplace services means that managers and employees can rely on different technologies for different reasons (Fein, 2001; Hendrickson, 2003). For example, Lepak and Snell (1998) claimed that when employees and managers have remote access to HR data bases and information through e-HRM they increase their ability to serve themselves and to connect with other parts of the company. According to Ulrich (1997), managers and top line executives serve as HR’s most significant clients (Ulrich, 1997).

However, HR clients are not only managers and employees, but also job applicants (see also DeKay, 2009; Holm, 2012), contractors and external HR partners such as outsourcing companies (Lepak and Snell, 1998) or suppliers, consultants and providers (Kovach et al., 2002). I also believe that HR customers are groups or individuals who used to have a past relationship with a company such as former employees, clients or suppliers. For example, consider a company’s former employee who needs an employment confirmation document being able to make an online request and potentially be served alone by getting the document automatically through the Internet. Finally, an e-HRM system can also serve shareholders and unions (Schuler and MacMillan, 1984) as well as potential investors, clients and suppliers through e-commerce and advertising (Moran and Gossieaux, 2010; Liang and Turban, 2012). Ulrich (1997) also classified investors and customers among organisational stakeholders.

According to Karakanian (2000), HR clients encompass employees, managers, job candidates, executives, business partners and foreign shareholders, since the Internet and intranets enable the access to shared HR data and the extension of a company's operations across different countries. Hannon et al. (1996) also argued that within the frame of globalisation HR clients may include managers, employees and regulators from third countries, who are also involved in the system's operations.

Table 27: HR Clients

Question	Description	References
22	Who and to what extent does your company's e-HRM system serve?	
22.1	The HRM department	149
22.2	Company managers (departmental, functional, seniors, etc.)	102, 148, 186, 209, 364
22.3	Company employees	139, 149, 186, 209
22.4	Other stakeholder groups (shareholders, unions, etc.)	139, 186, 209, 229
22.5	Groups or individuals without a direct relationship to the company (e.g., future job candidates, future investors, potential future clients, potential future suppliers, etc.)	88, 162, 186, 209, 229, 231, 269
22.6	Groups or individuals who have or had a direct relationship with the company (e.g., former company employees, suppliers, clients, insurance agencies, etc.)	Author

6.3.4.3 Age of ICT for HRM

As discussed in Chapters 2 and 3, Wickramasinghe (2010) examined the employees' perceptions and acceptance towards e-HRM and assumed that the amount of time an e-HRM system is in place for a company (referred to as the age of the web-based HRM system) influences the user satisfaction and system usage. Wickramasinghe found that users were more likely to be satisfied with "younger" e-HRM systems (i.e., the age of the system was small because it was less time in place). In this thesis, the age of an ICT system for HRM purposes is also considered to be an important variable that affects the prior knowledge and experience of organisations. Therefore, question 16 (see Table 28) captures the time that HR related technology is

available to a company in order to examine how this duration affects the organisations' ACAP for e-HRM and social media.

Table 28: Age of ICT for HRM

Question	Description	References
16	When did your company (in Greece) first adopt ICT system(s) specifically for HRM purposes?	380

6.4 Contributions

The research questions, objectives and hypotheses contribute to the increase of empirical research in e-HRM through the operationalisation of ACAP within the HRM context. More specifically, drawing on the notion of ACAP, this research advances e-HRM context by exploring the take-up of specific technologies used for HRM purposes among Greek businesses, with a view to providing a contextually relevant model of HRM innovation through the adoption, diffusion and exploitation of e-HRM and social media. By critically examining though the application of current absorptive capacity theory to innovation in HRM, a parallel contribution is the empirical insight into the relationship between the antecedents to ACAP, ACAP itself and innovation.

On the one hand, research in e-HRM seems to be at an early stage and offers limited or even debatable evidence on e-HRM's strategic impact and outcomes (Marler and Fisher, 2013); combines vague IT and HRM concepts while e-HRM is defined through different and inconsistent terminologies (Bondarouk and Ruël, 2009); relies on single source respondents and frequently uses perceptual measures (Strohmeier, 2007); does not go beyond the organisation's borders to address the needs of all HR stakeholders (Bondarouk and Ruël, 2009); lacks a good theory that links the relationship between technology and HR developments (Ruël et al., 2004); rarely includes social media technologies despite their recognised effect on HRM (Martin et al., 2009); and is very limited in Greece (Panayotopoulou et al., 2007) despite the country's unique sociocultural, economic and

institutional characteristics. On the other hand, research in ACAP, despite the richness and multidimensionality of the concept (Jansen et al., 2005) and its broad usage by academics to describe the absorption of different forms of knowledge (García-Morales et al., 2007), it has rarely been used in the HR context to examine the organisations' capacity to innovate in HRM. More specifically, the adoption, diffusion and exploitation of e-HRM and social media have not been empirically examined through the lens of the ACAP theory.

Therefore, in this thesis I propose an operationalisation of ACAP for e-HRM and social media whereas ACAP is treated as a dynamic capability and process (Lane et al., 2006) and e-HRM and social media as external knowledge inflows that denote the collective amount of tacit and explicit complementary knowledge (Kostopoulos et al., 2011). The proposed conceptual framework in this thesis draws on the ACAP theory and integrates important work in different fields such as human resources management and information systems. Since there is no empirical study that investigates the organisations' ACAP for e-HRM and social media and in order to explore and measure the different dimensions of the organisations' ACAP for e-HRM and social media, the different dimensions of HRMIO associated with the organisations' ACAP for e-HRM and social media, and the determinants of organisational ACAP and their relationship with HRMIO, I created a new questionnaire from the very beginning by drawing on the various bodies of knowledge mentioned in previous chapters. This questionnaire contributes to literature -since it encompasses an important number of elements mentioned in this section- however, as a new instrument it also has the limitations mentioned in Chapter 10.

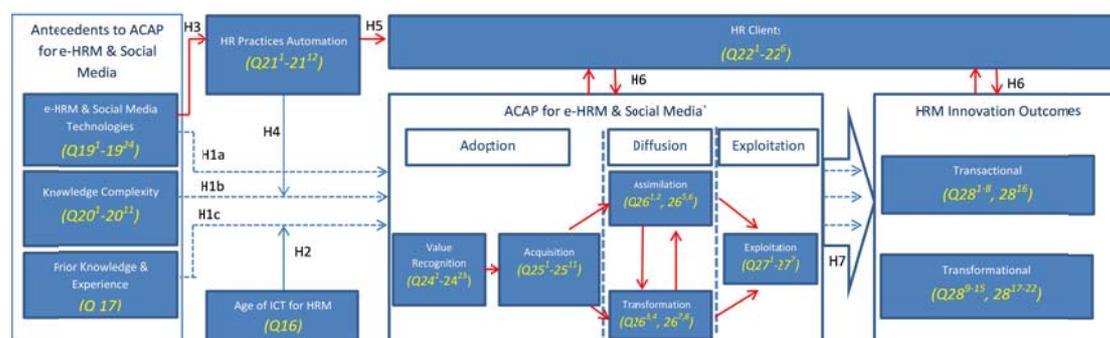
Furthermore, given that most e-HRM studies focus on US firms, this is the first time companies that operate in Greece are an object of research regarding their capacity to absorb e-HRM and social media and innovate. Since the intention of this research is to generalise for a specific subset of firms that operate in Greece (i.e., large companies, non SMEs) the sociocultural, economic and institutional differences can lead to different

conclusions. Therefore, the operationalisation and test of a research framework through a specific subset of companies in a particular context followed by an in-depth investigation of some of these companies will contribute to the clarification of the role of e-HRM and social media in HRM in general. The results might help to discover specific aspects of HRM innovation related to the absorption of e-HRM and social media.

6.5 Chapter summary

This chapter summarised the focal research question, the research sub-questions, the research objectives, and the research hypotheses that were derived from the literature review discussed in previous chapters. The aim of this thesis is to investigate the relationship between different constructs and contribute to the e-HRM context through the lens of the ACAP theory. These constructs are: ACAP, e-HRM and social media, knowledge complexity, prior knowledge and experience, HRMIO, automation of HRM practices, HR clients, and the age of ICT system. Finally, it was described in this chapter how these constructs and their measured items were derived from the literature. This process is fully presented in Figure 26 that matches this thesis' constructs with the respective questions of the questionnaire used in this research.

Figure 26: Matching Questions with Constructs



The next chapter describes the statistical analysis of the data collected from companies that operate in Greece and answered the emailed questionnaire that was created based on the aforementioned literature.

Chapter 7: Quantitative Analysis

7.1 Introduction

This chapter presents the statistical analysis of data that was gathered through the emailed survey involving large companies which operated in Greece in 2012 (see Chapter 5). Divided in into two main parts, in the first one the plan which was followed to analyse statistically the data is discussed and justified. The plan included six major steps and each step is examined in detail. These steps are: (1) descriptive statistics of the 200 large Greek operating companies that participated in the survey, (2) description of this thesis' observed variables, (3) description and composition of this thesis' unobserved or latent variables using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), (4) mediation analysis with bootstrapping to test three hypotheses, (5) moderation analysis to test two hypotheses, and (6) Pearson's correlation to test four hypotheses. In the second part of the chapter, the outcomes of the statistical methods discussed in the first part are presented.

This chapter only addresses the statistical analyses and the results from the survey without commenting on, discussing or interpreting these findings.

7.2 Plan of Statistical Analysis and Methodology

In Chapter 6, the research framework or conceptual model of this thesis was presented in relation to the questionnaire used for surveying Greek operating companies. From this conceptual model, seven research hypotheses were derived while every entity or element in the model was considered to be a variable. These variables were:

1. The automation of HRM practices
2. HR clients (i.e., number of HR clients served by automated HRM practices and degree of service)
3. Age of the ICT system for HRM

4. E-HRM and social media technologies (considered as antecedent to ACAP)
5. E-HRM and social media knowledge complexity (considered as antecedent to ACAP)
6. Prior knowledge and experience in ICT for HRM purposes (i.e., considered as antecedent to ACAP)
7. ACAP for e-HRM and social media:
 - a. Value recognition
 - b. Acquisition
 - c. Assimilation or transformation
 - d. Exploitation
8. HRMIO:
 - a. Transactional
 - b. Transformational

Furthermore, these variables were measured by a number of items that could be answered by respondents either by a unique choice among a number of options or a Likert-scale. A variable can be divided, among other ways, into two major categories: (1) an *observed variable* that can be measured directly and is called a measured variable, indicator or manifest variable, and (2) an *unobserved variable* that can be measured indirectly by determining its influence on measured variables and is called a latent construct, factor or underlying construct (Byrne, 2010). In the conceptual framework of this thesis, the observed and unobserved variables are summarised in Table 29.

Table 29: Observed and Unobserved Variables

Observed Variables	Unobserved Variables
E-HRM and social media technologies	HRM practices automation
Number of HR clients served by automated HRM practices	Knowledge complexity
Amount of e-HRM service HR clients receive	ACAP for e-HRM & social media
Age of the ICT system for HRM	HRM innovation outcomes
Prior knowledge and experience in ICT for HRM	

After presenting the classification of variables in the present section, the progressive (step-by-step) description of the statistical methods used in the present thesis will be discussed in the next sections.

7.2.1 Descriptive Statistics-Step I

The first step in the analysis of data was the descriptive statistics. The descriptive analysis presents the general characteristics of the firms that participated in the survey. Based on the discussion in Chapter 4, this study will address for the first time e-HRM and social media absorption and the resulting HRMIO in large companies which operate in Greece. Therefore, organisational characteristics such as size, sector, etc., might give useful insights into the analysis of the state of e-HRM adoption and HRM innovation. For this reason, the detailed examination of the characteristics of the sample firms was considered to be important and consequently constituted the starting point of the data analysis for this thesis.

7.2.2 Description of Observed Variables-Step II

The second step in the statistical analysis was the description of the observed variables and their processing that led to the creation of new observed variables. More specifically, the variables that were processed were: (1) number of e-HRM & social media technologies used by the sample companies, (2) number of HR clients served -this variable corresponds to the first part of question 22: “Who does your company’s e-HRM serve?”- and (3) degree of e-HRM service received by HR clients. This variable corresponds to the second part of question 22: “To what extent does your company’s e-HRM system serve?” Section 7.3 describes in detail how these variables were processed.

7.2.3 Composition of Unobserved Variables-Step III

The third step in the statistical analysis was the description and the composition of the unobserved or latent variables as well as their corresponding measurement scales. For each latent variable a set of items/sub-questions was assigned based on the literature discussed in

Chapter 6. Each of these items was a measured variable. As Byrne mentioned,

"the researcher must operationally define the latent variable of interest in terms of behavior believed to represent it. As such, the unobserved variable is linked to one that is observable, thereby making its measurement possible. Assessment of the behavior, then, constitutes the direct measurement of an observed variable, albeit the indirect measurement of an unobserved variable (i.e., the underlying construct)" (Byrne, 2010: 4).

Therefore, each set of items (and their corresponding observable behaviors) defined operationally specific latent variables. In other words, a number of theoretically interrelated observable behaviors were brought together under a more general, underlying variable, called *latent variable, construct, or factor*.

Factor Analysis (FA) represents the statistical techniques that allow the estimation of an unobserved latent variable that is connected to a set of observed variables, thus, variations of the latent variable are interrelated with variations of the corresponding observed variables (Kim and Mueller, 1978; Gorsuch, 1983). The aim of factor analysis is to reveal any latent variables that cause and predict covariations to the manifest or observed variables (Brown, 2006). More specifically, factor analysis provides a set of tools that are used to evaluate if collected data is in line with a theoretically expected pattern of a set of target constructs the mechanisms of which are more or less known or expected by the researcher. As Mulaik argued,

"it is we who create meanings for things in deciding how they are to be used" (Mulaik, 1987: 301).

Therefore, a crucial point in this thesis was to arrive at a set of measured variables that could indeed measure their corresponding latent construct.

"factor analysis can be used to determine what theoretical constructs underlie a given data set and the extent to which these constructs represent the original variables. Of course, the meaningfulness of latent factors is ultimately dependent on researcher definition" (Henson and Roberts, 2006: 396).

Modern conceptualisations of factor analysis include both, exploratory and confirmatory methods (Thompson, 1992). In order to condense the items, reproduce the observed relationships among a group of items/indicators within a smaller set of latent variables, and finally create a summated scale for each latent variable (Hair et al., 2010) while considering that some of the items may measure different aspects of the same latent variable, two factor analysis methods were used in this thesis: (1) EFA, and (2) CFA. As Brown (2006) argued, EFA is an exploratory or descriptive data-driven approach in the sense that no specifications are made regarding the number of latent factors or the pattern of relationships between the common factors and the indicators. In CFA, the number of factors and the corresponding observed variables are specified in advance. The pre-specified factor solution is evaluated in terms of how well it reproduces the sample covariance of the measured variables. Therefore, CFA requires a strong empirical or conceptual foundation in order to guide the specification and evaluation of the factor model (Brown, 2006). The existence of an à-priori model with the fundamental structure of the targeted factors and the match between this theoretical model and the observed data is evaluated using various model fit statistics that determine whether the theoretical model represents well enough the observed data (Matsunaga, 2010).

However, an alternative to, and often confusing with, the EFA method is the Principal Component Analysis (PCA). The main distinction between EFA and PCA is that EFA is used to estimate an unknown structure of data whereas PCA is used for simple data reduction which means that the information given from a larger set of items is reduced to a smaller one (Fabrigar et al., 1999). In other words, PCA aims to derive a relatively small number of components (data reduction process) that can account for the variability that is found in a much larger number of measures (Decoster, 1998).

Although PCA is the default factor extraction method in many popular statistical software packages like SPSS or SAS, there is a disagreement in literature about the necessary conditions for using it because in EFA all observed items are assumed to be measured with measurement errors while in PCA no measurement errors are considered (Osborne and Costello, 2005). Therefore, in this thesis EFA was used instead of PCA because: (1) I was not interested in performing data reduction but instead in exploring, understanding and making statements about the factors that were responsible for a set of observed responses, and (2) it was assumed that the measurement of the observed items that “compose” this thesis’ main factors such as ACAP’s antecedents, ACAP and HRMIO would encompass measurement errors (e.g., a *strongly agree* response in a Likert type scale item may not mean the same for each respondent).

More specifically, in this thesis EFA was used first in order to determine the appropriate number of common factors and to uncover measured variables that are reasonable indicators of the various latent constructs (e.g., ACAP). Therefore, latent constructs were explored first and those that best accounted for the variations of the observed variables were chosen (Henson & Roberts, 2006).

“EFA is typically used earlier in the process of scale development and construct validation, whereas CFA is used in later phases after the underlying structure has been established on prior empirical (EFA) and theoretical grounds.” (Brown, 2006: 14).

Therefore, in this thesis EFA was used first in order to reveal the dimensions that formulated the main latent constructs and then CFA was used in order to obtain a model fit between the theoretical model and the observed data and to get more reliable results even by comparing different model dimensions (see Flatten et al., 2011 who used both EFA and CFA to measure ACAP).

7.2.3.1 Exploratory Factor Analysis

The practical application of EFA required a number of decisions to be made in advance regarding the necessary parameters used to analyse data. These decisions involved: (1) the number of factors retained, (2) the factor extraction method used, (3) the factors' rotation method, (4) the sample size, and (5) the item-screening process (Fabrigar et al., 1999; Brown, 2006).

Before describing analytically the application of EFA (and then CFA), it is important to mention some basic statistical terms around factor analysis (Ford et al., 1986; Decoster, 1998; Osborne and Costello, 2005) that will assist the reader in understanding the statistical analysis of data in the present thesis. These are: (1) *Factor Loadings* or the correlation between the factor and the observed items (e.g., each factor may load with different or similar correlations on a certain observed item); (2) *Cross Loadings* when different factors load on the same observed item; (3) *Communality* of an observed item or the proportion of its variation that is explained by the variation of the retained latent factors (e.g., higher model fit exists when the communality value for each of the observed items approaches or is closer to 1). These terms are closely related to the analysis of data and the above mentioned decisions.

Starting with the number of factors retained, a number of methods exist for determining the optimal number of factors. Although the intention is not to describe and analyse all the available methods, it is very important to explain and justify my statistical choices in order to present later the results of this research. More specifically, the default in SPSS method for determining the optimal number of factors retained is the "*eigenvalues greater than one*" or "*Kaiser Criterion*" that states a researcher should use the number of factors equal to the number of the eigenvalues of the correlation matrix that are greater than one (Fabrigar et al., 1999; Decoster, 1998). However, the eigenvalues greater than one criterion is considered to be one of the least accurate methods because: it retains too many factors (Velicer and Jackson, 1990), it is misapplied by referring to the

eigenvalues of the correlation matrix with communality estimates and not unities in the diagonal and, it could maintain a factor of 1.01 eigenvalue and not of 0.99 which is theoretically meaningless (Fabrigar et al., 1999). Another alternative approach for retaining factors is the "scree test" which refers to graphical representations of eigenvalues (Velicer and Jackson, 1990). Finally, *parallel analysis* which is another "factor determining methods" involves the construction of correlation matrices and is based on the assumption that nontrivial components of real data that have a valid underlying factor structure will have larger eigenvalues than parallel components of random data that have the same sample size and the same number of variables with the real data (Hayton et al., 2004).

From the comparison between average eigenvalues, from the random correlation matrices and from the real data correlation matrix, there are retained factors that correspond to actual eigenvalues that are greater than the parallel average random eigenvalues (Hayton et al., 2004). In this thesis parallel analysis was used because it is an accurate and easy to use method (Osborne and Costello, 2005) and it is suited better to finite samples (Hayton et al., 2004). In addition, although this method is not available in the most frequently used statistical software packages and requires manual calculations (Osborne and Costello, 2005), it was adopted as an SPSS add-on application that I found after extensive web search. Therefore, in this thesis parallel analysis was used in order to compare observed eigenvalues against those expected from random data and there were retained factors with observed eigenvalues greater than randomised ones.

Regarding the Factor Extraction Method, SPSS has seven options: (1) *principal components analysis*, (2) *unweighted least squares*, (3) *generalised least squares*, (4) *maximum likelihood*, (5) *principal axis factoring*, (6) *alpha factoring*, and (7) *image factoring*. Among these methods, Fabrigar et al. (1999) proposed maximum likelihood as a factor extraction method if data is relatively normally distributed or principal axis factor if this assumption is severely violated and data is not normally distributed. In general, both methods give good results (Osborne and

Costello, 2005) but in the present thesis principal axis as a factors extraction method was chosen because data was not normally distributed (see Appendix III).

Concerning rotation method, the factors are usually rotated to become more interpretable based on the "*simple structure criterion*" (Conway and Huffcutt, 2003). This means that each factor has a subset of variables with high loadings, the rest of the variables have low loadings, and each variable has high loadings on only some of the factors and low loadings on the rest (Fabrigar et al., 1999). The two basic analytical rotation types that can reach a more interpretable solution are: (1) *orthogonal rotations* that force uncorrelated factors, and (2) *oblique rotations* that allow correlated factors (Conway and Huffcutt, 2003). Generally, in orthogonal rotations the observed items are classified in such a way that the resulting factors are supposed to be uncorrelated (orthogonal) to each other (Williams et al., 2010). A well-known orthogonal rotation method which is also the default method in SPSS is "*Varimax*" (DeCoster, 1998). Varimax attempts to maximise the variance of squared loadings on a factor which means to produce some high loadings and some low loadings for each factor (Kim and Mueller, 1978). On the contrary, a number of oblique rotations are used such as direct oblimin or promax and permit factors to correlate (Conway and Huffcutt, 2003).

In this thesis, an oblique rotation method was used because the factors or latent constructs of this research (e.g., ACAP and HRMIO) were considered to be correlated based on ACAP literature and the limited ACAP for e-HRM literature discussed in Chapter 3.

If factors really are correlated (a likely situation), then orthogonal rotation forces an unrealistic solution that will probably distort loadings away from simple structure, whereas an oblique rotation will better represent reality and produce better simple structure (Conway and Huffcutt, 2003: 153).

In other words, in social sciences some correlation among factors in general is expected since behavior is rarely separated into neatly packaged units

that operate independently of one another, thus, the use of orthogonal rotation may result in losing valuable information when factors are correlated while oblique rotation may provide a more accurate and reproducible solution (Osborne and Costello, 2005). Therefore, *promax* is the oblique rotation method used in this thesis and is also a fast and conceptually simple rotation method that tries to fit a target matrix (Adbie, 2003).

Regarding the minimum sample size that is necessary for factor analysis to be adequately stable and correspond closely to population factors, there are various suggestions and rules of thumb in the literature (MacCallum et al., 1999). For example, Fabrigar et al. (1999) suggested that the nature of data should partly determine the adequacy of the sample size and not the number of measured variables while MacCallum et al. (1999) claimed that necessary sample size is dependent on several aspects such as the level of communality of the variables and the level of over-determination of the factors. Similarly, Osborne and Costello (2005) argued that the stronger the data, as expressed by the uniformly high communalities without cross loadings and the number of variables that load strongly on each factor, the smaller the sample required for an accurate analysis. However, as the authors stated, these are rare conditions and the larger the sample, the better in EFA.

In this thesis, due to the extensive literature review, the respective scale development and the pre-testing of the research questionnaire (please see Chapters 5 and 6) it was expected that factors would be over-determined (i.e., at least three measured variables per common factor) and communalities would be high (i.e., average above 0.70). Such a case, according to MacCallum et al. (1999), would require a sample as small as 100 in order to accurately measure population parameters and if these conditions were not met, between 100 and 200. As described in Chapter 5, the sample of this research was 200, and as it will be presented later on in this chapter, items were closely related to the targeted construct (based on their loadings), as initially expected. However, it needs to be mentioned

that the minimum sample size was calculated to 245 (see Chapter 5) and the missing values (171 companies that did not participate in the survey) were not treated respectively.

Concerning the item-variable screening process, a decision was made about the cut-off point of the items' factor loadings. Based on Hair et al. (2010), for a sample of 200, a 0.4 cut-off point seems to constitute an accepted norm which means that an item is retained if its loading in one factor is at 0.4 and above, however, if this item loads significantly in more than two factors (i.e., high cross loadings) then it must be deleted. Therefore, in this thesis the cut-off point for screening item variables was 0.4.

7.2.3.2 Confirmatory Factor Analysis

In CFA all aspects of the factor model need to be pre-specified by the researcher in advance (Curran et al., 1996), thus, CFA requires a strong empirical or conceptual foundation to guide the specification and evaluation of the factor model and is typically used in later phases of scale development or construct validation after the underlying structure has been tentatively established by prior empirical analyses using EFA (Brown, 2006). Based on the discussions in Chapter 3, although organisational ACAP in the HR context had been addressed and theorised by some researchers, it had been rarely researched. In other words, although a conceptual ACAP model for e-HRM was deducted in this thesis, its underlying structure had not been tentatively established by prior research. Therefore, EFA was required first to validate the constructs of the theoretical ACAP model for e-HRM and then CFA to specify the nature of relationships among the measurement errors and unique variances of each construct's indicators.

More specifically, CFA starts with the à-priori model definition where latent constructs as well their underlying observed items/variables or indicators are predefined. In this thesis, the model that derived from EFA was used as the à-priori model for CFA. The CFA model in the present thesis is a standard one which means that there is a single pattern coefficient for each indicator without correlated errors. More specifically, a CFA measurement

model is identified if the computer assigns a unique estimated value to every model parameter. The default method in AMOS for the parameter estimation is *maximum likelihood*. This method analyses covariance matrices and estimates simultaneously all model parameters in iterative algorithm.

“Maximum likelihood makes the distributional assumption that the measured variables have a multivariate normal distribution in the population....and the structural assumption that the structure tested in the sample accurately reflects the structure that exists in the population” (Curran et al., 1996: 16-17).

In the present thesis, I used maximum likelihood in CFA because SPSS required a sample of more than 5,000 participants (far above the population of this research) in order to use an estimation method of non-normal data.

According to Brown (2006), in order to evaluate the correspondence between the theoretical model that derived from EFA and the observed data, and achieve a model fit, three categories of statistics are used: (1) *absolute fit indices*, (2) *parsimony correction indices*, and (3) *comparative fit indices*. Absolute fit indices model tests compare the covariance matrix implied by the theoretical model with the sample covariance matrix. If both matrices are close enough, then the differences may reasonably be considered to be due to sampling error. A very popular model test is the model *Chi-square* (χ^2) *test*. A statistically significant result ($p < 0.05$) indicates a poor model-data correspondence which means a poor model fit. However, the power of the chi-square test (i.e., to correctly reject a false model) is low if samples are small thus, the results of a chi-square test can be ignored (MacCallum et al., 1996). Furthermore, the *Joreskog and Sorbom's Goodness-of-Fit statistic* (GFI) compares how close the variances and covariances of the theoretical model replicate the observed covariance matrix. GFI ranges from 0 to 1 with an accepted cut-off point of 0.90 and is considered to be an alternative to the chi-square test (Hooper et al., 2008). The *Adjusted Goodness-of-fit statistic* (AGFI) is an alternative to GFI ranging also between 0 and 1 having as general accepted cut-off values between 0.8

and 0.9 (Gaskin, 2012). Therefore, in this thesis the absolute fit indices of the chi-square, the GFI and the AGFI were used to test model fit between the theoretical model and the observed data without, however, paying significant attention to the chi-square index outcome.

Among the parsimony correction indices that incorporate a penalty for poor parsimony, the *Root Mean Square Error of Approximation* (RMSEA) is relatively insensitive to sample size and tests if the model fits reasonably well to the population (Brown, 2006); A RMSEA close to or less than 0.06 is a necessary condition for achieving model fit (Brown, 2006). Another parsimony fit index which is generally used when comparing different models is the *Akaike Information Criterion* (AIC), but due to the fact that this index is not normalised and it is difficult to propose a cut-off value, the rule is to choose the model that produces the lowest AIC value (Hooper et al., 2008). Regarding the *Comparative Fit Index* (CFI) introduced by Bentler (1990), it assumes that all the latent variables are uncorrelated, compares the sample covariance matrix with the null model of uncorrelated variables, and is least affected by sample size (Hooper et al., 2008). Ranging also between 0 and 1, CFI values above 0.9 indicate a good model fit (Hoyle, 1995). Therefore, in this thesis the RMSEA and the AIC were the parsimony correction indices which along with the CFI were used to test model fit.

When constructing a measurement scale of a latent variable, validity and reliability are two important concerns. The results of CFA provide evidence of the *convergent* and *discriminant validity* of theoretical constructs (Brown, 2006). On the one hand, convergent validity shows that different indicators of theoretically similar or overlapping constructs are strongly interrelated and discriminant validity shows that indicators of theoretically distinct constructs are not highly inter-correlated (Brown, 2006). On the other hand, reliability refers to the consistency of measurements meaning that similar results will be produced under consistent conditions (Bruton et al., 2000). The necessary measures used for establishing validity and reliability in CFA are: (1) *Composite Reliability* (CR), (2) *Average Variance Extracted* (AVE) and, (3) *Average Shared Variance* (ASV) (Bagozzi and Yi,

1988; Fornell and Larcker, 1981). The thresholds for these values are the following based on Hair et al. (2010):

- Reliability: CR >0.7 or 0.6 (provided that other indicators of construct validity are acceptable)
- Convergent Validity: CR > AVE and AVE >0.5
- Discriminant Validity: ASV < AVE

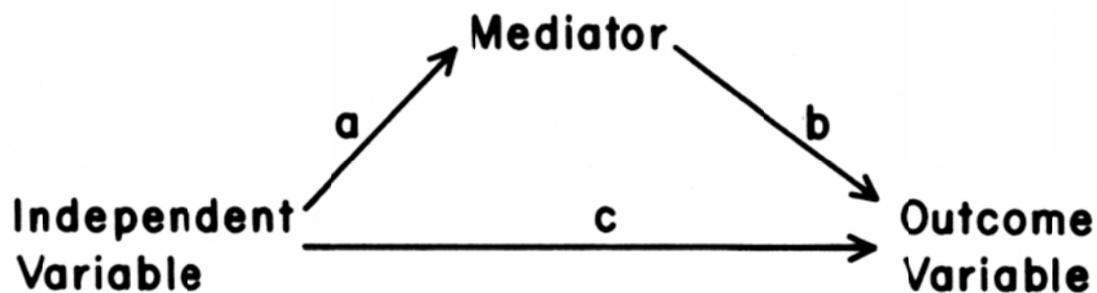
The outcome of Step III was the construction of specific scales composed by the observed items that were finally derived from EFA and CFA analysis and allowed the measurement of the unobserved latent factors of this thesis. The score of each participant of the sample (i.e., respondent to the survey's questionnaire) for each factor was developed by summing all Likert item variables that belonged to the scale of each specific factor. The summated scales reduce the measurement error inherent in all measured variables; permit the representation of multiple aspects of a concept in a single measure; and include only item variables that load highly on a factor (Hair et al., 2010). Therefore, all factors in this thesis were considered to be continuous variables leading to the use of specific analytical techniques described in the next sections.

7.2.4 Mediation Analysis using Bootstrapping - Step IV

The fourth step in the analysis of data included mediation with bootstrapping which was used in order to test the effect of ACAP in the relationship between ACAP's antecedents and HRMIO (i.e., H1a, H1b and H1c). The selection of mediation analysis encompasses a number of underlying assumptions that will be explained based on the work of Baron and Kenny (1986). Figure 27 includes a model with a three variable system (independent, dependent and mediator) and three paths (a, b, c).

Figure 27: Assumptions about the Nature of Social Science

(Source: Baron and Kenny, 1986: 1176)



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Paralleling the main elements of Figure 27 with the major components of this thesis, the *independent variables* are the ACAP's antecedents; the *outcome variables* the HRMIO; and the *mediator* the ACAP. Therefore, an underlying assumption in this thesis is that there is a causal effect of ACAP's antecedents to HRMIO. This effect is called the *direct effect* and it was measured by regressing HRMIO on every ACAP antecedent (e.g., path c). Regression analysis is a statistical process that examines the existence of a linear relationship between a dependent continuous variable and one or more independent variables showing how the dependent variable varies when any of the independent variables varies and the other independent variables are held fixed (Hair et al., 2010).

A second assumption in this thesis is that the *direct effect* between ACAP's antecedents and HRMIO is mediated by ACAP. The effect of a causal variable to the mediator (estimated by the regression of the mediator on the antecedent), multiplied by the effect of the mediator to the outcome variable (estimated by the regression of the outcome variable on the mediator) is called *indirect effect* (i.e., path a multiplied by path b). Complete mediation exists when the direct effect of the causal variable (e.g., antecedents to ACAP) to the outcome variable (e.g., HRMIO) becomes statistically insignificant, after introducing the mediator (e.g., ACAP) and

the indirect effect is statistically significant (Rucker et al., 2011). Alternatively, partial mediation is the case in which the direct effect is reduced but still remains statistically significant after introducing the mediator while the indirect effect remains constantly significant (Rucker et al., 2011).

Baron and Kenny (1986) mentioned four steps for conducting mediation analysis using ordinary least squares as a multiple regression method: (1) demonstrate that the causal variable is linearly correlated with the outcome proving the existence of a direct effect -for example, ACAP's antecedents are linearly correlated with HRMIO; (2) show that the causal variable is linearly correlated with the mediator -for example, each antecedent to ACAP is linearly correlated with ACAP; (3) display that the mediator is linearly correlated with the outcome -for example, ACAP is linearly correlated with HRM innovation outcomes; and (4) check the indirect effect and establish the mediation type (i.e., complete or partial) of the mediator (e.g., ACAP) on the relationship between the causal variables (e.g., antecedents to ACAP) and the outcome (e.g., HRM innovation outcome), by checking the significance of the direct effect. However, in a more recent work Kenny et al. (1998) questioned the necessity of step 1 for mediation analysis and claimed that it is not required to show that the initial variable is correlated with the outcome.

An increasingly popular method for testing the direct and indirect effects of independent variables to the dependent or the mediator variables is bootstrapping (Bollen and Stine, 1990). As Kenny (2014) states in his website,

“Bootstrapping is a non-parametric method based on resampling with replacement which is done many times, e.g., 5000 times. From each of these samples the indirect effect is computed and a sampling distribution can be empirically generated. Because the mean of the bootstrapped distribution will not exactly equal the indirect effect a correction for bias is usually made. With the distribution, a confidence interval, a p value, or a standard error can be determined. Very typically a confidence interval is computed and it is checked to determine if zero is in the interval. If zero is not in the interval, then

the researcher can be confident that the indirect effect is different from zero”.

Therefore, in this thesis mediation analysis with bootstrapping was used to test the direct effect of ACAP's antecedents to HRMIO and the indirect effect of ACAP's antecedents to ACAP.

7.2.5 Moderation Analysis-Step V

The fifth step in the elaboration of data included *moderation analysis*. Moderator is a variable that affects the direction and/or strength of the relationship between independent and dependent variables while a basic moderator effect refers to an interaction between a focal independent variable and a factor that specifies the appropriate condition for its operation (Baron and Kenny, 1986). In this thesis, two moderators were examined: (1) *the age of a company's ICT system for HRM* (q. 16) on the relationship between prior knowledge and experience and ACAP (e.g., H2), and (2) *the degree of automation of HRM practices* (q.21) on the relationship between knowledge complexity and ACAP (e.g., H4). Moderation analysis presumes the existence of a linear causal relationship between an independent variable and a dependent variable and the moderator is a variable that alters the strength of that relationship.

Based on Baron and Kenny (1986), the following six steps were followed in moderation analysis: (1) the dependent variable was regressed on the independent variable; (2) both independent and moderator variables were standardised in order to avoid multi-collinearity issues (i.e., a standardised variable has been rescaled to have a mean of zero and a standard deviation of one); (3) the dependent variable was regressed on both the independent and the moderator variables; (4) an interaction term was created by multiplying the standardised independent by the standardised moderator variable; (5) the dependent variable was regressed on the independent variable, the moderator, and their interaction variable; and (6) it was checked if and how the moderator altered the strength of the causal relationship between the independent and dependent variables.

Therefore, in this thesis, (1) ACAP was regressed on prior knowledge and experience and knowledge complexity, (2) prior knowledge and experience and age of the ICT system as well as knowledge complexity and automation of HRM practices were standardised, (3) ACAP was regressed on prior knowledge and experience, knowledge complexity, age of ICT and automation of HRM practices, (4) prior knowledge and experience and age of the ICT as well as knowledge complexity and the automation of HRM practices were multiplied by each other to develop interaction, (5) ACAP was regressed on prior knowledge and experience, the age of the ICT and their interaction as well as on knowledge complexity, automation of HRM practices and their interaction, (6) the alteration effect of the age of the ICT on the relationship between prior knowledge and experience and ACAP was checked as well as the effect of the automation of HRM practices on the relationship between knowledge complexity and ACAP.

7.2.6 Pearson's Correlation-Step VI

The last step in the analysis of data included testing correlations between variables through *Pearson's correlation test*. The Pearson's r measures the degree of linear dependence or correlation between two variables and is defined as the covariance of the two variables divided by the product of their standard deviation (Hinkle et al., 1994; Katz, 1999). Pearson's r ranges between -1 and 1, its value and sign provides an interpretation regarding the strength and the direction of the correlation, and a p -value less than 0.05 ($p < 0.05$) indicates a significant correlation (Field, 2000).

The difference between *Pearson's correlation coefficient* and *regression* is that the former determines the existence of a linear relationship, direction and strength between two variables while the later assumes causality (Acton et al., 2009). In correlation analysis the purpose is to measure the closeness of the linear relationship and the correlation coefficient indicates how closely the data fits a linear pattern (Taylor, 1990). In this thesis, Pearson's correlation was used to test H3, H5, H6, and H7 since the main purpose was to establish the direction and strength of the relationship between the

tested variables and not to test a model that reveals all the independent causal variables that explain the variability of a certain dependent variable.

In summary, six steps were followed to analyse the data that derived from surveying 200 large companies which operated in Greece. These steps included: (1) Descriptive statistics; (2) Description of the observed variables; (3) Description and composition of the unobserved variables using EFA and CFA; (4) Mediation analysis with bootstrapping; (5) Moderation analysis; and (6) Pearson's correlation test. These methods were used to test different hypotheses and the outcomes are presented in the next section.

7.3 Research Findings - Outcomes of Statistical Analysis

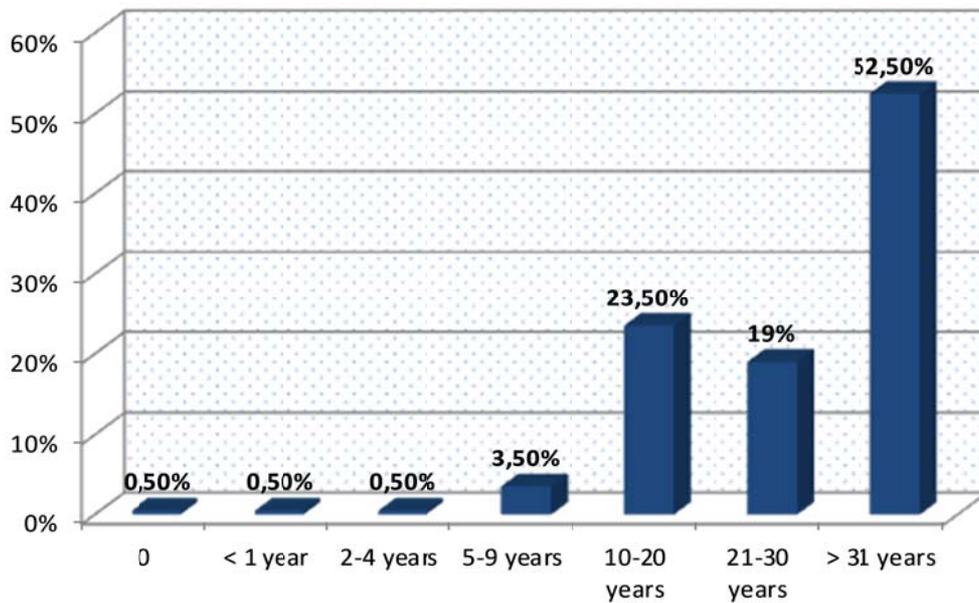
In the rest of this chapter, I present the outcomes of the statistical analysis following the same order used for the discussion of the statistical methods. For example, it begins with the data derived from the descriptive statistics and ends with the data from Pearson's correlation tests. The data presented in this part of the chapter is not discussed or interpreted but instead it provides an understanding of this thesis' quantitative findings that will be discussed thoroughly in Chapter 9.

7.3.1 Descriptive Statistics: Characteristics of Sample

This section deals with the general characteristics of the 200 sample firms that participated in the survey or the outcome of the first step in the statistical analysis. These characteristics are: (1) the period during which a company operates in Greece or the firm's "age", (2) the sector of each company, (3) the size of the company, (4) the profits of the firm in the Greek market, (5) employee retention rate, (6) the employees' educational level, and (7) organisational structure.

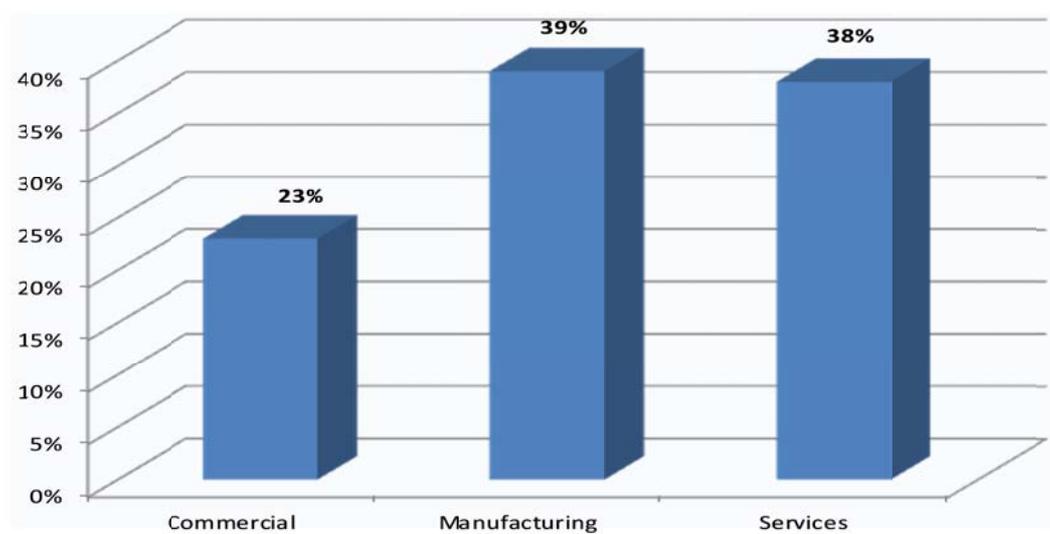
7.3.1.1 Age

The majority of the sample companies have been operating in the Greek market for over 31 years (52.5 percent) and almost all companies for at least 10 years (see Figure 28).

Figure 28: Age - Years of Operation in Greek Market

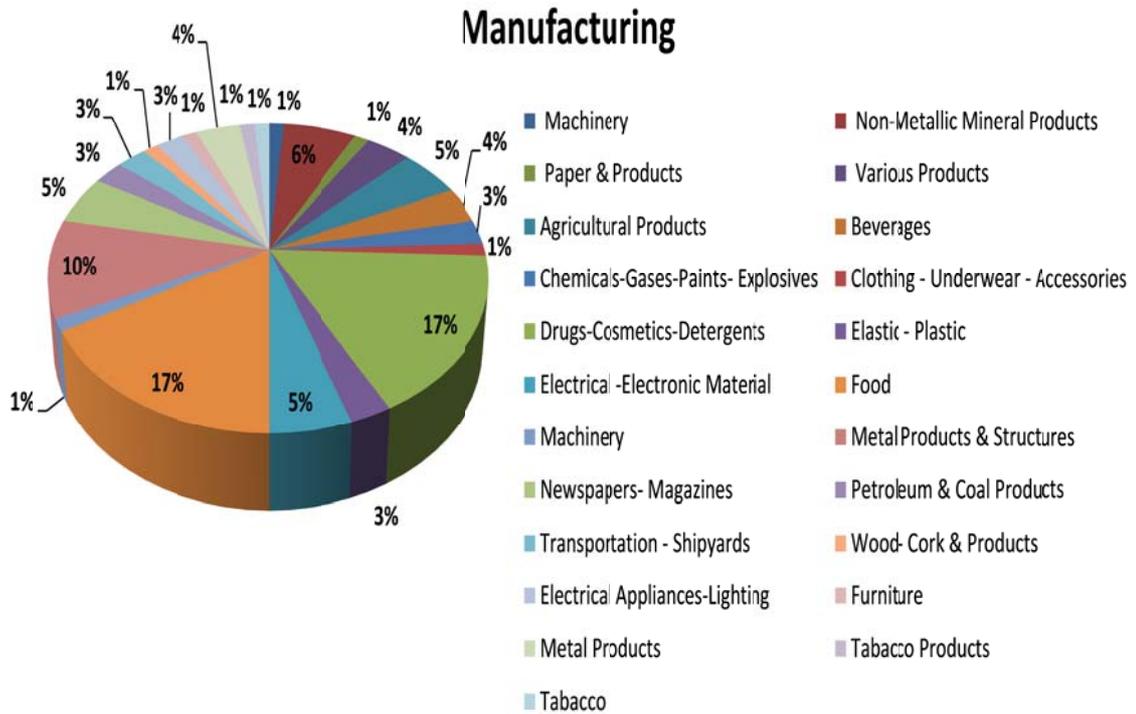
7.3.1.2 Sector

Regarding the sector, 23 percent of the companies were from the commercial, 39 percent from the manufacturing, and 38 percent from the services sector (see Figure 29).

Figure 29: Three Main Sectors

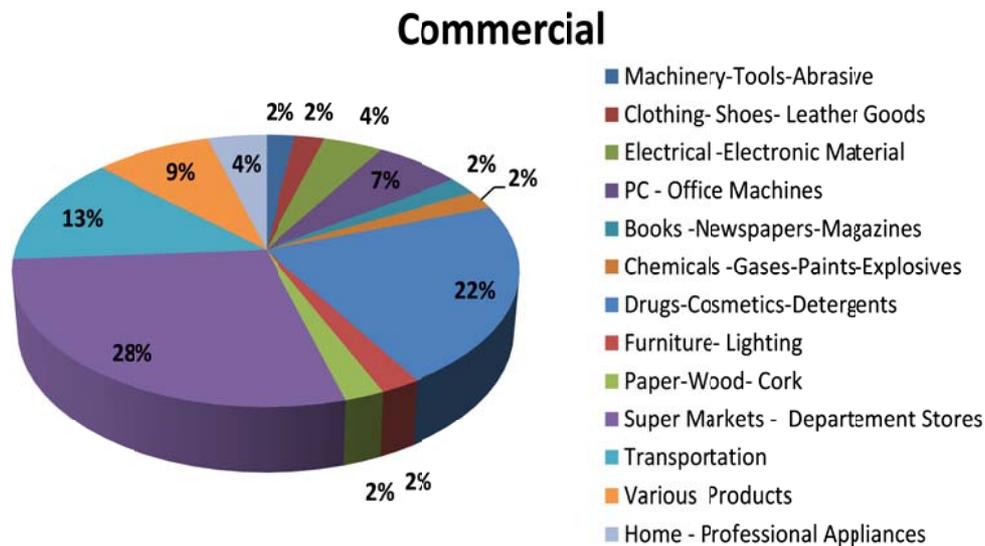
Analytically, the majority of the companies in the manufacturing sector were food and pharmaceutical.

Figure 30: Manufacturing Sector



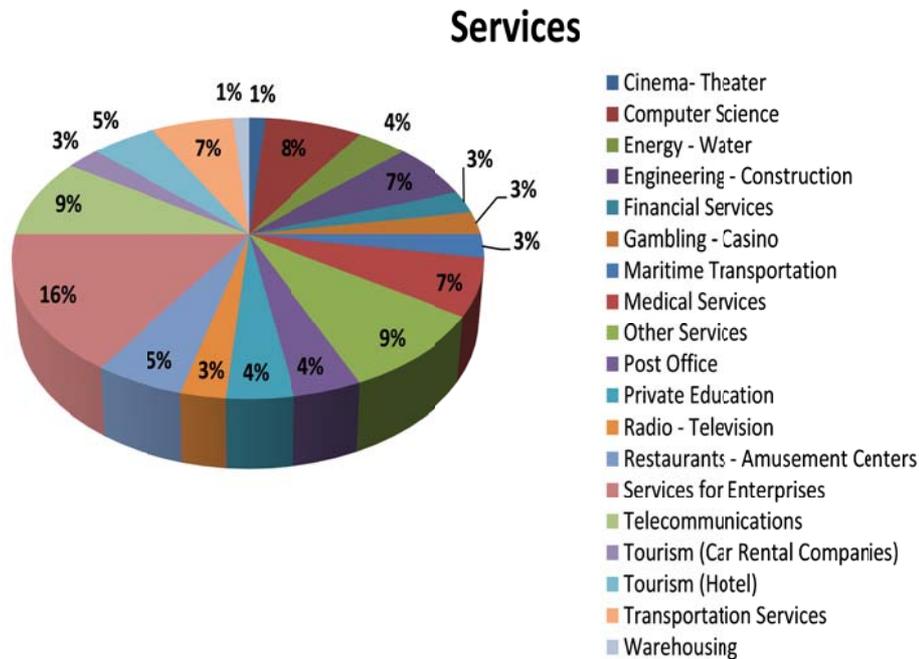
From the commercial sector, the majority of the companies were supermarkets and pharmaceuticals.

Figure 31: Commercial Sector



Finally, from the services sector a large percentage (16 percent) of the companies provided medical services.

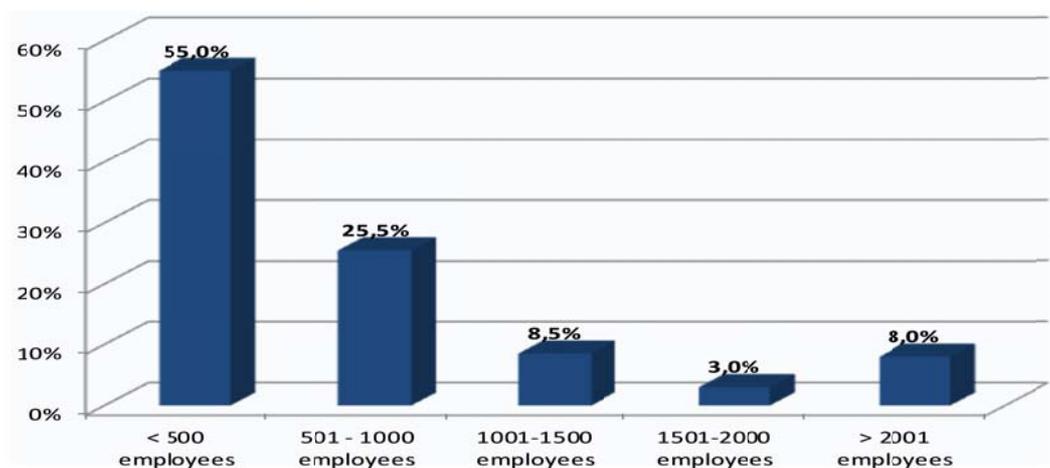
Figure 32: Services Sector



7.3.1.3 Size

Concerning the size or the number of full-time permanent employees, the large majority of the sample (80.5 percent) had less than 1,000 employees and 55 percent between 250 and 500.

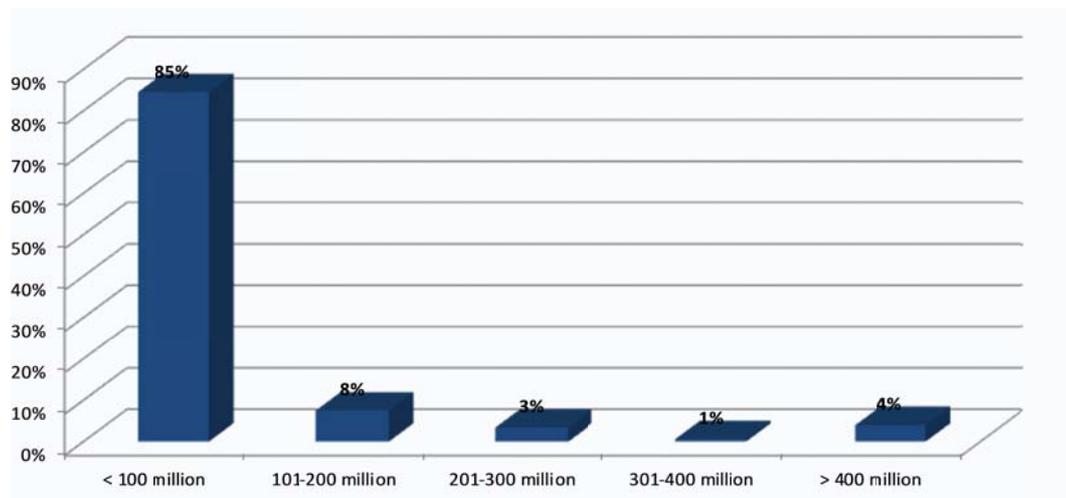
Figure 33: Size



7.3.1.4 Profits in Greece

In terms of profits generated in the Greek market, 84.5 percent of the sample had a profit below € 100 million and 15.5 percent more than € 100 million. However, this question was answered by 174 companies meaning that there were 26 missing values. As the HR directors of these companies claimed, this was attributed to three main reasons: (1) their companies were not profitable in Greece due to the financial crisis, (2) profits were balanced in companies outside Greece, or (3) they did not know the answer.

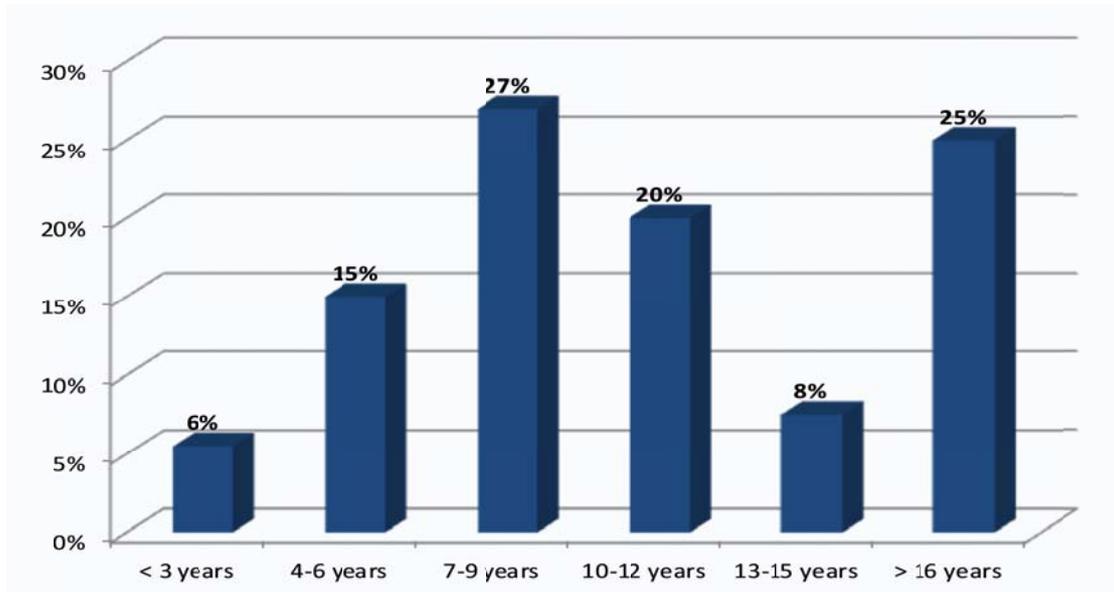
Figure 34: Profits in Greek Market



7.3.1.5 Employee Retention Rate

The retention rate or the average number of employment years of the full-time permanent employees working in the sample Greek operating companies (i.e., not the whole group) was below three years for 11 companies or 5.5 percent; between four and six years for 30 companies or 15 percent; between seven and nine years for 54 companies or 27 percent; between 10 and 12 years for 40 companies or 20 percent; between 13 and 15 years for 15 companies or 7.5 percent ; and more than 16 years for 50 companies or 25 percent.

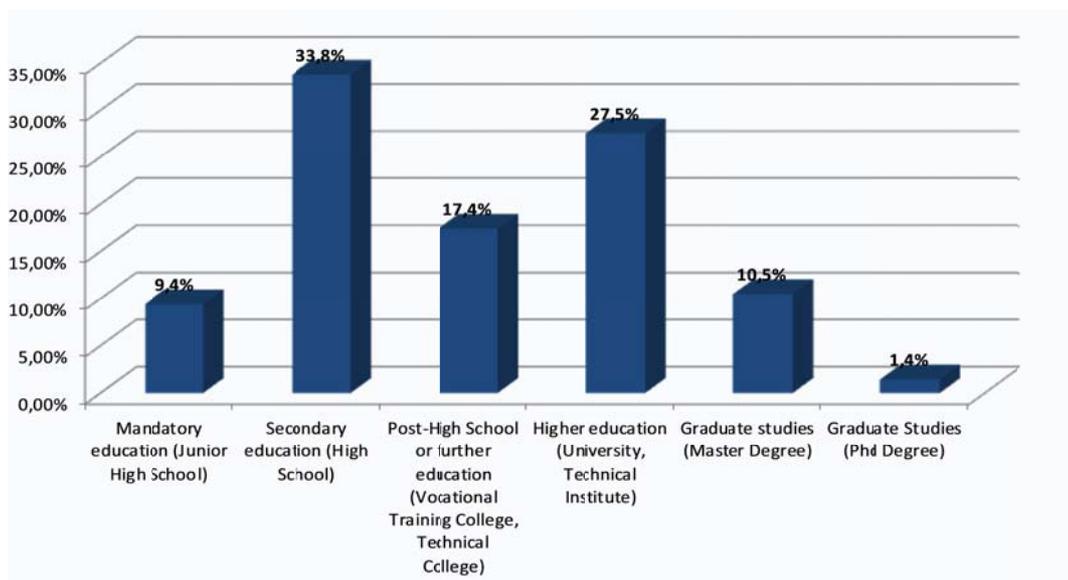
Figure 35: Average Employment Years in Greece



7.3.1.6 Educational Level

The educational level of permanent employees was examined through six educational categories: (1) Junior High School, (2) High School, (3) Vocational Training College-Technical College, (4) University, Technical Institute, (5) Masters Degree, and (6) PhD Degree.

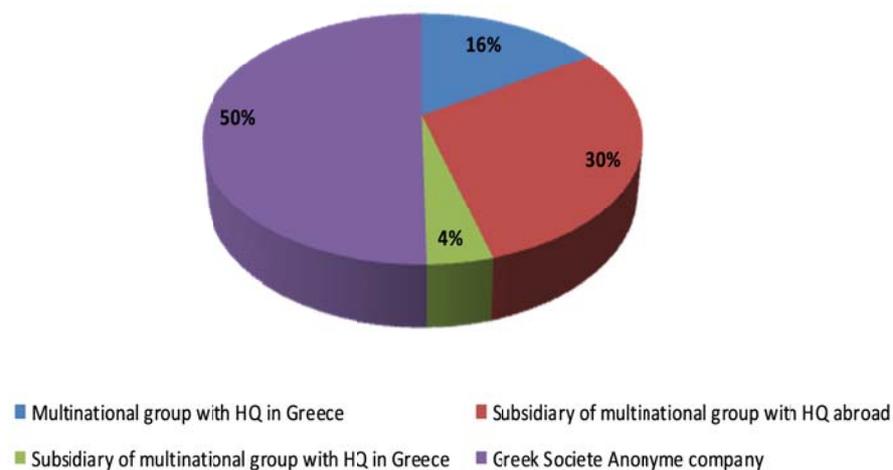
Figure 36: Educational Level



7.3.1.7 Organisational Structure

Regarding the organisational forms of the companies in the sample, 32 companies belonged to a multinational group with HQ in Greece, 59 companies were a subsidiary of a multinational group with HQ abroad, eight companies were a subsidiary of a multinational group with HQ in Greece, 100 companies were Societes Anonymes and only one company was unclassified.

Figure 37: Organisational Forms



7.3.2 Description of Observed Variables

As it was mentioned in Section 7.1.2, the second step of the statistical analysis was the description of the observed variables which were: (1) e-HRM and social media technologies, (2) number of HR clients served, and (3) degree of e-HRM service.

7.3.2.1 Number of E-HRM and Social Media Technologies

This measure was created by the respondents' answers to question 19 (i.e., which of the following e-HRM and social media technologies or tools are used in your company specifically for HRM purposes?). The respondents had five answering options in this question ranging from 1 to 5 (1 meaning

“used”, 2 “not used”, 3 “will be used in the future”, 4 “I don’t know if it is used”, and 5 “I don’t know what this technology is about”). To examine purely what the number of technologies used by these companies was, the responses to each sub-question were transformed and analysed based on the following logic:

1. *Number 1* included the technology that was *not used* and covered responses between options 2 and 5 (if the technology in question was not used or would be used in the future, or the person who answered was not sure or did not know about that technology).
2. *Number 2* included the technology that was *used* and covered responses in option 1 (used).

Therefore, the variable “number of e-HRM and social media technologies used” was created by summing the transformed answers to the sub-questions 19.1 to 19.24. Since the sub-questions were 24, the maximum value from this summation would be 48 (i.e., if all technologies were used $\Leftrightarrow 2 * 24 = 48$).

Table 30: Number of Technologies Used

	N	Minimum	Maximum	Mean	Std. Deviation
Number of Technologies Used	200	24.00	48.00	30.9600	3.81591

7.3.2.2 Number of HR Clients Served by E-HRM

This measure was created the by respondents’ answers to question 22 (i.e., who and to what extent does your company’s e-HRM system serve?). Regarding the first part of the question or “who is served by e-HRM” there were six different categories or stakeholders: (1) the HRM department, (2)

the company's managers, (3) the company's employees, (4) other stakeholder groups such as shareholders, unions, etc., (5) groups or individuals without a direct relationship to the company such as future job candidates, future investors, potential future clients, potential future suppliers, etc., and (6) groups or individuals who have or had a direct relationship with the company such as former company employees, suppliers, clients, insurance agencies, etc. The respondents had five answering options in this question ranging from 1 to 5 (1 meaning "not at all", 2 "a little", 3 "moderately", 4 "enough", and 5 "very much"). The responses in each category were transformed in order to reveal the categories that were served, or not, by e-HRM based on the following method:

1. *Number 0* included the category which was not served by e-HRM and covered the responses in option 1 (i.e., "not at all") meaning that the specific stakeholder category was not served by the company's e-HRM.
2. *Number 1* included the categories that were served by e-HRM and covered responses between options 2 and 5 (i.e., if the specific stakeholders category was served a little, moderately, enough or very much by the company's e-HRM).

Therefore, the variable number of HR clients served by e-HRM was created by summing the transformed responses in all stakeholder categories. This variable may vary from 1 meaning that just one HR client is served to 6 meaning that all six HR clients are served.

Table 31: Number of HR Clients Served

Number of HR-Clients served		Frequency	Percent	Valid Percent	Cumulative Percent
HRM	1.00	14	7.0	7.0	7.0
MNG	2.00	18	9.0	9.0	16.0
EMP	3.00	39	19.5	19.5	35.5
STK	4.00	41	20.5	20.5	56.0
OUT	5.00	27	13.5	13.5	69.5
OLD	6.00	61	30.5	30.5	100.0
Total		200	100.0	100.0	

Based on Table 31, in 14 companies or 7 percent of the sample only the HRM department was served by the company's e-HRM; in 18 companies or 9 percent of the sample two HR clients were served, the HRM department and the company's managers; in 39 companies or 19.5 percent of the sample three HR clients were served, the HRM department, managers and employees; in 41 companies or 20.5 percent of the sample four HR clients were served, the HRM department, managers, employees and other stakeholder groups; in 27 companies or 13.5 percent of the sample five HR clients were served, the HRM department, managers, employees, other groups and people with no direct relationship to the company; and in 61 companies or 30.5 percent of the sample all six HR clients were served by the company's e-HRM, the HRM department, managers, employees, other groups, people with no direct relationship to the company and groups or people who had a direct relationship with the company in the past.

7.3.2.3 Degree of E-HRM Service

This measure was also created by the respondents' answers to question 22 (i.e., who and to what extent does your company's e-HRM system serve?) considering though the second part of the question (i.e., to what extent e-HRM serves each of the six categories mentioned in the previous section?). More specifically, a response from 1 to 5 on each of the stakeholders'

category corresponded to the degree of service that each of the groups received by the company's e-HRM. Therefore, the variable "degree of e-HRM service" was created by taking the mean value of responses in all stakeholder categories. This variable can vary from 1 meaning that just one HR client is served to 6 meaning that all six HR clients are served.

Table 32: Degree of E-HRM Service

	N	Minimum	Maximum	Mean	Std. Deviation
Degree of service	200	1.33	5.00	2.8300	.75280

Based on Table 32, the amount of e-HRM service received varies in the sample from 1.33 to 5, having a mean of 2.83 and a standard deviation of 0.75.

7.3.3 Scale Development of Unobserved Variables

The third step in the statistical analysis was the description and the composition of the unobserved or latent variables and their corresponding measurement scales. These unobserved variables were: (1) automation of HRM practices, (2) knowledge complexity, (3) ACAP, and (4) HRMIO.

7.3.3.1 Measuring Automation of HRM Practices

The analysis of the automation of HRM practices included two stages. In the first stage, EFA was conducted in order to reveal the different dimensions of automation and their corresponding items. In the second stage, CFA was performed in order to confirm the factor structure that was extracted in the first stage. Both EFA and CFA were used on the same sample due to cost and technical reasons and this is discussed further in the limitations section of Chapter 10. As discussed in Section 7.1.3.1, the factor extraction method used was the principal axis factor because data was significantly non-normal; promax rotation was used because oblique rotation methods allow

factors to correlate while if factors are not correlated, orthogonal and oblique rotation methods produce nearly identical results. Parallel analysis was used to determine the factors retained. The results of PA revealed that two factors should be retained as their raw data values exceeded the percentile data values.

Table 33: PA for Automation of HRM Practices (Q.21)

Root	Raw Data	Means	Prcntyle
1.000000	5.325340	1.417211	1.520347
2.000000	1.377989	1.305452	1.376464 Raw Data value > Prcntl value
3.000000	.919966	1.219562	1.277883
4.000000	.761212	1.145394	1.197183
5.000000	.725273	1.078115	1.126469
6.000000	.612645	1.015311	1.060324
7.000000	.528887	.955121	.999235
8.000000	.449915	.896408	.941423
9.000000	.384602	.838057	.883227
10.000000	.372291	.777967	.827734
11.000000	.275353	.713524	.767716
12.000000	.266525	.637877	.702817

The Kaiser-Meyer-Olkin (MSA) estimate for the data set was 0.88 and Bartlett's Test of Sphericity showed a significant result (p -value < 0.05), indicating that the variables do relate to one another enough to run a meaningful EFA. From the analysis conducted, two significant factors derived. Table 34 shows the loadings in which the explained variance of the extracted factors was 47.02 percent. Based on this thesis' sample size, 0.4 was considered a sufficient level for significant factor loadings while all items were retained as they had significant factor loadings. The two significant factors that derived from EFA were named, based on Lepak and Snell's (1998) work, relational and operational HRM indicating the effect of IT on HRM (see Chapter 2).

Table 34: Factor Loadings and Cross Loadings

Item		Factor	
Item name	Question n°	Relational HRM	Operational HRM
Relational HRM 1	q21.4	.785	-.043
Relational HRM 2	q21.11	.778	-.033
Relational HRM 3	q21.8	.754	.124
Relational HRM 4	q21.9	.716	.037
Relational HRM 5	q21.3	.680	-.139
Relational HRM 6	q21.5	.610	.012
Relational HRM 7	q21.12	.610	.142
Relational HRM 8	q21.1	.538	.036
Operational HRM 1	q21.6	-.091	.729
Operational HRM 2	q21.7	.015	.687
Operational HRM 3	q21.2	-.037	.580
Operational HRM 4	q21.10	.120	.574

After EFA, CFA was conducted and the model was tested. All items with low factor loadings (< 0.65) were eliminated. As discussed in Section 7.1.3.2 multiple criteria were used to evaluate model fit indices (see Table 35) including the Joreskog and Sorbom's Goodness-of-Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), the $\chi^2/\text{degrees of freedom}$ ratio (χ^2/df), the Adjusted Goodness-of-Fit Index (AGFI) and the Comparative Fit Index (CFI).

Table 35: Model Fit Indices

Model Dimensions	GFI	RMSEA	χ^2/df	AGFI	CFI
Two	.97	.028	1.16	.95	.99

The two HRM practices automation factors, as it can be seen in Table 36, generated Average Variances Extracted (AVE), measuring the amount of variance that is captured by the construct in relation to the amount of

variance because of measurement error, above the recommended 0.5 cut-off value and factor reliabilities exceeding 0.6. Also, discriminant and convergent validity were achieved since $ASV < AVE$, $CR > AVE$ and $AVE > 0.5$.

Table 36: CR, AVE and Fornell-Larcker Coefficients

	CR	AVE	ASV	Relational HRM	Operational HRM
Relational HRM : Factor 1	.87	.58	.24	.87	
Operational HRM : Factor 2	.75	.51	.24	.63	.91

Therefore, the final automation of HRM practices scale was formed by the eight items in Table 37 (versus the 12 items that derived from EFA) that had an acceptable Cronbach's alpha value of 0.85. The values of the automation of HRM practices were constructed by summing the responses of the items on a 5-likert point scale.

Table 37: Final Scale

Item name	Question n ^o
Relational HRM Factor	q21.4
Relational HRM Factor	q21.11
Relational HRM Factor	q21.8
Relational HRM Factor	q21.9
Relational HRM Factor	q21.12
Operational HRM Factor	q21.6
Operational HRM Factor	q21.2
Operational HRM Factor	q21.10

7.3.3.2 Measuring Knowledge Complexity

Knowledge complexity was supposed to be measured in the same way as the automation of HRM practices. Starting with EFA, the results of PA revealed that two factors should be retained as their raw data values exceeded the percentile data values.

Table 38: PA for Knowledge Complexity (Q.20)

Root	Raw Data	Means	Prcntyle
1.000000	2.290204	1.271360	1.371821
2.000000	1.235724	1.158209	1.229508 Raw Data value > Prcntl value
3.000000	1.012236	1.068984	1.127459
4.000000	.881073	.992583	1.039375
5.000000	.701228	.919243	.970317
6.000000	.531782	.841517	.898311
7.000000	.347753	.748103	.816733

The Kaiser-Meyer-Olkin (MSA) estimate for the data set was 0.68 and Bartlett's Test of Sphericity showed a significant result (p-value < 0.001), indicating that the variables do relate to one another enough to run a meaningful EFA. From the analysis conducted, one significant factor derived. Table 39 shows the factor loadings having an explained variance of 35.35 percent. Based on the sample size, 0.4 was considered to be a sufficient level for significant factor loadings. Three items were eliminated because of low factor loadings (less than 0.4) and one item was eliminated because it belonged to a factor with a single item.

Table 39: Factor Loadings and Cross Loadings

	Knowledge Complexity	Factor eliminated as it has a single item
Complexity 1	.876	-.050
Complexity 2	.656	.056
Complexity 3	.643	-.180
Eliminated due to low factor loading	.331	-.226
Eliminated due to low factor loading	.306	-.110
2nd factor 1	-.138	-.731
Eliminated due to low factor loading	-.036	-.164

Therefore, as it can be seen in Table 40, only one factor derived from EFA for knowledge complexity and this was the reason that CFA was not conducted afterwards as in the case of the automation of HRM practices. The final scale for knowledge complexity was formed by the three items having an acceptable Cronbach's alpha value of 0.77 and their values were constructed by summing again the responses on a 5-likert point scale.

Table 40: Final Scale

Item name	Question n ^o
Complexity Factor	q20.3
Complexity Factor	q20.1
Complexity Factor	q20.2

7.3.3.3 Measuring ACAP for E-HRM and Social Media

As it was mentioned in Chapter 3, many empirical studies have measured ACAP as a one-dimensional construct despite its multidimensionality. Based on the work of Flatten et al., 2011, a multidimensional and reflective scaled measurement of ACAP was developed and validated within, however, the e-HRM context. Following the same steps and methods with the automation of HRM practices, the results of PA revealed that five factors should be retained as their raw data values exceed the percentile data values.

Table 41: PA for ACAP (Q.24-27)

Root	Raw Data	Means	Prcntyle	
1.000000	13.747675	2.053989	2.171897	
2.000000	2.919553	1.935231	2.024181	
3.000000	2.424240	1.842669	1.918296	
4.000000	2.029935	1.768562	1.833829	
5.000000	1.889306	1.700223	1.761348	RawData value > Prcntyle value
6.000000	1.607883	1.638582	1.696093	
7.000000	1.547637	1.581790	1.632103	
8.000000	1.307126	1.526340	1.575421	
9.000000	1.214188	1.474702	1.522746	
10.000000	1.019703	1.425019	1.467090	
11.000000	.978718	1.379806	1.417827	

Table 41: PA for ACAP (Continued)

Root	Raw Data	Means	Prcntyle
12.000000	.928182	1.334759	1.378749
13.000000	.896562	1.292270	1.334101
14.000000	.830186	1.250989	1.289004
15.000000	.760570	1.211850	1.250802
16.000000	.708195	1.172379	1.208834
17.000000	.694492	1.135034	1.170614
18.000000	.649740	1.098647	1.134066
19.000000	.604069	1.062957	1.096868
20.000000	.586207	1.028710	1.061852
21.000000	.560807	.995465	1.028314
22.000000	.495085	.961039	.992635
23.000000	.483465	.928509	.961359
24.000000	.472341	.897334	.929394
25.000000	.445840	.866464	.895928
26.000000	.420992	.836055	.865301
27.000000	.414740	.805395	.836107
28.000000	.368404	.777003	.808453
29.000000	.348240	.748254	.776668
30.000000	.333601	.720110	.748888
31.000000	.324257	.692112	.720085
32.000000	.317937	.663949	.693830
33.000000	.303046	.636829	.665850
34.000000	.294076	.610010	.637847
35.000000	.280091	.583453	.610802
36.000000	.253280	.556586	.585207
37.000000	.250974	.531169	.559559
38.000000	.223273	.505442	.532109
39.000000	.199501	.478856	.505588
40.000000	.181974	.452259	.480829
41.000000	.172973	.425630	.453216
42.000000	.160453	.399225	.426839
43.000000	.133958	.371065	.399197
44.000000	.118949	.340058	.371190
45.000000	.097575	.303220	.335899

The Kaiser-Meyer-Olkin (MSA) estimate for the data set was 0.88 and Bartlett's Test of Sphericity showed a significant result (p -value < 0.05), indicating that the variables do relate to one another enough to run a meaningful EFA. From the analysis conducted *five significant factors* derived. Table 42 shows the factor loadings in which the explained variance of the extracted factors was 45.25 percent. Four items were eliminated because of low factor loading (less than 0.4), one item was eliminated due to high cross-loadings considering also that its loadings between multiple factors had a difference greater than 0.2. As discussed in Chapter 3, the factors were named based on the work of Todorova and Durisin (2007), Rogers (2003), and Martin and Reddington (2009). It was rather interesting that the observed items that had been theoretically developed for the *acquisition* dimension of ACAP were loaded in two different factors, however, as discussed in Chapter 9, this was logical due to the economic recession in Greece and the Greek culture.

Table 42: Factor Loadings and Cross Loadings

Item		Factor				
Item name	Question n°	Value Recognition	Exploitation	Int. Acquisition	Ext.Acquisition	Diffusion
Value Recognition 1	q24.4	.871	-.040	-.138	.112	-.003
Value Recognition 2	q24.10	.857	.030	-.155	.045	-.104
Value Recognition 3	q24.1	.848	.004	-.122	.107	-.078
Value Recognition 4	q24.12	.805	-.032	.012	-.011	-.007
Value Recognition 5	q24.5	.744	.041	-.114	-.041	.011
Value Recognition 6	q24.2	.732	.005	-.010	.011	.012
Value Recognition 7	q24.23	.715	.118	-.250	.148	-.001
Value Recognition 8	q24.6	.695	.023	.132	-.026	-.083
Value Recognition 9	q24.8	.654	.025	.055	-.145	.019
Value Recognition 10	q24.11	.646	-.011	-.081	.107	.163
Value Recognition 11	q24.20	.636	.022	.202	-.168	-.025
Value Recognition 12	q24.22	.614	.079	-.126	.180	.107
Value Recognition 13	q24.16	.609	-.098	.235	-.008	.031
Value Recognition 14	q24.13	.602	-.112	.166	-.042	.084
Value Recognition 15	q24.19	.562	-.053	.142	-.021	-.042
Value Recognition 16	q24.17	.541	.098	.169	-.052	-.059
Value Recognition 17	q24.18	.520	-.067	.242	-.070	.032
Value Recognition 18	q24.21	.511	.089	.090	-.015	.105
Value Recognition 19	q24.3	.505	.227	-.067	.118	-.026
Value Recognition 20	q24.7	.466	-.247	.261	-.175	-.053
Eliminated due to low factor loading	q24.14	.366	-.040	-.261	-.065	-.054
Exploitation 1	q27.3	.032	.807	.029	-.062	-.049
Exploitation 2	q27.1	-.024	.753	.021	-.107	-.063
Exploitation 3	q27.2	-.015	.751	.020	.048	-.030
Exploitation 4	q27.5	.155	.601	.039	-.113	.154
Exploitation 5	q27.6	-.021	.562	-.047	.237	-.151
Exploitation 6	q27.7	-.035	.445	-.100	.179	-.029
Exploitation 7	q27.4	.078	.434	-.065	-.155	-.143
Internal Acquisition1 - 1	q25.2	.007	-.031	.680	.086	.000

Internal Acquisition1 - 2	q25.1	-.050	.074	.677	.046	-.025
Internal Acquisition1 - 3	q25.9	-.036	-.043	.535	.324	-.022
Internal Acquisition1 - 4	q25.10	-.085	.067	.478	.371	.030
Internal Acquisition1 - 5	q25.11	.133	.154	.467	.246	-.084
Internal Acquisition1 - 6	q25.8	.231	-.097	.406	-.084	-.148
Eliminated due to low factor loading	q24.9	-.082	-.099	-.399	-.009	-.054
Eliminated due to low factor loading	q25.3	-.105	-.076	-.357	-.037	-.034
Eliminated due to low factor loading	q24.15	-.255	-.204	-.344	-.065	-.029
External Acquisition2- 1	q25.4	-.064	-.104	.116	.743	.106
External Acquisition2- 2	q25.7	.277	.040	-.033	.501	-.053
External Acquisition2- 3	q25.5	-.135	.028	.171	.488	-.013
External Acquisition2- 4	q25.6	.127	-.077	-.006	.441	.020
Diffusion 1	q26.7	-.042	.405	-.017	-.108	-.744
Diffusion 2	q26.3	.024	.131	.064	-.034	-.687
Diffusion 3	q26.1	.023	.331	-.054	-.063	.651
Diffusion 4	q26.5	.087	.289	.079	-.064	.509

After conducting EFA and naming the factors, CFA was also conducted and two models were tested. The first included the five dimensions that derived from EFA (i.e., value recognition, internal acquisition, external acquisition, diffusion, exploitation) and the second included only four dimensions (value recognition, acquisition, diffusion, exploitation) which means that a second order factor was used, named “acquisition”, that combined the two “acquisition factors” initially derived from EFA (e.g., internal and external acquisition). All items with low factor loadings (< 0.65) were eliminated. As

described in Section 7.1.3.2, multiple criteria were used to evaluate model fit indices (see Table 43) including the Joreskog and Sorbom's Goodness-of-Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), the $\chi^2/\text{degrees of freedom}$ ratio (χ^2/df), the Adjusted Goodness-of-Fit Index (AGFI), the Comparative Fit Index (CFI) (Hu and Bentler, 1995) and the Akaike Information Criterion (AIC).

Table 43: Model Fit Indices

Model Dimension	GFI	RMSEA	χ^2/df	AGFI	CFI	AIC
Five	.88	.058	1.67	.85	.95	403.50
Four, Second Order: Acquisition	.88	.058	1.67	.85	.95	401.33

As it can be seen in Table 43, the five-dimensional and four-dimensional models have very similar fit indices, however, the four-dimension model was preferred due to slightly better values in AIC. Therefore, the four ACAP dimensions (see Table 44) generated Average Variances Extracted (AVE), measuring the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error, above the recommended 0.5 cut-off value and factor reliabilities exceeding 0.6, also had acceptable convergent validity. In addition, discriminant validity was achieved as the Average Shared Variance (ASV) value was less than the Average Variance Extracted (AVE) for each factor.

Table 44: CR, AVE, MSV, ASV and Fornell-Larcker Coefficients

	CR	AVE	ASV	Value Recognition	Exploitation	Acquisition	Diffusion
Value Recognition	.929	.569	.308	.754			
Exploitation	.842	.572	.331	.650	.756		
Acquisition	.795	.660	.205	.470	.601	.812	
Diffusion	.670	.533	.174	.531	.457	.180	.730

Therefore, the final ACAP scale was formed by 19 items (versus the 41 items that derived from EFA) and had an acceptable Cronbach's alpha value of 0.89 (see Table 45).

Table 45: Final Scale

Item name	Question n°
Value Recognition	q24.4
Value Recognition	q24.10
Value Recognition	q24.1
Value Recognition	q24.12
Value Recognition	q24.5
Value Recognition	q24.2
Value Recognition	q24.11
Value Recognition	q24.20
Value Recognition	q24.3
Exploitation	q27.3
Exploitation	q27.1
Exploitation	q27.2
Acquisition	q25.9
Acquisition	q25.10
Acquisition	q25.11
Acquisition	q25.4
Acquisition	q25.5
Diffusion	q26.1
Diffusion	q26.5

7.3.3.4 Measuring HRMIO

As with the automation of HRM practices and ACAP, the analysis of HRMIO and the development of its reflective measures included two stages using the same methods on the same sample. The results revealed that two factors should be retained as their raw data values exceed the percentile data values as shown in Table 46.

Table 46: PA for HRMIO (Q.28)

Root	Raw Data	Means	Prcntyle
1.000000	10.692520	1.648594	1.761430
2.000000	1.967052	1.535030	1.622232 Raw Data value > Prcntl value
3.000000	1.488866	1.446488	1.511924
4.000000	.920131	1.373876	1.432540
5.000000	.849904	1.307353	1.358866
6.000000	.609836	1.247031	1.293293
7.000000	.592627	1.190631	1.236419
8.000000	.561229	1.137183	1.183742
9.000000	.528248	1.087099	1.131114
10.000000	.501077	1.038956	1.079591
11.000000	.480175	.990798	1.030642
12.000000	.415164	.944636	.982595
13.000000	.375332	.900387	.936201
14.000000	.317543	.858157	.895019
15.000000	.310559	.815352	.855979
16.000000	.270059	.772226	.811547
17.000000	.231991	.729629	.767982
18.000000	.214898	.687375	.726029
19.000000	.196869	.644492	.682661
20.000000	.165848	.599904	.641401
21.000000	.159571	.551475	.594732
22.000000	.150499	.493327	.542335

The Kaiser-Meyer-Olkin (MSA) estimate for the data set was 0.93 and Bartlett's Test of Sphericity showed a significant result (p-value < 0.05), indicating that the variables do relate to one another enough to run a meaningful EFA. From the analysis conducted two significant factors derived. Table 47 shows the factor loadings in which the explained variance of the extracted factors was 53.72 percent. One item was eliminated because of low factor loading (< 0.4) and two items were eliminated due to high cross-loadings considering that their loadings between multiple factors had a difference greater than 0.2. Based on the work of Martin and

Reddington (2010) discussed in Chapter 2, these factors were named transformational and transactional.

Table 47: Factor Loadings and Cross Loadings

Item Name	Questions	Transformational	Transactional
Transformational 1 Factor 1	q28.14	.951	-.173
Transformational 2 Factor 1	q28.13	.923	-.174
Transformational 3 Factor 1	q28.10	.843	-.061
Transformational 4 Factor 1	q28.15	.809	.055
Transformational 5 Factor 1	q28.9	.794	-.057
Transformational 6 Factor 1	q28.11	.746	.116
Transformational 7 Factor 1	q28.12	.733	-.084
Transformational 8 Factor 1	q28.20	.674	.102
Transformational 9 Factor 1	q28.7	.524	.322
Transformational 10 Factor 1	q28.19	.515	.315
Transformational 11 Factor 1	q28.21	.472	.330
Transformational 11 Factor 1	q28.18	.447	.186
Eliminated-low factor loading	q28.4	.244	-.129
Transactional 1 Factor 2	q28.1	-.219	.943
Transactional 2 Factor 2	q28.8	-.073	.847
Transactional 3 Factor 2	q28.2	-.175	.763
Transactional 4 Factor 2	q28.6	.038	.675
Transactional 5 Factor 2	q28.16	.117	.557
Transactional 6 Factor 2	q28.17	.176	.554
Eliminated-high cross-loading	q28.22	.415	-.483
Transactional 7 Factor 2	q28.3	.212	.441
Eliminated-low factor loading	q28.5	-.238	-.285

After conducting EFA and naming the factors, CFA was also conducted and the model was tested. All items with low factor loadings (< 0.65) were eliminated. As discussed in Section 7.1.3.2, multiple criteria were used for to evaluate model fit indices (see Table 48) including the Joreskog and Sorbom's Goodness-of-Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), the $\chi^2/\text{degrees of freedom}$ ratio (χ^2/df), the Adjusted Goodness-of-Fit Index (AGFI), the Comparative Fit Index (CFI), the Akaike Information Criterion (AIC).

Table 48: Model Fit Indices

Model Dimension	GFI	RMSEA	χ^2/df	AGFI	CFI
Two	.94	.063	1.78	.89	.98

The two dimensions of HRMIO (see Table 49) generated AVE above the recommended 0.5 cut-off value and factor reliabilities exceeding 0.6, and had acceptable convergent validity. In addition, discriminant validity was achieved as the ASV value was less than the AVE for each factor.

Table 49: CR, AVE and Fornell-Larcker Coefficients

	CR	AVE	ASV	Transformational	Transactional
Transformational	.93	.76	.28	.87	
Transactional	.82	.83	.28	.63	.91

Therefore, the final HRMIO scale was formed by the 12 items that had an acceptable Cronbach's alpha value of 0.94.

Table 50: Final HRMIO Scale

Item name	Question n ^o
Transformational	q28.14
Transformational	q28.13
Transformational	q28.10
Transformational	q28.15
Transformational	q28.9
Transformational	q28.11
Transformational	q28.20
Transformational	q28.7
Transformational	q28.19
Transformational	q28.18
Transactional	q28.1
Transactional	q28.8

7.3.4 Testing Research Hypotheses

Based on the discussion in Section 7.1, three statistical methods were used to test this thesis' research hypotheses: (1) mediation analysis, (2) moderation analysis, and (3) Pearson's correlation.

7.3.4.1 Results of Mediation Analysis: Testing Hypothesis 1 (a, b, c)

The basic logic around the first hypothesis of this thesis is that the antecedents to ACAP for e-HRM and social media have an impact on HRMIO through ACAP. In this thesis, three antecedents to ACAP were examined, thus, the assumption that ACAP mediates the relationship between its antecedents and its outcome was formed in three distinct hypotheses: (1) the impact of e-HRM and social media technologies on HRMIO is mediated by the organisations' ACAP, (2) the impact of e-HRM complexity on HRMIO is mediated by the organisations' ACAP, and (3) the impact of prior knowledge and experience in ICT for HRM on HRMIO is mediated by the organisations' ACAP.

Based on the assumption that the three antecedents to ACAP lead to HRMIO (see Chapter 3), the relationship between these three variables and HRMIO was tested (see Figures 38 and 39) with ACAP as mediator (see Figure 40) using bootstrapping (see Section 7.1.4).

Figure 38: Initial Mediation Model

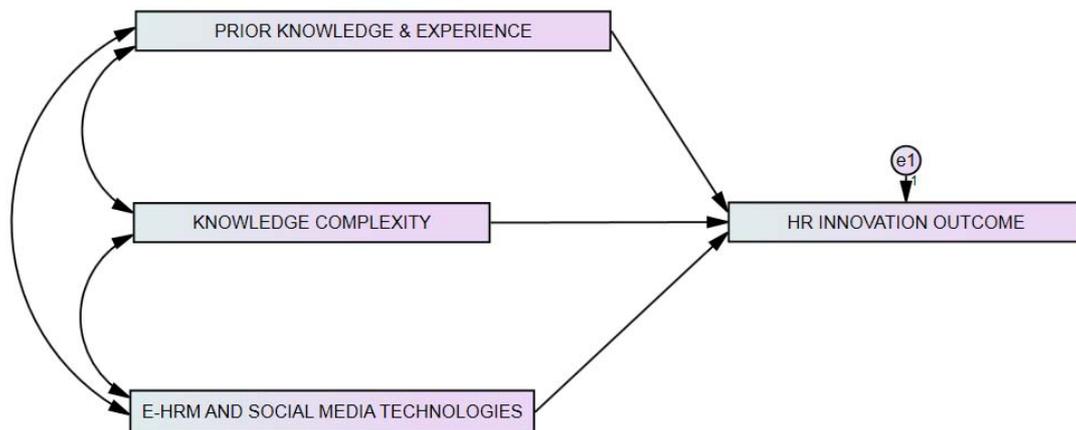
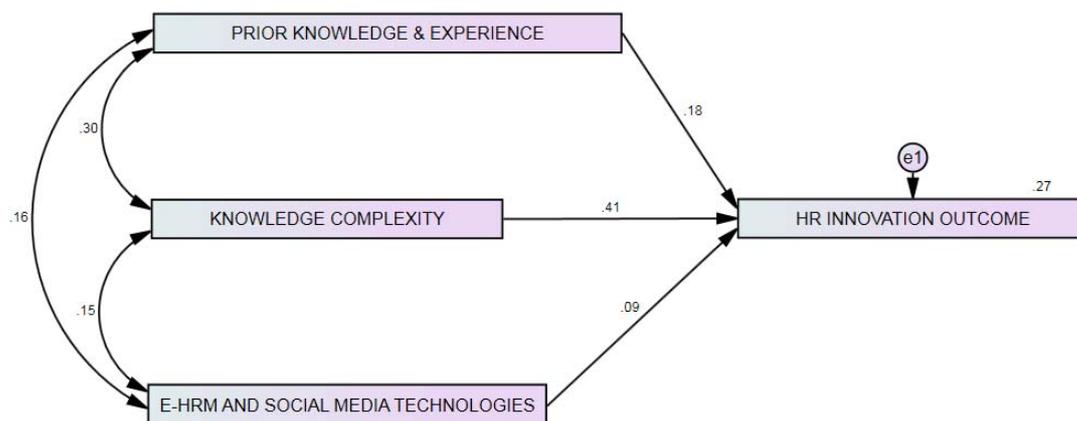


Figure 39: Initial Mediation Model's Estimations



As it can be seen in Table 51, the beta coefficient of the independent variable e-HRM and social media technologies is not statistically significant ($p\text{-value} = 0.132 > 0.05$). In other words, there is no direct effect of the

independent variable e-HRM and social media technologies and the dependent variable HRMIO.

Table 51: Regression Weights (Initial Model)

			Estimate	S.E.	C.R.	<i>p</i>
HRMIO	<---	KNOWLEDGE COMPLEXITY	1.592	.249	6.384	***
HRMIO	<---	PRIOR KNOWLEDGE & EXPERIENCE	1.555	.541	2.871	.004
HRMIO	<---	E-HRM AND SOCIAL MEDIA TECHNOLOGIES	.223	.148	1.507	.132

However, as it was mentioned in Section 7.2.4, a direct effect between independent and dependent variables is not necessary to run a mediation analysis (Kenny et al., 1998). Therefore, the effect of e-HRM and social media technologies on HRMIO through ACAP was examined despite the absence of correlation between e-HRM and social media technologies and HRMIO (see complete model in Figure 40).

Figure 40: The Complete Model: Total Effect

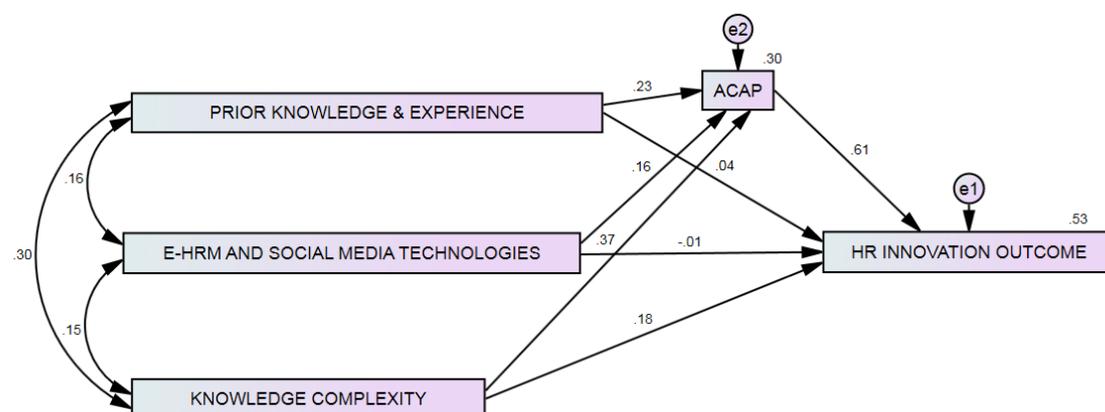


Table 52 shows that all three independent variables are positively correlated to ACAP (the mediator) and their regression weights are significant for prior knowledge and experience and knowledge complexity with $p < 0.001$ and for e-HRM and social media technologies with $p < 0.05$. Tables 53, 54, 55 and 66 show the standardised regression weights and their respective Confidence Intervals. More specifically, it can be seen in Table 56 that the direct effect of knowledge complexity on HRMIO remains significant after the introduction of ACAP ($p < 0.05$); the direct effect of e-HRM and social media technologies on HRMIO remains insignificant after the introduction of ACAP ($p > 0.05$); the direct effect of prior knowledge and experience on HRMIO becomes insignificant after the introduction of ACAP ($p > 0.05$). Furthermore, in Tables 57, 58 and 59 it can be seen that the indirect effects of all three antecedent variables are significant through ACAP ($p < 0.05$).

Table 52: Regression Weights (Complete Mediation)

			Estimate	S.E.	C.R.	PLabel
ACAP	<---	PRIOR KNOWLEDGE & EXPERIENCE	2.799	.744	3.762	***
ACAP	<---	KNOWLEDGE COMPLEXITY	2.056	.343	6.002	***
ACAP	<---	e-HRM & SOCIAL MEDIA TECHNOLOGIES	.543	.203	2.676	.007
HRMIO	<---	PRIOR KNOWLEDGE & EXPERIENCE	.335	.449	.745	.456
HRMIO	<---	KNOWLEDGE COMPLEXITY	.696	.217	3.206	.001
HRMIO	<---	e-HRM & SOCIAL MEDIA TECHNOLOGIES	-.014	.120	-.118	.906
HRMIO	<---	ACAP	.436	.041	10.549	***

Table 53: Standardised Regression Weights (Complete Mediation)

			Estimate
ACAP	<---	PRIOR KNOWLEDGE & EXPERIENCE	.235
ACAP	<---	KNOWLEDGE_COMPLEXITY	.374
ACAP	<---	e-HRM & SOCIAL MEDIA TECHNOLOGIES	.161
HRMIO	<---	PRIOR KNOWLEDGE & EXPERIENCE	.039
HRMIO	<---	KNOWLEDGE_COMPLEXITY	.178
HRMIO	<---	e-HRM & SOCIAL MEDIA TECHNOLOGIES	-.006
HRMIO	<---	ACAP	.613

Table 54: Standardised Direct Effects - Lower Bounds (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOLWEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP	.074	.262	.118	.000
HRMIO	-.092	.080	-.045	.522

Table 55: Standardised Direct Effects - Upper Bounds (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOLWEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP	.253	.478	.345	.000
HRMIO	.078	.276	.131	.705

Table 56: Standardised Direct Effects - Two Tailed Significance (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOLWEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP	.004	.001	.001	...
HRMIO	.907	.007	.396	.001

Table 57: Standardised Indirect Effects - Lower Bounds (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOLWEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP	.000	.000	.000	.000
HRMIO	.045	.164	.071	.000

Table 58: Standardised Indirect Effects - Upper Bounds (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOLWEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP	.000	.000	.000	.000
HRMIO	.160	.309	.219	.000

Table 59: Standardised Indirect Effects - Two Tailed Significance (BC) (Complete Mediation)

	e-HRM & SOCIAL MEDIA TECHNOLOGIES	KNOWLEDGE COMPLEXITY	PRIOR KNOLWEDGE & EXPERIENCE	ACAP
ACAP
HRMIO	.004	.001	.001	...

Although the results of mediation analysis are discussed in detail in Chapter 9, it can be briefly concluded that the relationship between (1) e-HRM and social media technologies and HRMIO, (2) knowledge complexity and HRMIO, and (3) prior knowledge and experience in ICT for HRM and HRMIO are fully mediated by ACAP.

7.3.4.2 Results of Moderation Analysis: Testing Hypothesis 2 and 4

As it was mentioned in Section 7.1.5, this thesis examines the effect of two moderators, thus, two hypotheses were tested using moderation analysis: (1) the age of a company's ICT system for HRM moderates the relationship between prior knowledge and experience and ACAP (H2), and (2) the degree

of the automation of HRM practices in organisations moderates the relationship between knowledge complexity and ACAP (H4).

7.3.4.2.1 Hypothesis 2: Age of the ICT for HRM as Moderator

To examine the second hypothesis of this thesis three successive models were tested: (1) model 1 (M1) or the assumed causal relationship between prior knowledge and experience (independent variable) and ACAP (dependent variable); (2) model 2 (M2) or the introduction of the moderator which is the age of the ICT system for HRM; and (3) model 3 (M3) or the introduction of the interaction effect between the age of the ICT system for HRM (moderator) and prior knowledge and experience (independent variable). These models are summarised in Table 60.

Table 60: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
M1	.372 ^a	.138	.134	11.96792	.138	31.724	1	198	.000
M2	.400 ^b	.160	.151	11.84562	.022	5.110	1	197	.025
M3	.432 ^c	.186	.174	11.68697	.027	6.385	1	196	.012

a. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE

b. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE, Zscore(q16)

c. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE, Zscore(q16), Moderator_PrKn_Q16

As it can be seen in Tables 60 and 61, a hierarchical regression analysis was conducted and M3 was significant, $R^2 = 0.186$, $F(3, 196) = 14.967$, $p\text{-value} < 0.05$.

Table 61: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
M1	Regression	4543.796	1	4543.796	31.724	.000 ^b
	Residual	28359.759	198	143.231		
	Total	32903.555	199			
M2	Regression	5260.776	2	2630.388	18.746	.000 ^c
	Residual	27642.779	197	140.319		
	Total	32903.555	199			
M3	Regression	6132.834	3	2044.278	14.967	.000 ^d
	Residual	26770.721	196	136.585		
	Total	32903.555	199			

a. Dependent Variable: ACAP

b. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE

c. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE, Zscore(q16)

d. Predictors: (Constant), Zscore: PRIOR KNOWLEDGE & EXPERIENCE, Zscore(q16), Moderator_PrKn_Q16

A significant R^2 change is observed between the three models ranging from 0.134 (p-value < 0.05) in model 1 to 0.151 (p-value < 0.05) in model 2 and to 0.186 (p-value < 0.05) in model 3 (see Table 63). All coefficients of the independent (B = 4.317, t = 5.118, p-value < 0.05), moderator (B = 1.676, t = 1.975, p-value = 0.05) and their interaction (B = -2.057, t = -2.527, p-value < 0.05) variables were significant (see Table 62).

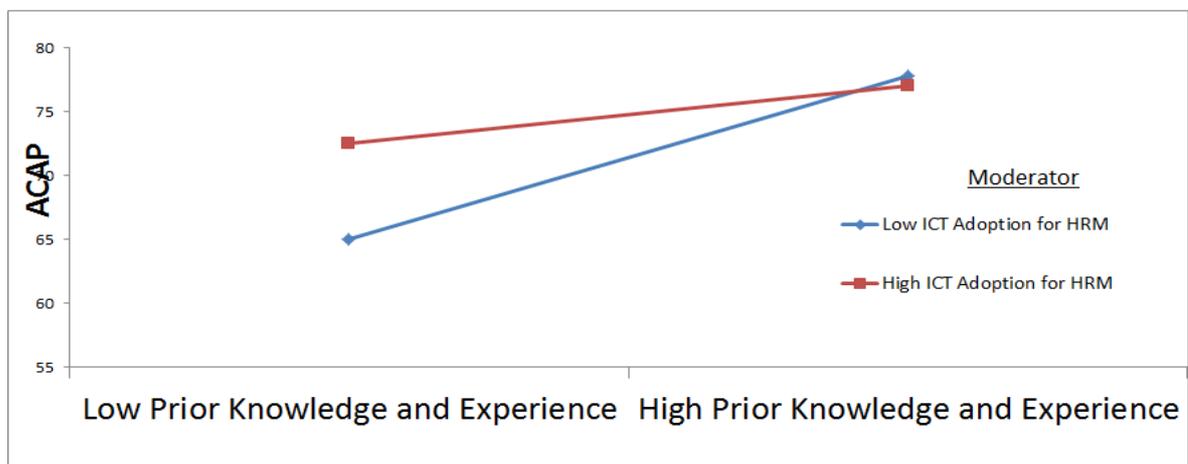
Table 62: Coefficients^a

Model		Unstandardised		Standardised	t	Sig.	Collinearity	
		Coefficients		Coefficients			Statistics	
		B	Std. Error	Beta			Tolerance	VIF
M1	(Constant)	73.085	.846		86.362	.000		
	Zscore: PRIOR							
	KNOWLEDGE & EXPERIENCE	4.778	.848	.372	5.632	.000	1.000	1.000
M2	(Constant)	73.085	.838		87.254	.000		
	Zscore: PRIOR							
	KNOWLEDGE & EXPERIENCE	4.428	.854	.344	5.185	.000	.967	1.034
M3	Zscore(q16)	1.930	.854	.150	2.260	.025	.967	1.034
	(Constant)	73.457	.839		87.512	.000		
	Zscore: PRIOR							
M3	KNOWLEDGE & EXPERIENCE	4.317	.844	.336	5.118	.000	.964	1.037
	Zscore(q16)	1.676	.848	.130	1.975	.050	.953	1.049
	Moderator_PrKn_Q16	-2.057	.814	-.164	-2.527	.012	.981	1.020

a. Dependent Variable: ACAP

In conclusion, it can be seen in Figure 41 that the age of the ICT system for HRM dampens the positive relationship between prior knowledge and experience in ICT for HRM and ACAP.

Figure 41: Moderation Analysis Outcome



7.3.4.2.2 Hypothesis 4: Degree of Automation of HRM Practices as Moderator

To examine the fourth hypothesis of this thesis three successive models were also tested: (1) model 1 (M1) or the assumed causal relationship between knowledge complexity (independent variable) and ACAP (dependent variable); (2) model 2 (M2) or the introduction of the moderator which is the the automation of HRM practices; and (3) model 3 (M3) or the introduction of the interaction effect between the automation of HRM practices (moderator) and knowledge complexity (independent variable). These models are summarised in Table 63.

Table 63: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.469 ^a	.220	.216	11.38310	.220	55.935	1	198	.000
2	.772 ^b	.596	.592	8.21279	.376	183.368	1	197	.000
3	.781 ^c	.610	.604	8.08907	.014	7.072	1	196	.008

a. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY

b. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY, Zscore(HRM_Automation)

c. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY, Zscore(HRM_Automation), Moderator_Auto_x_KnCo

As it can be seen in Tables 63 and 64, a hierarchical multiple regression analysis was conducted and the overall model (M3) was significant, $R^2 = 0.610$, $F(3, 196) = 102.286$, $p\text{-value} < 0.05$.

Table 64: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7247.723	1	7247.723	55.935	.000 ^b
	Residual	25655.832	198	129.575		
	Total	32903.555	199			
2	Regression	19615.907	2	9807.954	145.411	.000 ^c
	Residual	13287.648	197	67.450		
	Total	32903.555	199			
3	Regression	20078.668	3	6692.889	102.286	.000 ^d
	Residual	12824.887	196	65.433		
	Total	32903.555	199			

a. Dependent Variable: ACAP

b. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY

c. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY, Zscore(HRM_Automation)

d. Predictors: (Constant), Zscore: KNOWLEDGE COMPLEXITY, Zscore(HRM_Automation), Moderator_Auto_x_KnCo

A significant R² change is observed between the three models ranging from 0.220 (p-value < 0.001) in model 1 to 0.596 (p-value < 0.001) in model 2 and to 0.610 (p-value < 0.05) in model 3 (see Table 66). All coefficients of the independent, moderator and their interaction variables were significant, whereas both independent and moderator variables were standardised in order to avoid multi-collinearity issues (see Table 65).

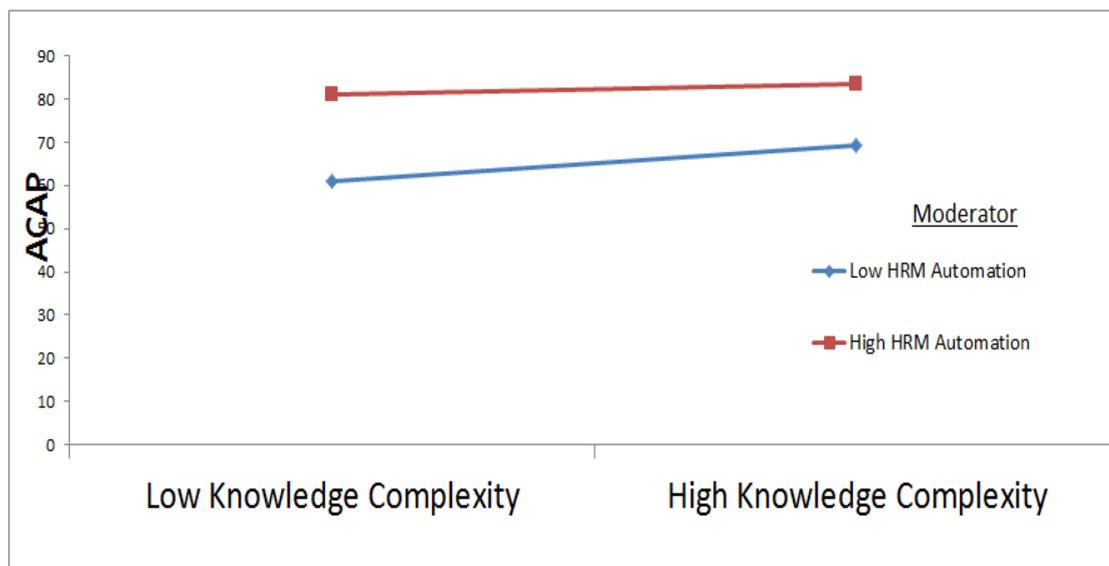
Table 65: Coefficients^a

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	73.085	.805		90.799	.000		
	Zscore: KNOWLEDGE COMPLEXITY	6.035	.807	.469	7.479	.000	1.000	1.000
	(Constant)	73.085	.581		125.850	.000		
2	Zscore: KNOWLEDGE COMPLEXITY	2.818	.629	.219	4.482	.000	.857	1.166
	Zscore(HRM_Automation)	8.515	.629	.662	13.541	.000	.857	1.166
	(Constant)	73.615	.606		121.529	.000		
3	Zscore: KNOWLEDGE COMPLEXITY	2.638	.623	.205	4.234	.000	.847	1.180
	Zscore(HRM_Automation)	8.574	.620	.667	13.835	.000	.856	1.168
	Moderator_Auto_x_KnCo	-1.411	.530	-.119	-2.659	.008	.988	1.012

a. Dependent Variable: ACAP

In conclusion, the automation of HRM practices dampens the positive relationship between knowledge complexity and ACAP (see Figure 42).

Figure 42: The Moderation Analysis Outcome



7.3.4.3 Results of Pearson's Correlation: Testing Hypothesis 3, 5, 6 and 7

As it was mentioned in Section 7.1.6, four hypotheses were tested using Pearson's correlation: (1) whether the adoption of more e-HRM and social media technologies in organisations is positively correlated to the degree of automation of HRM practices (H3); (2) whether the degree of automation of HRM practices from e-HRM and social media technologies is positively correlated to both, the amount of e-HRM service received and the number of HR clients served by these technologies (H5); (3) if the amount of e-HRM service received and the number of HR clients served is positively correlated to both, ACAP and HRMIO (H6); and (4) whether all dimensions of ACAP for e-HRM and social media are positively correlated to HRMIO (H7).

7.3.4.3.1 Hypothesis 3: Correlation between E-HRM and Social Media Technologies and Automation of HRM Practices

Pearson's correlation test revealed a positive and significant correlation between the number of e-HRM and social media technologies in Greece and the level of automation of HRM practices (p -value < 0.01) as it can be seen in Table 66.

Table 66: Correlations: Technologies and Automation of HRM Practices

		HRM Practices Automation	Number of Technologies
HRM Practices' Automation	Pearson Correlation	1	.261**
	Sig. (2-tailed)		.000
	N	200	200
Number of Technologies	Pearson Correlation	.261**	1
	Sig. (2-tailed)	.000	
	N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

7.3.4.3.2 Hypothesis 5: Correlation between the Degree of Automation of HRM Practices and the Degree of E-HRM Service Received and the Number of HR Clients Served by these Technologies

As it can be seen in Table 67, there is a moderate positive correlation between the automation of HRM practices from e-HRM technologies and the amount of e-HRM service received ($r = .435$ and $p\text{-value} < 0.001$). In addition, there is a moderate positive correlation between the automation HRM practices from e-HRM technologies and the number of HR clients served by these technologies ($r = 0.495$ and $p\text{-value} < 0.001$).

Table 67: Correlations: HR Clients, Degree of Service, Automation of HRM Practices

		HR Clients	HRM Practices' Automation	Degree of e-HRM Service
HR clients	Pearson Correlation	1	.435**	.864**
	Sig. (2-tailed)		.000	.000
	N	200	200	200

HRM Practices' Automation	Pearson Correlation	.435**	1	.495**
	Sig. (2-tailed)	.000		.000
	N	200	200	200

Degree of e-HRM Service	Pearson Correlation	.864**	.495**	1
	Sig. (2-tailed)	.000	.000	
	N	200	200	200

7.3.4.3.3 Hypothesis 6: Correlation between the Degree of E-HRM Service Received, Number of HR Clients Served and ACAP and HRMIO.

As it can be seen in Table 68, there is a moderate positive correlation between the number of HR clients served by e-HRM services and both; ACAP and HRMIO ($r = 0.414$ and $p\text{-value} < 0.001$ for ACAP and $r = 0.340$ and $p\text{-value} < 0.001$ for HRMIO). There is also a moderate positive correlation between the amount of e-HRM service received and both; ACAP and HRMIO ($r = 0.512$ and $p\text{-value} < 0.001$ for ACAP and $r = 0.461$ and $p\text{-value} < 0.001$ for HRMIO).

Table 68: Correlations: HR Clients, Degree of Service, ACAP and HRMIO

		HR Clients	ACAP	HRMIO	Degree of Service
HR Clients	Pearson Correlation	1	.414**	.340**	.864**
	Sig. (2-tailed)		.000	.000	.000
	N	200	200	200	200

ACAP	Pearson Correlation	.414**	1	.710**	.512**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200

HRMIO	Pearson Correlation	.340**	.710**	1	.461**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200

Degree of Service	Pearson Correlation	.864**	.512**	.461**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	200	200	200	200

7.3.4.3.4 Hypothesis 7: Correlation between ACAP and HRMIO

As it can be seen in Table 69, there is a moderate positive correlation between the dimensions of ACAP and transformational HRMIO (i.e., for value recognition $r = 0.669$ and $p\text{-value} < 0.001$, for acquisition $r = 0.382$ and $p\text{-value} < 0.001$, for diffusion $r = 0.473$ and $p\text{-value} < 0.001$, and for exploitation $r = 0.402$ and $p\text{-value} < 0.001$). In addition, there is a low to moderate positive correlation between dimensions of ACAP and transactional HRMIO (i.e., for value recognition $r = 0.548$ and $p\text{-value} < 0.001$, for acquisition $r = 0.291$ and $p\text{-value} < 0.001$, for diffusion $r = 0.273$ and $p\text{-value} < 0.001$, and for exploitation $r = 0.264$ and $p\text{-value} < 0.001$).

Table 69: Correlations: ACAP and HRMIO

		VALUE REC.	EXPLOITATION	DIFFUSION	ACQUISITION	TRANSF. TRANSACT.	
VALUE REC.	Pearson Correlation	1	.386**	.422**	.385**	.669**	.548**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	200	200	200	200	200	200
EXPLOITATION	Pearson Correlation	.386**	1	.259**	.432**	.402**	.264**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	200	200	200	200	200	200
DIFFUSION	Pearson Correlation	.422**	.259**	1	.098	.473**	.273**
	Sig. (2-tailed)	.000	.000		.169	.000	.000
	N	200	200	200	200	200	200
ACQUISITION	Pearson Correlation	.385**	.432**	.098	1	.382**	.291**
	Sig. (2-tailed)	.000	.000	.169		.000	.000
	N	200	200	200	200	200	200
TRANSFORMATIONAL	Pearson Correlation	.669**	.402**	.473**	.382**	1	.530**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	200	200	200	200	200	200
TRANSACTIONAL	Pearson Correlation	.548**	.264**	.273**	.291**	.530**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	200	200	200	200	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

7.4 Chapter Summary

This chapter presented and explained the steps that were followed in analysing the data derived from surveying the HR directors of 200 large Greek operating companies. These steps included the descriptive statistics regarding some key characteristics of these companies, the description and composition of observed and unobserved variables and the use of specific methods of analysis for testing the research hypotheses discussed in Chapters 3 and 6 (i.e., mediation with bootstrapping, moderation, and Pearson's correlation). Moreover, the results from each of the aforementioned steps were also presented in this chapter following the same order without commenting, discussing or interpreting them. Table 70 summarises the research hypotheses, the statistical techniques, the description of the outcomes and the results.

Finally, Figure 43 shows the development of this thesis' theoretical model after testing the initial conceptual model that was developed deductively from the literature (see Chapter 3, Figure 21). More specifically, Figure 43 presents the four ACAP and the two HRMIO sub-dimensions that derived from EFA and CFA; the overall mediating effect of ACAP construct on the relationship between the antecedents and the final outcomes; the asymmetrical placement and intercorrelation of ACAP subdimensions under no direction of causality; and the split of the "HR clients construct" into the degree of e-HRM service and the number of HR clients served by e-HRM technologies (see section 7.3.2.2 and 7.3.2.3).

In the next chapter the same logic is followed and it is presented the results derived from the semi-structured interviews with the HR directors of eight large Greek operating companies that participated in the survey and demonstrated, as discussed in Chapter 5, high adoption of ICT for HRM.

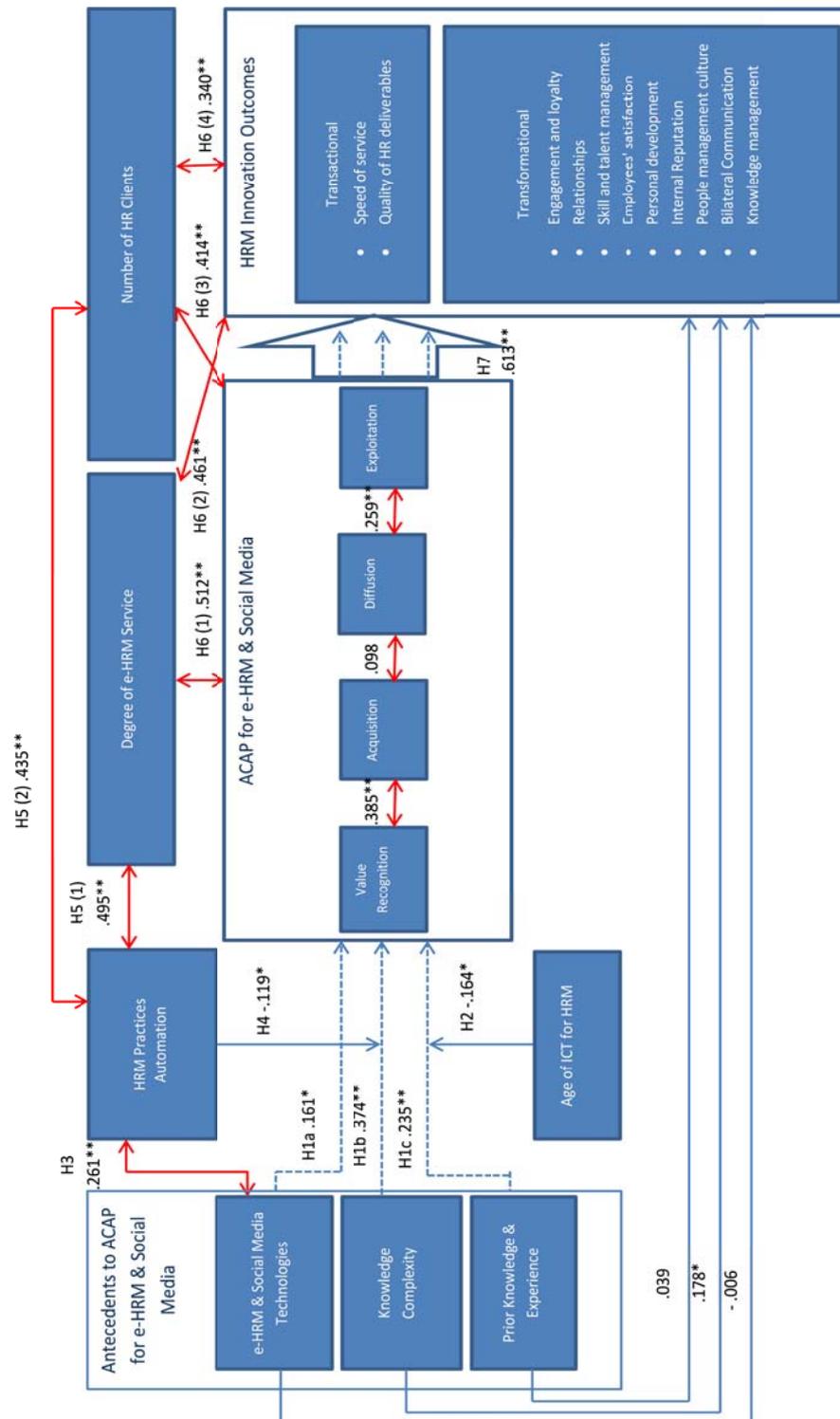
Table 70: Summary of Research Hypotheses, Statistical Analysis and Results

Hypotheses	Outcomes	Statistics	Results
<i>Hypothesis 1a:</i> The impact of e-HRM and social media technologies on HRMIO is mediated by organizations' ACAP.	Supported	Mediation Analysis	Dir. Effect: -.006 Ind. Effect: .161 x .613
<i>Hypothesis 1b:</i> The impact of e-HRM knowledge complexity on HRMIO is mediated by organizations' ACAP.	Supported	Mediation Analysis	Dir. Effect: .178 Ind. Effect: .374 x .613
<i>Hypothesis 1c:</i> The impact of HRM ICT prior knowledge & experience on HRMIO is mediated by organizations' ACAP.	Supported	Mediation Analysis	Dir. Effect: .039 Ind. Effect: .235 x .613
<i>Hypothesis 2:</i> The age of the ICT system for HRM adopted in organizations moderates the relationship between prior knowledge & experience and ACAP.	Supported	Moderation Analysis	IV: .336 MV: .130 IV*MV: -.164
<i>Hypothesis 3:</i> The adoption of more e-HRM and social media technologies in organizations is positively correlated to the degree of HRM practices' automation.	Supported	Pearson's Correlation	r : .261
<i>Hypothesis 4:</i> The degree of HRM practices' automation in organizations moderates the relationship between knowledge complexity and ACAP.	Supported	Moderation Analysis	IV: .205 MV: .667 IV*MV: -.119
<i>Hypothesis 5:</i> The degree of HRM practices' automation from e-HRM and social media technologies is positively correlated to (1) the degree of e-HRM service and (2) the number of HR clients served by these technologies.	Supported	Pearson's Correlation	(1) r : .495 (2) r : .435
<i>Hypothesis 6:</i> The (1) degree of e-HRM service received and (2) the number of HR clients served is positively correlated to (1) ACAP and (2) HRMIO.	Supported	Pearson's Correlation	(1) -> (1) : .512 (1) -> (2) : .461 (2) -> (1) : .414 (2) -> (2) : .340
<i>Hypothesis 7:</i> All dimensions of ACAP for e-HRM and social media are positively correlated to (1) each other and (2) to HRMIO.	Supported	Pearson's Correlation	(1) VR -> ACQ/DIF/EXP : .385 / .422 / .386 ACQ -> DIF/EXP : .098 / .432 DIF -> EXP : .259 (2) VR -> TRNS / TRNSF : .548 / .669 ACQ-> TRNS / TRNSF : .291 / .382 DIF -> TRNS / TRNSF : .273 / .473 EXP -> TRNS / TRNSF : .264 / .402

Notes:

1. Different colors represent different statistical techniques used to test different hypotheses.
2. Red coloured results are presented in the path diagram of Figure 43.

Figure 43: Standardised Coefficients



Notes: For simplicity, error variances are not shown in this path diagram.

H: Hypotheses.

Dotted Blue lines: Represent indirect effect of ACAP's antecedents to HRMIO through ACAP.

Undotted Blue lines: Represent direct effects of ACAP's antecedents to HRMIO.

Red Lines: Represent correlations and no directions of causality.

Stars: * p<0.05, ** p<0.01

Chapter 8: Qualitative Analysis & Data

8.1 Introduction

The purpose of this chapter is to describe and analyse the responses obtained from eight HR directors of eight large Greek operating companies that participated in the survey and demonstrated high adoption of ICT for HRM. These interviews were exploratory and aimed at understanding the factors that were influencing the absorption of e-HRM and social media in Greece. More specifically, the qualitative stage of this research aimed at illustrating the reasons and the ways companies had absorbed e-HRM and social media technologies based on the perceptions and understandings of their HR directors that were considered to be key informants. As mentioned in Chapter 5, for the third and qualitative phase of this thesis' research design -after literature review and survey- data collection was undertaken using a semi-structured interview guide.

In this chapter, it is presented how data was analysed through coding and by attributing content to identified dimensions in order to observe commonalities or trends (Miles and Huberman, 1994). Therefore, the chapter is divided into two main parts. In the first one, the steps that were followed in this thesis to analyse the qualitative data are discussed and justified. These steps were: the development of the profiles of companies and interviewees, and the construction of qualitative categories and themes. In the second part of the chapter, the data from the qualitative analysis is presented.

8.2 Developed Profiles of HR Directors/Companies Interviewed - Step I

The first step in the analysis of qualitative data included the development of profiles for both, the eight companies that accepted to participate in the interviews and their HR directors. These profiles can be seen in Table 71 and include three main characteristics of the HR directors and six characteristics of the companies. The characteristics of the HR directors

were: (1) *Gender* where “F” stands for female, “M” for male. (2) *Training in ICT for HRM* where “Y” stands for yes and “N” stands for no indicating if they have participated in such training or not. (3) *Training in social media* where “Y” stands for yes and “N” stands for no indicating whether they have participated in such training or not.

Regarding the eight companies, they are also presented in Table 71 as “C1, C2...C8” and their characteristics were: (1) *Sector* where “COM” stands for commercial, “IND” for industrial and “SRV” for services. More specifically, C1 was a commercial company that traded electrical and electronic material; C2 an industrial company that produced electrical and electronic material; C3 a commercial company that traded drugs, cosmetics and detergents; C4 also a commercial company that traded drugs, cosmetics and detergents; C5 an industrial company that produced electrical appliances and lighting; C6 a telephone services company; C7 a company that offered transportation services in airline firms; and C8 a yellow pages service company (print and electronic information). (2) *Location*. All companies were located in Athens (“A” stands for Athens). (3) *Structure or company’s organisational form*. For example, “SUB_MULTI_LCL” referred to a subsidiary of a multinational group the headquarters of which were located in Greece, “HQ_MULTI_LCL” referred to a multinational group the headquarters of which were located in Greece, and “GR_SA” referred to a Greek Societe Anonyme (SA) limited liability company. (4) *Size* or the number of permanent employees in Greece where “1” refers to a range between 250 and 500 and “2” between 501 and 1000 employees. (5) *Market active* or the market (international or “INTL” versus local or “LCL”) that the company is more active and makes the maximum of its profit. (6) *E-HRM and social media technologies* or the number of technologies or tools used for HRM.

The last characteristic of companies derived from question 19 of the survey questionnaire and formed the identifier mentioned in Chapter 5 for the selection of firms for an interview. More specifically, question 19 included 24 items or technologies (see Chapter 6). The companies that were asked to

participate in the survey where those which had indicated in the survey that they used more than 10 technologies or tools out of these 24 items. These companies were classified as “high ICT adopters” and comprised the sampling frame for the interviews based only on the number and not the type of these technologies.

As it can be seen in Table 71, half of the respondents were male and the other half female. All of them had received training on in ICT for HRM; however, the majority of them had never received training in social media. Their companies represented the three broad sectors described in Chapter 7 (i.e., commercial, manufacturing and services) and all companies were located in Athens. Not surprisingly, only two out of eight companies were Greek with limited liability while most of the firms were multinational (six out of eight). More specifically, five out of the six multinational companies had a subsidiary in Greece and one company had its headquarters in Greece. Moreover, half of the companies were more active and making the maximum of their profits in Greece, while the rest of them in international markets outside Greece. Finally, these companies represented all three main sectors of the Greek economy and had been characterised as “high ICT adopters” based on the number of technologies they were using at the time that the research was conducted.

Table 71: Profiles of Companies and HR Directors

	High ICT Adopters							
	C1	C2	C3	C4	C5	C6	C7	C8
Respondent Characteristics								
Gender:	F	F	F	M	M	M	F	M
ICT for HRM Training:	Y	Y	Y	Y	Y	Y	Y	Y
Social Media Training:	Y	N	N	Y	N	N	N	Y
Company Characteristics								
Sector:	COM	IND	COM	COM	IND	SRV	SRV	SRV
Location:	A	A	A	A	A	A	A	A
Structure:	SUBMULTILCL	SUBMULTILCL	HQMULTILCL	SUBMULTILCL	SUBMULTILCL	SUBMULTILCL	GRSA	GRSA
Size:	2	1	1	2	2	2	1	1
Market Active:	INTL	LCL	INTL	LCL	INTL	INTL	LCL	INTL
E-HRM & Social Media:	10	10	15	11	11	10	10	12

8.3 Developed Categories and Themes-Step II

The second step in the analysis of qualitative data included the development of categories and themes. The qualitative data was assembled from the HR directors of eight firms that were classified as high ICT adopters and were subjected to qualitative analysis, following a step-by-step approach in which themes were traced and summarised in the form of indicative verbatim speech marks. Based on Miles and Huberman (1994), a number of analytical procedures were followed in order to transform the raw form of the qualitative semi-structured phone interview data into meaningful explanations and interpretations around the topics of investigation.

As discussed in Chapter 5, the telephone interviews were automatically recorded and stored on my PC and then this data was typed into word processing documents in the form of written transcripts. The development of transcripts was followed by coding and further developing the categories through a framework analysis approach. More specifically, the categories

had partially emerged when deductively creating the semi-structured interview guide; however, the final version of categories was formed inductively after sifting through the data set and after reflecting on the themes identified during the literature review and the interviews. As Lacey and Luff argued,

“although the general approach in Framework Analysis is inductive, this form of analysis allows for the inclusion of a priori as well as emergent concepts, for example in coding (Lacey and Luff, 2001: 13).

The themes were consistent with the main concepts that informed the quantitative analysis. As it can be seen in Table 72, four substantive categories were identified while numbers were allocated in each case in order to facilitate the detailed coding procedure. Finally, the content of the interview transcripts was also coded accordingly.

Table 72: Qualitative Categories

Code	Category
100	e-HRM
200	ACAP
300	Generic Social Media
400	Internal Social Media

After creating the four broad categories, themes that were aligned and connected to each category were developed and coded. For example, as it can be seen in Table 73, the category that was coded with the number “100” (i.e., e-HRM) had been connected with five themes (from 101 to 105) that were related to this category while the category “200” (i.e., ACAP) had been connected with six different themes related to this category.

Table 73: Categories & Themes

Code	Theme
101	Investment Reasons
102	Expectations
103	Issues during adoption, diffusion and exploitation
104	Reasons for the problems faced
105	Factors that affected the outcome
201	Value recognition
202	Acquisition process
203	Assimilation or Transformation
204	Exploitation
205	Duration of project
301	Tools that are used
302	How these tools are used
303	Users' description
304	Adoption process
305	Integration with HRM practices
306	Employee characteristics
401	Tools that are used
402	How these tools are used
403	Future plans

To distinguish between the findings of each transcript and analyse the data, the code that had been assigned to each company was also used (i.e., C1 to C8). Therefore, the final code of each theme consisted of two parts. For example, code C1 204 referred to the view of the HR director in the first company in Table 71 on “exploitation” which is the theme number 204 in Table 73. Finally, as soon as the coding methodology for analysing qualitative data had been developed, the following actions occurred: (1) reading the transcripts repeatedly against the voice records, (2) organising data using the aforementioned coding system, and (3) reducing data in order to compile the coded themes into a matrix and illustrate common views among HR directors.

The data reduction process was managed by use of a thematic chart which means for each theme across all cases (Lacey and Luff, 2001). This thematic chart referred to a matrix with defined columns and rows where data was entered selectively into the appropriate cells (Miles and Huberman, 1994). As it can be seen in Table 74, the left part of the chart included categories and themes and the right part the cases of the companies whose HR directors were interviewed.

Table 74: Thematic Chart-Matrix

Categories and Themes			Cases							
			C1	C2	C3	C4	C5	C6	C7	C8
100	E-HRM									
	101	Investment Reasons								
	102	Expectations								
	103	Issues								
	104	Reasons for the problems faced								
	105	Factors that affected the outcome								
200	ACAP									
	201	Value recognition								
	202	Acquisition process								
	203	Assimilation or Transformation								
	204	Exploitation								
	205	Duration of project								
300	Generic Social Media									
	301	Tools that are used								
	302	How these tools are used for HRM								
	303	Users' description								
	304	Adoption process								
	305	Integration with HRM practices								
	306	Employees characteristics								
400	Internal Social Media									
	401	Tools that are used								
	402	How these tools are used for HRM								
	403	Future Plans								

In summary, the creation of profiles, the development of a coding system with categories and themes, the careful organisation and usage of data, and the use of a matrix during the data display and reduction process allowed the comparison of findings with both; this thesis' deductive assumptions

that had been identified after the literature review process (see Chapters 2, 3, 4) and with the findings that derived from the quantitative data analysis (see Chapter 7).

8.4 Qualitative Data

By examining the HR directors' responses to category-specific questions allowed the in-depth exploration of the reasons and the ways large, multinational or local, Greek operating companies had adopted e-HRM and social media technologies. The qualitative data is presented in the next four sections based on the categories of the investigation.

8.4.1 E-HRM Category

The e-HRM category included five main themes (see Tables 73 and 74). These were initial categories and themes and it was expected that some codes would be added to or excluded inductively from the interviews.

8.4.1.1 Data Regarding Investment Reasons

The interviewees were asked to describe the reasons their company adopted and invested in e-HRM technology. Attention to improvement on data and information management was primarily indicated in the views expressed. The inference was that a proper database was required that would allow the effective and efficient management of HR data by the HR department. Some key words that the respondents used were: quality of data, history, accuracy, validity, easy display, and search-ability (i.e., to be found easily and quickly). For example, the HR director of C3 said:

To make our work easier and more automated as we had a lot of information about many employees and it was not easy to manage all this data. Also, we had access to information much easier and faster.

Adding a justification on the need for better data management, the HR director of C6 said:

We use too many systems as outsource providers because of the bridges we have created with our customers and with our customers' systems...the need was to be able to tie and connect some departments and systems and to be able to handle information more easily in order to be able to see some data concerning a candidate or an employee anytime we need it. Also, to have some data stored in order to use them in the future.

The HR director of C1 connected the need for an accurate database with the management of HR, specifically for serving internal clients. As she stated:

....to have better quality of data, to serve our internal customers who are all employees of the company and for better management of all aspects of HR. For example, to have accurate databases so we can better manage the next moves concerning the training of employees and every action around HR such as career planning, promotions etc.

On the one hand, very interesting justifications were given by the HR directors of the two Greek SAs (C7 and C8). The HR director of C7 was the only interviewee who addressed the concept of *information security and confidentiality of data* while both HR directors of Greek SAs referred to *environmental aspects* in their reasoning. For example, the HR director of C8 said:

The reasons for this investment have to do with the external and internal environment of the company. Internally, the company has adopted and used new technologies for years which are quite common for the staff....this investment was therefore a logical consequence of the evolution of technology. Externally, there was recognition of the market trend to use these technologies and systems for the benefit of the company and its operations.

While the HR director of C7 stated that:

A key reason was data confidentiality, security of data and history... Another reason is the history of data... Also, it is the environmental part, an electronic system reduces the consumption of paper tremendously and reduces the HR administration which is not something we are interested in being dependent on but we are interested in analysing the results. So it is a matter of reducing general operating expenses for the company. It is also that data is

accessible faster and is filed in a more organised way, thus, the information is available whenever and to whomever requires it.

On the other hand, the MNCs that had a Greek subsidiary justified these investments as the mother company's decision. For example, the HR director of C5 said:

Because we are a subsidiary of a multinational company we adopt and implement all the technologies that are coming from our head office.

However, some respondents explained further that the intention of their headquarters was to assure accessibility, transparency, consistency of HRM among the group of companies, common language, and control. Therefore, when the HR director of C4 was asked "what were the reasons your company adopted and invested in e-HRM technology", he said:

This was because some services have been transferred to the headquarters and are monitored by a managerial level and above, so there must be a shared common database with common rules...by installing a central system and having obliged each country to use it and to maintain the employee data in the system we achieve a common procedure. Also, it is much easier to search for information when everything is in an electronic format.

Using the same logic of a multinational organisation, the HR director of C2 also said:

First of all, this investment has been made by the headquarters. C2 is a multinational company and these decisions are taken by the head office in Zurich....One of the main reasons was the transparency and validity of data.

The factors determining e-HRM investment decisions by large companies that operated in Greece were, therefore, primarily relevant to *data content and display* including improvements on data quality, history, accuracy, validity, accessibility, search-ability and management (by HR staff, managers or employees) as well as *information security and confidentiality*

of data. They were also relevant, and equally important, to the delivery of *HRM practices* including improvements on career, training and performance management, talent management, connecting departments and systems, and decision-making. Furthermore, some factors were relevant to *environmental* parameters such as paperless and environmental friendly HRM, and institutional or mimetic behaviors due to market trends. Finally, some factors were *MNC specific* and relevant to the headquarters' control and accessibility, transparency, and consistent HRM practices along with common language (e.g., between companies of the same group but in different countries).

8.4.1.2 Data Regarding Expectations from E-HRM

The interviewees were asked to describe their expectations of e-HRM technology. That way, it was examined whether expectations were satisfied with the e-HRM and if new expectations were created through their company's involvement in this technology. Because the HR directors' expectations of e-HRM were in many cases the same as the investment reasons (i.e., the company invested in e-HRM in order to bring the results expected by their HR directors), this section includes the items and areas that have not been mentioned as investment reasons in the previous section.

Starting with a very interesting observation, cost reduction or financial elements in general were not mentioned as initial e-HRM investment reasons. In other words, none of the HR directors claimed that his company invested in e-HRM in order to reduce costs. However, a number of HR directors expected such an outcome. For example, the HR director of C4 stated:

....Our expectations were to have immediate access to information and to manage information as quickly as possible at the lowest cost.

Similarly, the HR director of C8 claimed:

....we saw new ways and roads for managing staff. As far as the company is concerned, there was a trend to automate the job to the largest possible extent in order to reduce various costs around personnel management, etc.

Furthermore, the exploitation of e-HRM created new expectations and needs in all of the companies, however, in some cases these needs were not satisfied either because they required additional financial investments or because companies were in the process of reducing costs due to the economic recession. When the director of C2 was asked about the creation of new expectations through the company's involvement in e-HRM, she said:

Yes, new expectations were generated but now due to cost cutting we cannot expand the system to cover our new expectations and needs...

The director of C3 did not also manage to get approval to buy the whole e-HRM system (all modules). As she claimed:

Yes, our expectations were absolutely met although we could have acquired some additional applications that we requested afterwards to enrich the system, but for some reason we did not get approval. You can understand the reasons (laughing and meaning due to the cost and the financial crisis)....

A very similar answer was given by the HR director of C5, who implied that additional financial investment was required to utilise further the system and cover all his expectations:

Yes, our expectations are satisfied. This tool gives us the opportunity to do much more if we invest financially.

While the director of C6 very openly claimed:

While discovering the possibilities and applications of a system....many times it is not enough or you want to install something extra because you believe you need to have it in your department and suddenly you realise that this process cannot be supported, therefore, you have an issue in this aspect....

Another expectation that appeared in one MNC from its involvement in e-HRM was not so much of a financial nature but instead of a technical one. It had to do with the *compatibility* of the system (acquired from the headquarters) with the *institutional needs* of the local office in Greece. More specifically, the director of C6 stated:

We are still in the process of learning it and because it was based on the data of the parent company which is in America, we are trying to adapt it to the Greek market since, for example, the American labour law is different from the UK or Greek law so we had to make many changes in order to adapt the system to the Greek realities.....

In general, the expectations of the HR directors as regards e-HRM adoption were aligned with investment reasons. However, three additional areas that derived from the discussion around expectations were: cost reduction, lack of additional investment despite the creation of new needs and technological compatibility with institutional parameters.

8.4.1.3 Data Regarding Problems Faced During the Absorption of E-HRM

Almost all interviewees mentioned that they faced some issues during the different stages of e-HRM absorption. More specifically, only two interviewees claimed that they did not face any problems, of which one argued that this was because her company was already innovative when adopted e-HRM. In addition, the two themes around the companies' implementation problems (issues faced during the adoption, diffusion and exploitation of e-HRM and reasons why these problems appeared) were reduced in one theme and are presented in this section.

First of all, the most commonly appeared issue was *resistance to change* that was justified as *lack of prior knowledge* and consequent *fear of the unknown*; a *cultural characteristic* of Greeks; or *organisational culture*. For example, the HR director of C5 mentioned:

There were problems in relation to the users who were not familiar with technology but this was resolved to a great extent in two ways; on the one hand by going into training and on the other hand with some

manuals that were created.....Some minor objections that existed were, I believe, a matter of culture of the people (meaning Greeks) as well as the company's (meaning organisational culture). For example, if some people who are not willing to change and improve their working habits for their own benefit it is partially a matter of the company too.

From a technical standpoint, a commonly reported issue was the *complexity* and *incompatibility* of the system and the consequent *adaptation* challenges of the company during the diffusion process. The HR director of C4 said:

Yes, there were some problems in the beginning until we learnt and got used to it as it was more complicated than expected. Also, some problems had to do with the network and the system's performance issues.

The HR director of C2 claimed:

....implementation and incompatibility problems appeared as would any electronic system that is adopted for a first time....and nagging.

The HR director of C6 also mentioned an *incompatibility issue* during the diffusion process that derived, however, from the different needs between the headquarters and the local office and their unavoidable transformation actions required to adapt to the new system.

We had built a group of people from IT, HR and production that worked together as a team in order to see how this system would be best suited to the company. We faced several problems and it was required to make some changes in our daily routines and the way we were working and we also faced several difficulties at the beginning because the system had not been created to cover our own needs.

The HR director of C7, which is the Greek S.A., added the problems of *data confidentiality* due to the technical capacity of the system and *communicational effectiveness* for persuading people to feel secure and use the system. As she said:

The IT experienced some technical problems....We also had an issue with confidentiality of data -meaning how we would draw up the appropriate licenses, who would handle specific issues, who would have access as administrator to specific information.....We also had a communication issue as regards convincing employees that these elements are secure and not accessible.

The HR director of C8 also mentioned the adaptation issues and employees resistance during the diffusion process.

.....we had to manage people who struggled to learn and adopt this process. A new system requires training, time, and cooperation of all departments. There was a period of 8-12 months in which various arrangements were made, the policy was recorded, we adopted the program, trained staff, and we were trained ourselves so as to train staff to be able to import slowly the data into the system so that these could be used by the company. In addition, throughout this period we faced a considerable degree of resistance to such a change because of fear of the unknown and lack of knowledge.

In summary, the problems that were identified from the interviews with eight HR directors of equal number of large Greek operating companies were: the managers' or employees' resistance to change due to lack of prior knowledge; skepticism, complaints or fear towards the unknown as cultural elements of Greeks; technical or systemic problems such as complexity or incompatibility of the system due to different past routines or the development of a system that covered corporate needs and not the needs of the local subsidiary; lack of company support and/or organisational culture that welcomes technological change; lack of data confidentiality due to the technical capacity of the system and employees insecurity.

8.4.1.4 Data Regarding the Factors that Affected E-HRM Outcomes

The analysis of this theme offered a number of practical examples around the factors that affected positively and allowed e-HRM outcomes to arise. In other words, although the survey in this research provided valuable information about the nature of HRMIO (see Chapter 7), the discussions with HR directors of high ICT adopting companies offered corroborated

information about the elements that enabled these outcomes. Therefore, it was practically examined and discussed through this theme what were the main reasons or factors that helped results occur when using e-HRM.

A commonly reported success element was *project management* that included a thorough *needs analysis process*, *proactive communication* or *cross functional teams* with employees from HR, IT, and in some cases from other functions, too. For example, the HR director of C1 said:

It was a well-organised process which means that we had collected all the needs of our company and we had adapted these needs to the system. Also, there was a proper training of the employees.....employees of the IT Department had also participated.

The HR director of C7 also stated:

We created a group from HR, a group from IT with a project Manager and with the support of the IT director and two other people who were doing more administrative work which was absolutely necessary and the Director of PR & marketing and all these were reviewed from the CEO..... Firstly, we completed the first step meaning that we did not expect to hear the concerns of the personnel in order to address the problem but we tried to prevent this by handling the issue accordingly from the beginning of the program so we avoided a lot of ensuing problems.

The same director also pointed out that the adoption of an e-HRM system requires the existence of a process in the company that assures the maintenance of interpersonal contact. As she said:

You need to safeguard and maintain interpersonal contact despite the resulting automation. For example, you have to insist on your process to include the feedback performance meeting between managers and employees and you have to assure that this happens.

However, even before planning or starting the project, the *company's approach* towards an e-HRM implementation project (e.g., obligatory versus optional execution) was also considered to be an important success element. For example, the HR director of C2 said:

.....it was not optional by the company and we had to do this. This helped me a lot to move the project forward.....

However, the most commonly reported factor that enabled e-HRM implementation and outcomes was *training*. Depending on the company, different training approaches were followed. In C2, for example, the HR staff was trained first by the headquarters and then it trained managers and employees in the Greek subsidiary.

Regarding training, other colleagues and I in HR were trained for a long period by C2 Italy and when we were ready, we trained all managers and employees through face to face trainings.

In C5, both internal trainers and external consultants were used. Furthermore, it was not only the HR staff that was initially trained but also managers and employees from other departments who then became “trainers” for the rest of the company.

The reasons that enabled the outcomes were that people were trained and thereafter became trainers internally for the rest of the staff. We also had external consultants who trained some experts depending on the function they had, for example, one for the IT department, another one for HR, etc. Therefore, I think that there was a good preparation and delegation.

The involvement in the training process of employees not only from the HR department was also followed by C8.

We made constant updates, presentations, training and involvement of staff in the whole process in order for them to understand that it is for their own benefit.

Three additional but equally important elements that were reported had to do with the *necessity of the system*, its *design* and the *company-culture*. For C3:

The system worked relatively easy because we had all been well-trained and properly informed. We were all convinced that the system would help us, therefore, we had a good mood about this.....I believe that you adapt more easily to something that you need. On the other hand, it is also the company's philosophy that everything changes very quickly and we all believe that every employee must be able to adapt very easily to change although we, as Greeks, are initially cautious about change.

While for C4 the most important factor was:

The good design, everything we wanted was in the system, it was complete.

Finally, the HR director of C8 argued that his company was already innovative and this enabled e-HRM outcomes without claiming though that they did not face any problems during implementation, as in the case of the company mentioned in Section 8.4.1.3. As he said:

A factor that helped was that the company was already innovative. Another factor was that this process was very methodical.

Therefore, the factors or elements that enabled e-HRM outcomes in Greek operating companies can be summarised as: the existence of a methodical planning or project management; the prior analysis of needs; the proactive and constant communication across the company; the creation of cross functional teams with personnel from HR, IT and other departments; the existence of a process that secures and maintains interpersonal contact despite the resulting e-HRM automation; the company's obligatory attitude; a training process that is suitable to the company's characteristics and structure; the system's necessity and design; and the respective company culture in adapting quickly to change.

8.4.2 ACAP Category

The ACAP category included five main themes and it was practically explored how large companies which operated in Greece adopted, diffused and exploited e-HRM. More specifically, four out of five themes

incorporated the dimensions of ACAP discussed in Chapter 3 and the last theme dealt with the duration of the absorption process. Therefore, the themes were: (1) value recognition; (2) acquisition; (3) assimilation or transformation; (4) exploitation; and (5) project duration.

8.4.2.1 Value Recognition

An important feature around this theme was whether Greek operating companies had been engaged in the process of recognising the value of e-HRM technology before acquiring it. All HR directors claimed or implied that their company tried to recognise the value of e-HRM first and then acquired it. This included the HR directors that did not know much about this process because their mother companies had decided to adopt this technology in the local subsidiary that they managed. For example, the HR director of C1 said:

I do not know but I believe it has been done. The global supply change management of our company was responsible for this.

The HR director of C2 was also not aware about the exact value recognition efforts of her company but she assumed that the overall *technological capability* and *anthropocentric culture* of her firm would not have permitted investments in people technology if they had not first recognised the value of this technology for its people. As she said:

I do not know as this was from the headquarters but I believe that C2 is a company that is ahead in technology, it is also an anthropocentric company that cares about its employees and their development and I think that this was one of the reasons.

On a similar direction, the positive *success story* of e-HRM adoption in its headquarters seemed to enhance value recognition by the local subsidiary in C5 based on its HR director's comment:

I do not know because it was taken by the head office but because we had the positive example of the mother company that it was a tool which supports and helps, we were encouraged from this success story to launch the system, too.

Another element that appeared to increase the importance of recognising the potential benefits of new technology was the *size* of the company. In other words, it was argued by the HR director of C3 that the global size of her company increased the need for valuable e-HRM technology. As she said:

These requirements appeared mainly from abroad (meaning headquarters) -due to the size of the companies the need to find some solution in order to collect and manage the information more easily was more urgent.

Finally, the HR director of C6 referred to the value recognition process not only as a step before acquiring this technology but as a constant process during acquisition and diffusion. Therefore, in the question “did your company try to recognise the value of the new technology before acquiring it”, he said:

Many times, when something which is ready comes to you directly from abroad, you see it with scepticism and this has to do with the support that you have from the company. The company has to follow some supporting steps and actions in order for the acceptance by employees to become smoother.

In summary, the findings of this theme included: (1) a company with a specific global supply chain function responsible for recognising the value of potential acquisitions; (2) a belief that a company with an existing technological capability and anthropocentric culture would respect its employees and would not acquire HR technology without recognising its value first; (3) the belief that that recognition of a system’s value by a subsidiary is enhanced by the success story of its headquarters; (4) an assumption that the global size of a company increased the need for valuable e-HRM technology and consequently value recognition efforts; and (5) the claim that value recognition is a constant process that requires the company’s support.

8.4.2.2 Acquisition

Needs analysis was the most commonly reported action or behavior of Greek operating companies during the acquisition process of e-HRM. Two important decisions strongly connected to the needs analysis process were: (1) to get a standardised versus a customised e-HRM system, and (2) to create internally versus buy externally an e-HRM system. As the HR director of C7 said:

Firstly, we designed the system internally. We used an external partner of Microsoft and on the Microsoft systems our own intranet was created. There is an external support from Microsoft but we handle it ourselves through our own IT department. When we started developing the system we did not know in which way this would be done but after we saw several technology providers who either have some ready packages or they could create some customised programs for us, our IT department made this proposal to internally design the system.

In C7, the main driver behind these two decisions (i.e., building internally a customised system) appeared to be *financial*, but not only this. More specifically, when the HR director of C7 was asked “why did you finally decide to build your e-HRM internally”, she argued that the *needs analysis process* was easier with the internal IT department because IT staff knew and understood better the company’s needs and requirements. As she said:

The first reason was certainly economic. Although I have not assessed this yet because the working hours that people from the IT department spent on this project may have cost us more (meaning, compared to acquiring a standardised package from an external provider). We conducted market research, the first thing we looked at was the cost, the other was the fact that it was much easier to understand our needs internally, and the third reason was confidentiality. Therefore, as soon as we realised or at least assumed that it will cost us less to build the system internally we decided to do so.

Another commonly declared behavior during acquisition which was also mentioned by the HR director of C7 was *market research* or the company’s interaction with and evaluation of potential sources of e-HRM technology. An interesting comment came from the HR director of C8 who argued that

they used *survey questionnaires* in order to get users' perspectives, understand their needs and then conduct a focused and thorough market research. As he said:

A major market research was carried out...that examined the functionality and usefulness of these systems as well as the convenience of these systems for the user. This information was given by all departments through survey questionnaires concerning these technologies and the existing knowledge of users. The questionnaires aimed at enabling the company to understand the needs and its ability to use these tools.

From a multinational perspective, the needs analysis process that was followed by market research was also adopted by C4 whose HR director said:

To check whether it could cover our needs, we created a requirement list or what we wanted from a system like this and we searched the market to see which system covered our needs to a greater extent. This was done centrally but the headquarters asked all offices to analyse and share their needs and requirements.

In summary, the acquisition of e-HRM by large Greek operating companies involved: the selection between a standardised versus a customised and internally built versus externally acquired system; the process of analysing the company's needs; understanding the requirements from the potentially acquired system; and market research.

8.4.2.3 Assimilation-Transformation

The HR directors were asked to explain if their company understood and incorporated e-HRM in their daily routines easily (assimilation) or rethought and changed their daily routines (transformation) in order to use e-HRM. The main purpose of these questions was to understand the elements that allowed, or not, the assimilation or transformation of e-HRM in practice. For example, the *necessity of an automated system* was an important enabler of assimilation in C6. When the company's HR director was asked "why do you believe your company understood and incorporated e-HRM", he said:

Because there was a great need for better management of information due to the increase in headcount and because we had observed our weakness in accessing information.

From a more authoritative approach, the HR director of C2 claimed that the *obligatory diffusion* was the main reason that his company understood and incorporated e-HRM. As she argued:

First of all, the company had to assimilate it because there was no other option. Let me just tell you that I tried to sell the idea of group tools to employees....we will be more connected to the headquarters.

Beyond the necessity or the obligatory adoption of a system, a distinct and important element that enabled the assimilation of e-HRM by a specific, however, category of employees (e.g., senior managers) in C8 was *prior knowledge* on ICT. As the HR director of C8 said:

The top management understood it very easily due to prior knowledge on technology but the rest of the staff faced serious difficulties.

However, the director of C8 also implied that, along with the lack of employees' (rest of the staff) prior knowledge, the *newly added data entry responsibility* forced his company to rethink and change its daily routines with e-HRM. In other words, his company transformed its daily routines because the employees started to do a job that was previously done by HR and forced them to be transparent by the online exposure of personal data. Therefore, when he was asked "did your company have to rethink and change some of its daily routines in the work after the use of e-HRM", he said:

To a very large extent. The issue was not only technical in the sense that they had to find some time to enter the data in the system but this created an additional responsibility to be more careful when entering the right data because everything would appear online- on the Internet and their personal files. This, however, had adverse implications because after diffusing these technologies some employees were afraid to take

any initiatives because now the role and survival of the employees in the company was more transparent.

The *lack of prior knowledge* required also the employees of C7 to transform their daily routines and do the job differently. However, according to the HR director of C7, two additional factors were equally important for enabling, or not, the company's transformation. These were: *employee culture* and *top management support*. As she said:

At the lower ranking levels... they faced difficulty due to the necessity of a computer as they were not accustomed to using their computers. At higher level positions, we had to change their culture. For example, a manager who has learned for 20 years to do his job in a certain a way resists when you tell him to change something he knows already how to do it well. This is the biggest difficulty because this man can "burn" the dissemination of the system. Because now there is no option for such a person (meaning a manager) to do it on paper; he did not even do it and this resulted in delayed performance evaluations. So you have to push more and it is important that the higher management supports you to push from its side, too, and also spend considerable time in helping them do it together in the beginning (meaning the HR and the managers)

Although in the interviews with HR directors there were some distinctly appeared elements that enabled assimilation or transformation, in one case transformation itself was reported as the *company's driver* for the acquisition of the system. More specifically, in the previous section it was mentioned that some companies had decided to acquire externally a standardised e-HRM package, however, the reasoning behind this decision was not stated. In other words, in C4 this decision was conscious and the firm actually aimed at enforcing transformation through the automation of HRM practices. Therefore, when the HR director of C4 was asked "did your company have to rethink and change some of its daily routines in the work when it started to use e-HRM", he answered:

Yes. This was actually the purpose of the system... to change some processes, to become more automated and to engage every employee or every manager in managing his team online.

In summary, the *necessity of an e-HRM system*, the *obligatory or the non-optional diffusion* and *prior knowledge and experience* seemed to be important enablers of assimilation. Similarly, the *transfer of HR responsibilities* to managers and employees, the *lack of prior knowledge*, *employee culture*, *top management support*, and the *company's changing drivers* appeared to be important enablers of transformation.

8.4.2.4 Exploitation

As soon as a system is disseminated in a company, it needs to be exploited by its users in order to bring the expected outcomes. Through the exploitation theme it was practically examined how companies used the potentials of e-HRM technologies by refining, extending and leveraging existing capacities, practices or routines and then created new uses, practices, routines, services or products. For example, C1 and C5 became less bureaucratic. As the HR director of C5 said:

The nature of work in Greece is rather bureaucratic therefore we were forced, especially in relation to time management which means the management of the employees' working time, to use an obsolete system with "task tabs" where every employee had to maintain a tag along with his supervisor with the time they entered or left the company. With e-HRM there is a systemic recording of this information thus the volume of our work was reduced a lot... For example the monitoring of the employees' entrance and exit that lasted many hours as well as the payroll method that used to be done with a calculator, now happens automatically. Moreover, the basic employee files and training are maintained electronically. In general, the company's procedures have been affected.

In C6 they also changed the way the employees' daily time was recorded. In C2 their ERP system was used for payroll, training and performance management. The HR directors of C2 and C6 argued that there were some cases that their company adapted to the system and other cases that the system adapted to the company. In C3 the HR saved time by simplifying its operating model and by automating work that was done manually. More specifically, the HR created manuals and trained managers and employees

to use e-HRM to enter their own personal data, update their training records, and upload annual leaves. Finally, in C7 the HR increased the information and the reporting towards top management. As the HR director of C7 said:

The mere fact that upon the push of a button you export a report and you can see what the performance of the company is in general, and more specifically you have the educational level you have accomplished this year. And only the fact of how quickly and at what depth you can analyse the data, is enough.....The time is utilised strategically because you know now the operations that you must concentrate and focus your resources on... Through the analysis of data that takes place at different levels (meaning company, functions departments) you can see various correlations and patterns that you cannot see otherwise. For example, you can see that a department may be dissatisfied with training in general. Or you can see that by changing a manager may result in an increase or decrease of the performance of the whole team. Also, you can see how fast things are moving such as the approvals of expense reports that in the past would take more than two months while now it happens within 2 weeks. Additionally, how easy it is to calculate the remaining leaves. I will give you an example - it is now much easier for the employee to request permission for leave from his respective supervisor than wait for his physical availability. Instead, a reminder reaches the supervisor who can, in his own time, check which leaves need approval and respond accordingly.

In summary, the areas the e-HRM was mostly used and exploited by Greek operating companies were: (1) reduction of bureaucracy, (2) time management, (3) payroll, (4) training administration, (5) employee data and records, (6) performance management, (7) employees' online self-service (8) generation of new reporting and, (9) strategic allocation of resources.

8.4.2.5 Project Duration

The duration of e-HRM absorption was recorded in order to examine if there was a common pattern among these eight large companies which operated in Greece in relation to the time they required to adopt, diffuse and exploit their new e-HRM system. Although arguably different systems require different lengths of time and schedules to be absorbed by different companies, I considered this information to be important because one of

this thesis' goals is to prepare a set of recommendations for companies that plan to absorb these technologies. Therefore, if there is a common timing pattern, this may lead to a recommendation that will theoretically prevent the companies' unrealistic expectations as regards time.

The most commonly mentioned time frame for absorbing e-HRM technology was 12 months. More specifically, six companies reported a 12 month period, one company between six to eight months and one company between eight to ten months.

8.4.3 Social Media

Based on the discussion in Chapter 6, this thesis distinguished between external social media tools or those outside a company's firewalls and internal social media tools which are those inside the company's firewalls only for company employees. More specifically, I used the term generic social media to describe these external tools that are outside a company's firewalls and through the Internet are available to everybody and not only to the managers and employees of a company. However, as it was mentioned in Chapter 2, the objective in this thesis was to examine if and how, these tools were used by Greek operating companies specifically for HRM and not, for example, for marketing purposes. Therefore, this section includes the qualitative findings in relation to both social media categories; generic and internal.

8.4.3.1 Generic Social Media Tools for HRM

Four out of eight HR directors of the "high ICT adopting" companies in Greece claimed that they did not use generic social media for HRM because it did not seem to be necessary for their everyday business. From the rest of the four companies whose HR directors argued that they used some generic social media tools: one used only LinkedIn, one planned to use LinkedIn in the Greek subsidiary although their company globally used Facebook and LinkedIn, and two used both, Facebook and LinkedIn.

All four companies used social media for recruitment purposes. More specifically, for searching, approaching or selecting candidates. The company that planned to use LinkedIn in Greece (C1) had a global LinkedIn contract and had assigned an HR person with a specific role in discovering people with specialised education. The two companies that used Facebook were doing so for *communication purposes* too. In C6, for *unilateral communication towards employees, internal advertising and branding*, and in C8, for *interactive communication and brainstorming*. Two additional HR related reasons for social media use were: employee satisfaction and the company's image. As the HR director of C8 said:

Before being used officially, we observed that the staff actively participated in social media and and by the time this had reached such an extent that it could no longer be prevented without causing dissatisfaction among the employees, the company decided to use it positively for its staff and its image.

On the contrary, one of the reasons around the limited use of generic social media for HRM purposes in C6 was the company's *nature of business* that did not necessitate online marketing or selling of products and consequently the use of social media. As its HR director said:

Our company has not given emphasis on social media because it is a "business to business company" and it does not need to promote and advertise a product, but only for internal advertising at a corporate level and in order for other companies to become more aware of our branding.

Regarding the social media users, all four companies allowed their employees to have access to Facebook and/or LinkedIn and from these companies only C8 had a specific policy in place for proper use. Furthermore, it was also mentioned by the HR director of C6 that the most important characteristic of people that affected the adoption, diffusion and exploitation of generic social media was *prior knowledge*. More specifically, his company cooperated with a special group from their headquarters who were familiar with Facebook and LinkedIn and then arranged specific seminars for the HR staff in Greece. Similarly, the HR director of C8 also

mentioned that prior knowledge and *educational level* were important characteristics of employees and affected the absorption process; however, an equally important element was the employees' age too.

In summary, the use of generic social media for HRM purposes was limited in the eight Greek operating companies whose HR directors were interviewed. The tools that were used were only Facebook and LinkedIn and mainly for recruitment purposes besides those for communication, employee satisfaction and branding purposes. The characteristics of users that affected the absorption process of generic social media were: prior knowledge and age.

8.4.3.2 Internal Social Media Tools for HRM

Because internal social media require investments in companies' intranets (Cairns, 2006) or portals (Ruta, 2009) while generic social media can be freely accessible by everybody, I was expecting that the limited use of generic social media in Greek operating companies would be followed by limited use of internal social media too. However, the findings from the qualitative analysis of data were inconsistent. More specifically, all eight companies used at least one internal social media tool through their intranet for different HRM purposes. For example, in C1 they used Microsoft technology and created various intranet-based content communities for their employees, mainly for intercompany communication among specific teams or groups (i.e., blogs that had a specific purpose and involved specific audiences). In C2, they had created a system called "you at C2" in which employees could create their profile and communicate with colleagues. In C3, they had connected their HRIS self-service components to an HR portal after the completion of an HR transformation project that aimed to reduce the phone calls and the requests the HR received from the company's staff.

Furthermore, in C4 they had a social networking page on their intranet like LinkedIn and employees could create their profile and communicate with each other across the globe. Similarly, in C5 they had also created an internal network, however, specifically for high performers and talented

staff. The reasons they had created such a tool specifically for high performers were the company's difficulty in retaining and managing talent and the overall trend in the market that was brought by LinkedIn. In C7, they had intranet-based collaborative projects and instant messaging for middle and higher management who were able to use these tools due to prior knowledge of ICT. Finally, in C8 they used internal social media for branding and communication.

Finally, the majority of the companies did not have plans to invest further in internal social media tools either due to the financial recession or because they wanted to exploit further and utilise their investments in the tools they had already adopted for their employees, thus, they were making efforts to institutionalise their existing tools.

8.5 Summary of the Chapter

In this chapter it was discussed how the data obtained from eight HR directors of eight large Greek operating companies that participated in the survey and demonstrated high adoption of ICT for HRM, was analysed through the development the profiles of companies and interviewees and the construction of four qualitative categories and nineteen themes. The findings in relation to each theme and category were grouped and summarised without commenting on, discussing or interpreting them. Therefore, next chapter includes a complete discussion around the findings that were presented in this chapter as well as in Chapter 7.

Chapter 9: Discussion

9.1 Introduction

The aim of this chapter is to apply the empirical findings presented in the preceding two chapters and to analyse the hypotheses developed from reviewing the literature on ACAP, e-HRM, social media and HRM innovation. Following this analysis, I discuss some important analytical implications for my research questions and objectives. Each section is headed in accordance with the research questions, objectives and hypotheses that were developed in Chapters 2, 3 and 4 and were summarised in Chapter 6. The evidence assembled from this thesis' mixed methods research design discussed in Chapter 5 is contrasted with previously published research findings in the literature. More specifically, the composition of unobserved variables discussed in Chapter 7 and the outcome of their corresponding measurement scales is presented before the discussion of each hypothesis and is contrasted against the qualitative data discussed in Chapter 8. At the end of the chapter, I offer a new integrative model of ACAP for e-HRM and social media highlighting the theoretical contributions of this thesis that have been slightly mentioned in Chapter 6 and will be analysed further in Chapter 10.

9.2 Antecedents to Organisational ACAP, ACAP and HRMIO

Based on the discussions in Chapter 3, there is limited literature that connects ACAP with HRM and ACAP with e-HRM. In addition, there is no academic work that explores empirically the HRMIO that derive from the absorption -and its antecedents- of e-HRM and social media technologies. Therefore, this thesis applied ACAP theory to the e-HRM context to explore the organisations' capacity to innovate in HRM. Viewing ACAP as a firm's ability to deal with external knowledge on e-HRM and social media from a decentralised organisational diffusion system that involved not only the HR function but also a firm's managers and employees (HR clients), allowed the operationalisation and measurement of both, ACAP and HRM innovation constructs.

As regards ACAP, EFA and CFA revealed that large Greek operating companies tried to recognise and determine the value and the benefits of e-HRM and paid attention to: the system's advantages and disadvantages, the system's specifications, its functionality, operation and efficient performance, the number and type of potential problems during application, its necessity for the company, the development of a company-wide conception around the system's functionality, the development of the users' general knowledge, and the system's user-friendliness. Similarly, EFA and CFA revealed that the acquisition behaviours of large Greek operating companies on interacting with potential sources of, and gathering information on e-HRM technology were inexpensive and included: research through channels that advertised or promoted new technologies, systematic research on the Internet, systematic observation of developments in the ICT sector, contact with other companies in the same sector, and contact with companies in different sectors.

These value recognition and acquisition behaviours during the process of e-HRM adoption can be attributed to specific national socio-cultural characteristics of indigenous Greeks, most notably in relation to family or in-group collectivism that is based on trust and solidarity towards the companies' existing network of contacts (Georgas, 1993). This is possibly one of the reasons that firms attempted to learn about e-HRM by contacting companies within the same or different sectors. Moreover, the extensive value recognition efforts along with the inexpensive acquisition behaviours can be attributed to the difficult economic climate in Greece at the time that this research took place (see Chapter 4). This point was also raised in interviews with the two HR directors of the Greek S.A.s who conducted thorough market research before acquisition giving high priority to cost related criteria (see Chapter 8). Furthermore, EFA and CFA revealed that the individuals, teams and companies interpreted and understood e-HRM because its principles, components and functioning were compatible with their prior knowledge of and experience in technology, working processes and everyday routines.

However, transformation can be actually enforced by an e-HRM system irrespective of employees' prior knowledge and experience. As in the case of C4 (see Chapter 8), employees and managers had to change some of their routines and ways they dealt with various HRM practices. Therefore, accommodation through transformation can actually take place not only due to lack of prior knowledge and experience (Todorova and Durisin, 2007) but also because the company diffused technology and practices to other companies of its group (e.g., headquarters to subsidiaries, in the case of MNCs) or to managers and employees without leaving them alternative options (i.e., continue working as they did in the past). In line with the cognitive dissonance theory (Festinger, 1957), e-HRM users may have to change their beliefs and attitudes in order to reduce dissonance (i.e., to believe that technology is not so bad) and accommodate the enforced, by their company, usage of e-HRM. Finally, EFA and CFA revealed that the individuals who worked with these new technologies typically exploited their potential to create new uses for them, reorganised daily tasks in a more effective way, incorporated the new system into their standard job, and extended and leveraged their existing competencies in technology.

Regarding HRM innovation, the ability of large Greek operating companies to absorb e-HRM, as revealed by EFA and CFA, generated mainly transformational innovation outcomes that included: increase in employee engagement and loyalty, improvement of employee relationships, reorganisation of the company's skill/talent management, increase in employee satisfaction, redefinition of the employees' personal development and individual knowledge, improvement of the company's image and reputation internally, improvement of the company's culture towards people management, enhancement of bilateral communication between the HR department and the other departments, expansion of the company's knowledge management. At the same time, two transactional outcomes were also achieved: improvement in the quality of HR deliverables and the speed at which HR services were delivered.

The HRMIO from the absorption of e-HRM by large Greek operating companies are in line with Martin and Reddington's (2010) classification of e-HRM outcomes discussed in Chapter 2. For example, greater responsiveness to the needs of managers and employees (i.e., authors' transactional element) was indicated by the increasing quality and speed of HR deliverables (i.e., one of this thesis' innovation outcomes). Similarly, Martin and Reddington's transformational elements regarding greater accountability of managers for people management, increased acceptance of self-development by employees, improved talent management, improved two-way communications leading to higher levels of organisational engagement, and satisfaction with HRM were fully aligned and analogous to this thesis' transformational HRMIO.

A further interesting finding of this thesis was that the absorption of e-HRM did not result in any cost related transactional outcomes, which was all the more notable because of the economic crisis in Greece at the time that this research was being conducted. This finding was also corroborated by the qualitative data of this research since cost reduction or financial elements were not mentioned as initial e-HRM investment reasons by any Greek HR director. In other words, none of the HR directors claimed that his/her company invested in e-HRM to minimise costs by reducing, for example, the HR department's headcount. This finding substantiates the research of Panayotopoulou et al. (2007), who also found that cost reduction was not identified as a reason for e-HRM adoption by Greek operating companies. These authors attributed this to: (1) the early stage of e-HRM in Greece and the lack of technical knowledge and IT familiarisation that had not, at the time, allowed cost reductions, (2) the high acquisition cost of e-HRM platforms in Greece that did not make the cost benefits obvious in the beginning, and (3) the different priorities of HR.

However, the interpretation of Panayotopoulou et al. is only partial. For example, (1) it was not explained based on a specific theoretical basis how the low stage of e-HRM adoption in Greece and the lack of IT skills did not allow cost reductions and did not create cost reduction expectations; (2) if

the actual cost of e-HRM platforms was high, companies would most likely want to reduce costs through e-HRM adoption, considering also that e-HRM vendors try to sell these platforms by emphasising the expected cost benefits. Even more importantly, delay in the realisation of cost benefits does not explain the absence of e-HRM adoption reasons; (3) though the prioritisation of other parameters seems to be a rational explanation, the consistency of this finding six years after these authors' research based on the data collected during the economic recession in Greece necessitates a different interpretation.

Therefore, the fact that cost reduction or financial elements were not mentioned as initial e-HRM investment reasons could be attributed to Greek socio-cultural features and specifically to the high power distance (Hofstede, 1980) and collectivism (Georgas, 1993) of the Greeks. In other words, the degree of acceptance for power inequality in power distant cultures can potentially explain the behaviour of Greek managers in making decisions by themselves without relying on e-HRM systems (and definitely not due to e-HRM systems). Similarly, the degree of individuals' loyalty and cohesiveness in their organisations, families or society can potentially explain the lack of staff reductions because of technology. For example, termination in Greece can be justified more as a company's financial instability or the headquarters' decision in the case of MNCs (exogenous reasons) versus a local management decision to minimise staff because of technology investments.

Despite some interesting findings derived from researching ACAP and HRMIO in large Greek operating companies, it was equally important to examine the determinants of ACAP or the conditions under which different organisations have different capacities for recognising the value, acquiring, diffusing and exploiting e-HRM to achieve HRM innovation. More specifically, the effect of three main antecedents on this different capability was examined: (1) the nature of e-HRM and social media technologies, (2) the complexity of these technologies, and (3) the level of the organisations' prior knowledge and experience in technology-based HRM.

The results of three different hypotheses around the three determinants of ACAP are discussed in the next three sections.

9.2.1 H1a: The Impact of E-HRM and Social Media Technologies on HRMIO is Mediated by the Organisations' ACAP.

As presented in Chapter 7, there was no direct effect of e-HRM and social media technologies on HRMIO. A simple explanation of this finding is that technology alone cannot bring any result without people absorbing it. However, since the e-HRM and social media technologies variable was correlated with ACAP and ACAP affected the HRMIO, the relationship between e-HRM and social media technologies, ACAP, and HRMIO through mediation analysis was examined.

The results of the mediation analysis support the H1a as e-HRM and social media technologies are significantly positively correlated to HRMIO only through ACAP. Regarding this relationship, Martin et al.'s (2003) and Martin and Reddington's (2009) models of ACAP represent two early academic approaches in applying the ACAP theory to the electronic aspects (e-aspects) of HRM context, or to the e-HRM in general. As it can be seen in Chapter 3 and in agreement with this thesis' theorising, both of these authors' conceptualisations included technology as antecedent to ACAP (e-learning technology in the first case and e-HR architectures in the second). In addition, Martin et al.'s (2003) model implied the mediation role of ACAP between e-learning technology and "e-learning specific innovation outcomes" which is also in agreement with this thesis' assumptions. However, despite these early conceptualisations between e-HRM and ACAP, the mediation effect of ACAP between HR technology and HRM innovation was never examined.

Most importantly, and in relation to the previous point, this thesis offers the first empirical evidence that demonstrates the mediating role of ACAP in the relationship between e-HRM and social media technologies and innovation in HRM. The results of the mediation analysis clearly suggest that e-HRM and social media technologies advance HRM innovation exclusively through

ACAP. This finding provides a new direction for e-HRM research while supporting previous research on ACAP (Kostopoulos et al., 2011). And although the present research is HR context specific, it provides empirical support to one of the key theoretical assumptions of ACAP theory - that firms are to derive innovation benefits from e-HRM and social media technologies only if they recognise the value of these technologies, internalise and exploit them (Cohen and Levinthal, 1990; Zahra and George, 2002; Todorova and Durisin, 2007).

9.2.2 H1b: The Impact of Knowledge Complexity on HRMIO is Mediated by the Organisations' ACAP.

The results of the mediation analysis support H1b which means that ACAP fully mediates the relationship between knowledge complexity and HRM innovation outcome. In other words, e-HRM technology that is complex and difficult to be used, not applicable to the company's routines and everyday practices, and difficult to be exploited by its users (see EFA on Section 7.3.3.2) can lead to HRM innovation only if it is absorbed by companies. This finding is in accordance with ACAP researchers (e.g., Lane et al., 2006; Vega-Jurado et al., 2008) who theorised that knowledge attributes affect organisational ACAP.

Furthermore, the complexity of e-HRM is strongly connected with the intra-firm knowledge dissemination capability (Liao et al., 2003). For example, Hansen (1999) found that weak inter-unit ties impede the transfer of complex knowledge, which tends to require a strong tie between the two parties to a transfer. Hansen also observed that weak inter-unit ties speed up projects when knowledge is not complex but slows them down when the knowledge to be transferred is highly complex. Although this thesis did not focus on inter-company relationships or socialisation practices (i.e., between the HR department and other departments) during knowledge diffusion, the adoption of complex e-HRM systems that include enhanced features and require its users to have a specific skillset, capabilities or knowledge may lead to delayed diffusion and exploitation due to resistance or lack of acceptance. Maybe this is one of the reasons that most of the

interviewed companies needed approximately one year to adopt, diffuse and exploit e-HRM technology while the most commonly reported problem was resistance to change (see Sections 8.4.2.5 and 8.4.1.2).

Another related theme that was also raised in interviews with the HR directors was the common technical problem they faced concerning the complexity and incompatibility of the system and the consequent adaptation challenges their company came across during the diffusion process. This point is underscored by evidence on the major success factor for e-HRM absorption, which was the presence of training programs as well as project and change management efforts that included analysis of the users' needs prior adoption, proactive communication and/or cross functional teams with employees from HR, IT and/or other functions. This finding adds on various researchers' claims around ineffective handling of technology diffusion in terms of change management and users' acceptance (e.g., Ruël et al., 2004).

Therefore, although complex e-HRM technology may have the technological potential to bring HRM innovation due to its enhanced systems, data and features, a firm that is not able to absorb them by being proactive, by considering the needs of its employees through project and change management actions, by examining employees' prior knowledge, and by arranging suitable training programs that will minimise resistance to change (Watson, 1969) may not derive the expected or potential HRM innovation benefits. In other words, the full mediation effect of ACAP on the relationship between the complexity of e-HRM technology and HRM innovation indicates that firms can derive innovation benefits from complex e-HRM technologies only if they have the capacity to absorb them.

9.2.3 H1c: The Impact of Prior Knowledge and Experience in ICT for HRM on HRMIO is Mediated by the Organisations' ACAP.

A number of academics have considered prior knowledge and experience to be an important antecedent to ACAP (e.g., Cohen and Levinthal, 1990; Van den Bosch et al., 1999; Todorova and Durisin, 2007; Vega-Jurado et al.,

2008). A lack of prior knowledge may affect not only the diffusion and exploitation of new knowledge but also its adoption (Todorova and Durisin, 2007). For example, companies that aim to innovate from external e-HRM and social media knowledge must be able to identify that knowledge first and then acquire or develop it (Cohen and Levinthal, 1989). Therefore, companies need to have some prior related knowledge and/or experience in e-HRM or related ICT structures (Martin and Reddington, 2009) so as to be able to see and identify the potentials of new technology. In other words, although companies may reach a level of HRM innovation from their prior knowledge and experience in absorbing ICT, their future ACAP will be determined by their past knowledge and experience.

This last point is also supported by the results of my mediation analysis, which shows that ACAP fully mediates the relationship between prior knowledge and experience in ICT for HRM and HRMIO. This means that companies with prior knowledge and experience in ICT for HRM can have HRMIO if they are able to absorb new technology. Based on Cohen and Levinthal (1990), some portion of that prior knowledge and experience in HRM related ICT must be closely related to the new e-HRM or social media technologies to facilitate diffusion while some portion must be fairly diverse and still related to allow exploitation. In addition, prior knowledge and experience in HRM related ICT can allow a company to identify and recognise the usefulness of new e-HRM and social media technologies in line with Todorova and Durisin's (2007) analysis, and avoid falling into competence traps (Ahuja and Lampert, 2001) due to "blindspots" resulting from an inability to see and grasp the innovation opportunities that these technologies may bring. By activating its company's ACAP for ICT, the HR function can get credit for its strategic transformational role (i.e., enabling its company to become a learning environment that manages effectively knowledge absorption). As Gardner et al. (2003) found, IT enables HR to more efficiently access and disseminate information and influences what is expected of them.

Therefore, by applying the ACAP theory to e-HRM context, this finding provides empirical support that the firms' prior knowledge and experience in HR technology can lead to HRM innovation if companies have the capacity to recognise the value, acquire, diffuse and exploit new e-HRM technologies. Last but not least, prior knowledge and experience in ICT was also mentioned as the most important determinant of social media usage, corroborating further its importance on the absorption of these technologies for communication and collaborative knowledge sharing.

9.3 Factors that Affect the Impact of ACAP's Antecedents on ACAP.

In ACAP literature, a number of variables have been identified to moderate the impact of ACAP's antecedents on ACAP. For example, Zahra and George (2002) argued that activation triggers moderate the impact of knowledge sources and experience on the development of ACAP. Vega-Jurado et al. (2008) claimed that the applicability of external knowledge moderates the impact of organisational knowledge, formalisation and social integration mechanisms on ACAP. Cohen and Levinthal (1990) believed that "regimes of appropriability" and Todorova and Durisin (2007) "power relationships" moderate the impact of knowledge sources and prior knowledge on ACAP. Similarly, from the limited literature that applied ACAP to HR, Martin and Reddington (2009) considered that activation triggers moderate the impact of organisational combinative capabilities on PACAP. Martin et al. (2003) also proposed that institutional and industry dynamics (e.g., powerful rules and routines) moderate the impact of knowledge source on the firms' PACAP for e-learning while the receptive internal or external events and contexts for change (e.g., organisational crises or technological shifts) moderate the impact of knowledge source and prior knowledge and experience on PACAP.

From a purely e-HRM perspective, I aimed to determine some important factors that affect the firms' ACAP for e-HRM and social media and consequently their HRMIO (see Chapter 6). Therefore, considering that prior knowledge and experience in ICT for HRM is a major antecedent to ACAP for

e-HRM and social media -an assumption that was also supported by my findings and in line with Wickramasinghe (2010) who showed that the age of a system affects users' satisfaction and usage- I hypothesised that the number of years that a company's ICT for HRM is in place moderates the impact of prior knowledge and experience on ACAP. Similarly, I hypothesised that the degree of automation of HRM practices moderates the impact of the complexity of e-HRM technology on ACAP (Lepak and Snell, 1998).

9.3.1 H2: The Age of the ICT System for HRM Adopted in Organisations Moderates the Relationship between Prior Knowledge and Experience and ACAP.

My survey findings support H2, which means that the positive relationship between the organisations' prior knowledge and experience in ICT for HRM and ACAP is moderated by the age of the ICT system for HRM. This means that companies which have adopted ICT for HRM recently (low ICT adoption) demonstrate a higher increase in ACAP when their prior knowledge and experience in ICT for HRM increases compared to the companies that adopted ICT for HRM many years ago (high ICT adoption). In other words, ACAP increases when prior knowledge and experience in ICT for HRM increases; however, the increase is higher for companies with fewer years of ICT adoption (i.e., recently adopted HR technology) compared to companies that have adopted ICT for HRM for more years.

Thus, the adoption of an e-HRM system will potentially increase the knowledge base and experience of a company since its users will be involved in the diffusion and exploitation processes. This involvement will generate positive or negative experiences (Massy, 2001) depending on the design and suitability of the system (Wickramasinghe, 2010), and these will be internalised as organisational memories (Martin et al., 2003) which will influence the company's prior knowledge and experience as regards any potential relevant adoption in the future (e.g., another system or another module in the same system). Therefore, a new and recently adopted ICT for HRM that has suitable design and features will probably generate positive

experiences (if there is adequate training and communication as mentioned in Chapter 8) and will increase more the capacity of organisations to absorb relevant systems in the future because it has been less time in place.

However, as a system becomes older and probably obsolete, this may affect the users' enthusiasm and satisfaction negatively and may lead to decreased exploitation and usage. Even in this case though, organisational ACAP will increase in a relevant future adoption since such an obsolete system has also been memorised and has formulated prior knowledge and experience. Nevertheless, the increase in ACAP will not be as high as in the case of a newer system because the older one has been in place for longer. In other words, the years of ICT for HRM adoption or the age of the ICT system for HRM dampens the positive relationship between the organisations' prior knowledge and experience and the organisations' ACAP.

This finding provides various recommendations for e-HRM researchers and practitioners (see Chapter 10) but also important empirical support around a major theoretical assumption of ACAP. More specifically, what a firm knows in relation to ICT for HRM affects its future adoption of related technology (i.e., it is path-dependent), is a function of a firm's prior knowledge and experience in ICT for HRM and is also critical for absorbing new e-HRM technology and knowledge (Carlo et al., 2012). All these variables are affected by the age of a company's ICT for HRM in large companies that operate in Greece.

9.3.2 H4: The Degree of Automation of HRM Practices in Organisations Moderates the Relationship between Knowledge Complexity and ACAP.

My findings support H4 that the positive relationship between knowledge complexity and ACAP is moderated by the degree of automation of HRM practices. This means that companies whose HRM practices are less automated (low HRM automation) demonstrate a higher increase in ACAP when the complexity of e-HRM increases compared to the companies whose HRM practices are more automated (high HRM automation). In other words, ACAP increases when the complexity of e-HRM increases, however, this

increase is higher for companies with a lower degree of automated HRM practices compared to the companies that have a higher degree of automated HRM practices.

As it was mentioned in Section 9.2.2, complex e-HRM systems include enhanced features (Wickramasinghe, 2010) that may require its users to have specific capabilities (Bell et al., 2006) and/or transform their daily routines or knowledge in order to accommodate and exploit them (Todorova and Durisin, 2007). In most cases, these systems will increase organisational ACAP sooner or later because they will unavoidably minimise manual handling of HRM practices and will engage managers and employees in the diffusion and exploitation of technology. A company with a low degree of automation of HRM practices will increase its ACAP more when the complexity of its e-HRM increases (e.g., by adding new features and modules or by acquiring a new system) because these enhanced, complex and even inapplicable e-HRM features will require the company to learn more or even change more of its past routines (e.g., minimise further administration and delegate more HRM activities to managers and employees). However, a company with a higher degree of automation of HRM practices means that it has been exposed to related technologies and already has prior knowledge and experience with enhanced, complex and automated e-HRM features. Therefore, an increase in a system's complexity will also affect this company's ACAP, however, not at the same level as in the case of a company with a lesser degree of automation of HRM practices.

9.4 E-HRM and Social Media Technologies, Automated HRM Practices and HR Clients

Based on the discussions in Chapter 2, e-HRM technologies can include HRIS, virtual, web-based or intranet-based HRM, ERP suits, telephony applications and even generic or internal social media. By treating e-HRM as the collection of ICTs that are used for HRM purposes, it allowed the exploration of the overall automation effect that these technologies have on the HRM

practices, the amount of e-HRM service received by the HR clients, and the number of HR clients served by e-HRM in large Greek operating companies.

As regards, the effect of ICT on HRM, EFA and CFA showed that large Greek operating companies have used the e-HRM to automate some major routine and administrative practices such as time tracking and management of the employees' presence or absence, payroll processes including preparation and record keeping, and staff recruitment or management of candidates' personal data and records. These practices support mainly the HR function (Broderick and Bounreau, 1992) and cover the use of IT for the automation of manual systems on routine and administrative jobs (Gardner et al., 2003). According to Lepak and Snell (1998), this is operational HRM and likewise captures the automation of routine administrative activities. As discussed in Chapters 2 and 7, I also used the term *operational HRM* to describe both the initial automation effect of e-HRM on HRM practices and the respective factor.

However, EFA and CFA also revealed that large Greek operating companies have automated HRM practices that go beyond the HR function. These practices were as follows: inter-company communication, travel management including record keeping and handling of employees' travelling processes, management of training, career development planning, and health and safety, including communication and compliance with policies. They also involve collaboration between the HR and other functions, distribute knowledge throughout the company (Broderick and Bounreau, 1992) and refer to the process where IT provides effectiveness and benefits to its users by generating information about productive and administrative activities (Gardner et al., 2003). This is relational HRM and refers to the remote access managers and employees or even external partners can have to HR information so that they can perform HR activities themselves (Lepak and Snell, 1998). As discussed in Chapters 2 and 7, I also used the term *relational HRM* to describe the automation effect (and the respective factor) of e-HRM on HRM practices that require the involvement of other

stakeholder categories (e.g., managers and employees), outside the HR function.

Regarding the stakeholder categories or the HR clients in large Greek operating companies, in more than 30 percent of the sample companies the e-HRM served: the HRM department, managers, employees, other groups such as shareholders or unions, people with no direct relationship to the company such as candidates, and groups of people who had a past relationship with the company such as former employees. Moreover, in only 7 percent of the sample companies, their e-HRM served just the HR function. However, the amount of service received by the different HR clients was low to moderate. This finding is aligned with the automation of HRM practices in large companies that operate in Greece and the analogous signs of relational HRM. In other words, if large Greek operating companies were receiving more service from e-HRM this would be normally followed by a third type of automation effect called *transformational* (Lepak and Snell, 1998).

9.4.1 H3: The Adoption of more E-HRM and Social Media Technologies in Organisations is Positively Correlated to the Degree of Automation of HRM Practices.

My findings support a significant positive relationship between the number of e-HRM and social media technologies and the degree of automation of HRM practices (see Chapter 7). This could mean that the more e-HRM and social media technologies are used by large Greek operating companies, the higher the degree of automation of HRM practices is and/or vice versa.

Although it seems logical that more technologies lead to more automation, this finding is important for various reasons. Firstly, it indicates that an HRM practice can be automated at different degree and by different technologies. Consider, for example, an HRM practice such as staff search and selection. It can start with line managers who use their computers to request new employees (Gainey and Klaas, 2008); the whole intercompany administration process (e.g., employee request, approval, progress reports,

etc.) can take place through the company's HRIS, intranet and self-service tools (Cairns, 2006); the HR can search for candidates online and use the Internet (Harris et al., 2003) to advertise a job opening on the company's website or other job searching portals; the applicants can also apply for a job online using the Internet (Feldman and Klaas, 2002) and even be affected by the appearance of a company's website (Cober et al., 2004); the HR can use computer-based assessments that are administered in proctored (on the company's premises) or un-proctored settings (online) to evaluate candidates (Wright et al., 2014) as well as online interviews (Stieger and Reiprs, 2008) or virtual interaction with candidates (Martin et al., 2008).

HR can also use generic social media tools such as business-oriented social networking sites to search for passive job seekers (DeKay, 2009), for CV screening and interview decisions (Bohnert and Ross, 2010) or as reference checks for applicant selection (Roberts and Roach, 2009). As it was mentioned in Chapter 8, social networking sites had been mainly integrated with some aspects of the recruitment and selection HRM practices. For example, some Greek operating companies used LinkedIn to search for candidates and Facebook to check candidates. In addition, internal social media had been mainly integrated with inter-company communication. For example, some Greek operating companies used internal networks or blogs to allow employees to communicate upwards and exchange ideas virtually. Therefore, different tools were used independently for different reasons.

Secondly, it highlights the importance of a major technological aspect around e-HRM, which is related to the conceptual and practical integration mechanisms between HRM and IT (Bondarouk and Ruël, 2009) concerning *technological inter-connectivity*. As discussed in Chapter 2, technological inter-connectivity can take place in various forms: (1) between different business functions, offices and organisational processes (e.g., finance, accounting, HR, etc.) through ERP systems that allow also the construction of HRIS applications around a single database and a common workflow model (Jones and Hoell, 2005; Lengnick-Hall and Lengnick-Hall, 2006), (2)

between different HRM practices managed, for example, by a specific HRIS (Broderick and Bounreau, 1992), (3) between different technologies used for a specific HRM practice as in the previously mentioned staff search and selection example, and (4) between different technologies used for different HRM practices.

To my knowledge, the concept of technological interconnectivity through automation has not been addressed by e-HRM researchers, although it has been implied or taken for granted. For example, Buckley et al. (2004) reported the benefits of an e-recruitment and screening system of a company with presence in 14 U.S. locations, mentioning the use of different technologies (e.g., Internet, IVR) for different HRM practices (e.g., recruiting, staff search, and selection) that were seamlessly integrated though into an HRIS. This allowed the company to manage candidates' data (and then the hired employees' data) efficiently, effectively and economically. Similarly, Ruël et al. referred to an additional standardisation/harmonisation goal of international companies that had adopted e-HRM implying, however, the use of a globally interconnected and centralised ERP or HRIS system. As the authors said,

“...This is the same effect we see with IT-applications on other fields, like production, logistics, finance, etc. IT makes it possible to combine centralization and standardization on the one hand and decentralization in the execution and operations at the other” (Ruël et al., 2004: 376).

The inter-connectivity component around e-HRM and the automation effect of technology on HRM practices was also addressed in the interviews with the HR directors of large Greek operating companies (see Chapter 8). For example, C3 had connected its HRIS self-service components to an HR portal on the intranet. Similarly, MNCs with Greek subsidiaries also reported standardisation and harmonisation goals in adopting a centrally integrated system so that it would be used commonly by the subsidiaries of different countries. As regards MNCs, Smale and Heikkilä, (2010) referred to the key actors (Group HR, local HR and IT system consultants) and the resources they used (e.g., business logic, technical know-how, local constraints, etc.)

when negotiating their conflicting positions around the standardisation or local adaptation of different HRM practices through e-HRM. The authors concluded that three conflicting areas were: the design of an e-HRM system (e.g., the standardised use of English language versus the language of the local subsidiary), the global HR policies that contradict local regulations, and the lack of flexible intermediate solutions.

Although these authors addressed both, design and management aspects around implementation and IT-based integration of HRM, it needs to be stressed that *technological interconnectivity* is not the same as *technological compatibility*. In other words, technological interconnectivity captures the connection and the interface between different technologies or the same technologies in different geographical areas while technological compatibility captures the connection between technology and practices, rules, routines, laws or processes. As in the case of C6, the HR director referred to the technological incompatibility between their e-HRM system that was acquired by their headquarters in the U.S. and the complicated payroll and labour law institutional parameters in Greece. This example is very similar to Smale and Heikkilä's system design issues that were addressed in their case study company but were analysed, however, from a compatibility point of view.

More specifically, C6 had to make many technical changes in order to adapt their e-HRM system to the Greek realities. This means that they had to customise the e-HRM system that had been acquired externally by a U.S.-based vendor so that it would become compatible with the Greek payroll requirements. However, the concept of technological interconnectivity is hidden behind these customisation efforts. In other words, C6 adapted their e-HRM technology and used the same system to prepare the payroll in Greece and to feed this data back to its headquarters. Their case refers to the first category of technological interconnectivity previously mentioned which is between different offices (the U.S. and Greece), within the same function (HR), for a specific HRM practice (payroll). Alternatively, C6 could have continued to use its old payroll system and create an interface (e.g.,

bridge) between the old system and the newly acquired e-HRM to achieve technological interconnectivity between the U.S. and Greece and protect technological incompatibility between the new e-HRM and the local payroll laws. Therefore, although technological interconnectivity and compatibility are used interchangeably to describe integration of HRM practices, they need to be examined separately (see recommendations in Chapter 10).

In summary, viewing the positive correlation between the number of e-HRM and social media technologies and the degree of automation of HRM practices from a holistic perspective (combining HR and IT aspects), it offered empirical evidence that an HRM practice can be automated at different levels and by different technologies, provided there are different states of technological interconnectivity.

9.4.2 H5: The Degree of Automation of HRM Practices is Positively Correlated to the Degree of E-HRM Service and the Number of HR Clients Served by these Technologies.

My findings support a significant positive relationship between the degree of automation of HRM practices and the degree of e-HRM service. This can potentially mean that a higher degree of automation of HRM practices is related to a higher amount of electronic service derived from HR technology in large Greek operating companies. The belief that more automation leads to more electronic or technology mediated HR service is not new to e-HRM literature and probably all e-HRM researchers have seen e-HRM as a vehicle to HR services (Snell et al., 2001; Shrivastava and Shaw, 2003; Lengnick-Hall and Moritz, 2003; Hempel, 2004; Ruël et al., 2004; Bell et al., 2006; Hooi, 2006; Zhang and Wang, 2006; Gainey and Klaas, 2008; Bondarouk and Ruël, 2009; Bondarouk et al., 2009; Martin and Reddington, 2010; Parry, 2011; Furtmueller et al., 2011). This is logical because the HR function itself is a service delivery function and not engaged in operations or production.

However, this finding adds new empirical evidence specifically about the degree of HR service through e-HRM in relation to the automation of HRM practices in Greece. As discussed in Chapter 4, the first and unique

empirical e-HRM study in Greece was the research Panayotopoulou et al. carried out in 2007. Despite these authors' context unique study, their work was descriptive and focused only on three sectors. It also lacked a sound theoretical framework. Furthermore, their findings around automated HRM practices and HR service delivery simply announced a general anticipation of future e-HRM increase in performance appraisal, training and development and the need for HR to satisfy its internal customers by providing excellent quality service. By exploring the relationship between the degree of automation of HRM practices and the degree of e-HRM service in large Greek operating companies from various sectors, this thesis shows that highly automated operational or relational HRM practices relate to increasing degrees of HR service to specific stakeholder categories or HR clients.

More specifically, the degree of automation of HRM practices significantly and positively correlates with the number of HR clients served. This means that higher the degree of automation of HRM practices the more HR clients receive electronic service from HR technology in large Greek operating companies and/or vice versa. In agreement with Bondarouk and Ruël (2009), modern e-HRM broadens its target and goes beyond the organisation's borders to address the needs of various stakeholders. Therefore, this finding provides an initial indication that HRM in large Greek operating companies actually devolves HRM service to people outside the HR function. Most importantly, this decentralisation is not only internal including, for example, the firms' managers and employees, but also external including people who had a past relationship with the company (i.e., former employees) or no direct relationship to the company (i.e., candidates).

9.4.3 H6: The Degree of E-HRM Service and the Number of HR Clients Served is Positively Correlated to ACAP and HRMIO.

My findings also support the significant positive relationships between: (1) the degree of e-HRM service and ACAP, (2) the degree of e-HRM service and HRMIO, (3) the number of HR clients and ACAP, and (4) the number of HR clients and HRMIO. Bondarouk and Ruël (2009) claimed that e-HRM implementation involves the process of e-HRM's adoption by organisational

members and this is the reason why researchers need to clarify whether they talk about e-HRM diffusion, acceptance, adoption or user-satisfaction. As discussed in Chapter 3, this thesis deals with e-HRM and social media absorption that involves the processes of adoption, diffusion and exploitation by HR and HR clients.

Parry and Tyson (2011) separated the relational goal that includes HR service delivery improvement from the goal of potentially increasing the overall HR function's effectiveness through decentralisation of HR tasks. However, by examining e-HRM service and HR clients from an ACAP perspective this finding suggests that general improvements in service delivery, improvement of the HR function's effectiveness and empowerment of managers to perform HR tasks themselves are interrelated. This can be attributed to the fact that the individual capacities of HR and HR clients increase when companies adopt e-HRM (and offer technology mediated HR services through self-service applications) that has a relational automation effect on HRM practices (e.g., automated performance appraisal). In simple terms, more people (HR clients) are exposed to and involved in HR technology (e-HRM) so as to serve their HR needs (e-HRM service), thus, the capacity of the organisation to absorb increases.

However, this is not to claim direction of causality because the positive correlation between the amount of e-HRM service received by different HR clients and organisational ACAP could also mean that organisations which have prior knowledge and experience and are capable to absorb ICT often try to redefine their knowledge base by offering more automated HRM services to more people (Zahra and George, 2002). However, the point is that the employees' accessibility to technology through automated HRM and the resulting delivery of HR service is related to organisational ACAP. Similarly, the amount of e-HRM service received and the number of HR clients served is positively related to HRMIO. For example, if an HRM practice such as performance management is automated and managers and employees can serve themselves and run their performance reviews electronically, this may lead to an overall change in people management

and culture of the company (e.g., focus on employee development and not on performance appraisal administration) and the overall value that the HR offers. As presented in Chapter 8, the HR of C7 increased the information and the reporting towards top management through performance management automation and created new reports in relation to the company's performance and the employees' educational level, new data analysis opportunities, more time for HR staff to deal with more strategic tasks and faster expense authorisation and leave request processes. Therefore, the relational automation effect of e-HRM in C7 corroborates the positive relationship between e-HRM service, HR clients and HRM innovation.

9.5 Organisational ACAP and HRMIO

As discussed in Chapter 3, the ability of companies to deal with external e-HRM knowledge involves their effort to evaluate, acquire, diffuse and exploit that knowledge. In the next section the relationship between ACAP dimensions and HRMIO is discussed in detail.

9.5.1 H7: All Dimensions of ACAP for E-HRM and Social Media are Positively Correlated to Each Other and to HRMIO.

My findings support a positive relationship between ACAP dimensions and between ACAP dimensions and HRMIO. This means that large Greek operating companies which (1) try to recognise and determine the value and the benefits of e-HRM, (2) interact with and collect information from inexpensive sources of e-HRM knowledge, (3) diffuse e-HRM because they understand its principles, components and functioning or change some of their routines and HR processes, and (4) exploit, experiment and use new e-HRM technology, appear to achieve (1) transformational improvements in HRM, knowledge management, culture, communication and image, and (2) transactional improvements in the quality and speed of HR service.

This finding encompasses an important intersection between organisational ACAP and outcomes within the HRM context and highlights some important aspects around this relationship. Firstly, it indicates that organisations

willing and capable of improving the employees' HRM services through the adoption of e-HRM knowledge can be also capable of diffusing, exploiting and consequently gaining the benefits of that knowledge. Based on Todorova and Durisin's (2007) analysis, this finding can be attributed to the alternative nature of assimilation and transformation learning processes, thus, this thesis revealed one dimension (i.e., diffusion) for these two processes (see Chapter 7). In other words, the assumption is that the adopted e-HRM knowledge moves forward and backward between the processes of assimilation and transformation so it could be diffused and incorporated into the organisational knowledge structures and be actually ready for exploitation. The feedback loops between the absorption of new e-HRM knowledge in organisational routines and processes will also determine future ACAP (Todorova and Durisin, 2007) indicating its path-dependent nature, also discussed in Section 9.3.1. Therefore, the interplay between a developed ACAP in a specific area such as e-HRM will allow a firm to more readily accumulate additional knowledge in succeeding periods and exploit external knowledge that may become available (Cohen and Levinthal, 1990; Zahra and George, 2002). Organisations able to recognise the value, acquire, diffuse and exploit e-HRM knowledge can potentially gain the benefits of that knowledge and innovate in HRM.

Secondly, it provides evidence on a paradox noted in the innovation literature which when transferred into an HR context suggests that those HR departments strong on acquiring and assimilating knowledge on e-HRM will be least effective at exploiting it. Also, those HR departments which are efficient at exploiting knowledge on e-HRM will be less able to acquire and assimilate new e-HRM knowledge, thus, reducing the likelihood of future technological innovation (Martin and Reddington 2010). However, the positive and significant correlation between ACAP's dimensions in this research indicates that companies can be equally effective in adopting, diffusing and exploiting e-HRM knowledge, thus, avoiding such competency traps (Ahuja and Lampert, 2001; Zahra and George, 2002).

This finding can be attributed to one of the core arguments in this thesis - that an organisation's capacity to absorb e-HRM and social media is a dynamic capability (Zahra and George, 2002), does not involve only the HR function (Martin and Reddington, 2009) and is not distinguished between potential and realised capacities (Zahra and George, 2002; Jansen et al., 2005). In other words, the organisations' capacities to absorb e-HRM and social media is a dynamic interplay between new external e-HRM and social media knowledge and the company's existing knowledge base and structures which involves the broader HR community, line managers and employees, and not just the HR leaders. This interpretation is also corroborated by my interviews with Greek HR managers. More specifically, many HR managers mentioned that they had created during the e-HRM adoption process project teams with people from HR, IT and other functions that cooperated in order to research and acquire e-HRM. Moreover, it was also mentioned that the diffusion and exploitation processes of e-HRM involved a broader audience and included communication and training of line managers and employees in order for the company to internalise the newly acquired e-HRM.

Furthermore, Martin and Reddington (2009) argued that the existence of HR leadership and initiative can be an indication of potential e-HRM acquisition and assimilation capacities of the HR function while the resistance and negative attitude of the wider inter-company HR community or line managers, can be an indication of limited realised e-HRM transformation and exploitation capacities of the HR function. However, from an organisational perspective and based on the qualitative data of this thesis, HR leadership is not sufficient to fully explain organisational ACAP. Also, the line managers' resistance could mean: the company's lack of top management support, optional or relaxed implementation approach, lack of methodical project management, unawareness of employee needs and absence of needs analysis process, lack of proactive communication, and unsuitable training strategy. In other words, the employees' resistance would be an indication of the company's and not the HR function's incapacity to internalise e-HRM. Therefore, it seems that ACAP for e-HRM and social media requires unavoidably a macro-level analysis (it is not only

HR's capacity) while ACAP's dimensions build upon each other to produce a dynamic organisational capability.

After analysing, discussing and explaining the results of the survey (and in some cases comparing them with the interview findings), the next section will address their validity and reliability. This will lead to the discussion of the reasons that Greek operating companies absorb e-HRM and social media (see Section 9.7) and to the development of a new integrative framework on HRM innovation (see Section 9.8). This framework brings all the findings together (i.e., quantitative and qualitative) and serves as this thesis' theoretical contribution to knowledge.

9.6 Validity and Reliability of the Results

The statistical analyses carried out for the purposes of this thesis aimed to ensure that the measures used for testing the above discussed hypotheses actually measured what they were supposed to measure, that the conclusions drawn were rigorous (validity), and that the results from these analyses were consistent and replicable under similar conditions (reliability). More specifically, the combination of different statistical techniques ensured statistical validity and confidence in the analysis of data although conclusions should be validated by replicating them with a new sample. The internal validity among the main variables of this thesis and their interrelationships (antecedents to ACAP / ACAP / HRMIO) were based on the existing literature discussed in Chapter 6. External validity or the generalisation of conclusions for the population was attempted by the extraction of a random sample from the population and the sufficient ratios of observation per variables.

However, repeated replication of this study, which was not possible in this study, would ensure greater generalisability and represents an opportunity for further research. The combination of EFA and CFA assured that all constructs have been rigorously selected and examined and the items within a construct were interrelated (i.e., convergent validity measured by Cronbach's alpha) while the items of theoretically distinct constructs were

not highly inter-correlated (i.e., discriminant validity). All the constructs used in the present research had appropriate Cronbach's alphas and met the unidimensionality requirement. Though, cross validation on a new sample would ensure further construct validity and this is one of the limitations of the thesis which, along with the degree of generalisability of findings, should be addressed in future research (see Chapter 10).

9.7 Reasons for and Expectations from E-HRM and Social Media Absorption in Greece

As discussed in Chapter 6, one of the aims of this thesis is to identify the reasons and the ways large Greek operating companies adopt e-HRM and social media and then compare these initial justifications as expressed by the companies with their potentially new expectations, created during or after absorption. Based on the analysis in Chapter 8, the most apparent reason behind e-HRM adoption in “high ICT adoption” large Greek operating companies whose HR directors were interviewed was related to data management. This referred to maintenance and display of accurate data and included improvements on data quality, history, accuracy, validity, accessibility, and search-ability. In other words, companies wanted to maintain electronically accurate, rich and valid employee data (i.e., personal information, payroll, etc.) that provide historical information (i.e., date of an employee's salary increase or promotion) and can be searched and accessed anytime. The majority of the companies wanted their employees' data to be accessed by their internal HR clients (e.g., managers and employees) and only a few of these companies referred to access only by the HR function.

This data management goal encompasses elements of what Wright and Dyer (2000) called *transactional activities* such as record keeping, benefits administration, and employee service but also traditional activities such as recruitment, selection, training, performance management, compensation, and employee relations. It also highlights a developmental process between what Lengnick-Hall and Moritz (2003) identified as the *publishing*

information stage (one-way communication from the company to managers or employees) and *automation of transactions stage* (e.g., electronic update of information, workflow applications, supply-chain integration). A second and related e-HRM adoption reason around data management was information security and confidentiality. This involved the need of some companies to automate manual systems around routine HR jobs and assure that data control and transactions remain secure and confidential through proper e-HRM accessibility licences of users. This finding is contrary to the argument of Panayotopoulou et al. (2007) that companies in Greece did not adopt e-HRM because they had information security concerns.

Furthermore, the aim of companies to improve data management for HR only, or for HR and HR clients, is aligned with the previously discussed automation of HRM practices and the evolution between operational and relational HRM. Simply stated, the automation of previously kept manual data will potentially improve data management and transactions around HRM practices. More specifically, a third e-HRM adoption reason was relevant to HRM practices and included improvements on: service delivery, HR decision-making, career, training and performance management, talent management, and connection between departments and systems. This has been evidenced by various e-HRM researchers who found a positive relationship between improvements through increased accuracy of data and simplification of HRM processes and the perceptions of managers and employees (Gardner et al., 2003; Bondarouk et al., 2009).

An independent but unique reason given for e-HRM adoption was the paperless and environmentally friendly company aim to create an ecological people management approach by automating HR administration and reducing paper work through the use of technology (green e-HRM). Although this goal was mentioned only by one HR director in one company, it is an interesting proposition considering also the limited literature on green or ecological HRM in general. For example, although some recent articles (e.g., Jackson and Janghoon, 2010; Parkes, 2012) addressed the intersection between HRM and environmental sustainability and the links between

strategic and green HRM they did not mention the catalytic role that technology can have on this area. Although investing in e-HRM technology for ecological reasons may seem romantic or luxurious, this finding, as discussed in the next section, provides a new direction for scholarship and practitioners.

In another company, the external environment and specifically the trends of the market led to institutional or mimetic behaviours. This refers to the finding that the company adopted e-HRM because other companies in the market had adopted similar technology. The notion of mimetic isomorphism (DiMaggio and Powell, 1983) might explain why some companies adopt e-HRM in a specific context. However, although both paperless and environmentally friendly e-HRM and mimetic isomorphism can be two thought-provoking e-HRM adoption reasons, their importance can be considered to be secondary within an environment of economic crises, thus, mentioned only by one company.

In the case of MNCs, some e-HRM adoption reasons were driven by the need of headquarters to control their subsidiaries by being able to manage and access their HR data, maintaining transparency and coordination across the globe, and applying consistent HRM practices and a common language. Heikkilä and Smale (2011) found that language standardisation through e-HRM systems in MNCs affects the users' acceptance and use of the system. Smale (2008) believed that global integration is used in MNCs for consistency of business activities overseas and comprises control (one part determines and/or affects the behaviour of another part) and coordination (different parts of an organisation are integrated or linked together to accomplish a common goal). For HRM specific integration, Smale adopted four global integration modes: (1) *centralisation-based mechanisms* or the centralisation of decision-making authority at headquarters; (2) *formalisation-based mechanisms* or standardisation and codification of work procedures and policies globally (3) *information-based mechanisms* or tools that facilitate the international flow of information through simple databases or complex electronic data interchanges (4) *people-based*

mechanisms or the transfer of managers and the various forms of committees or taskforces whose role is to integrate business operations; and concluded that e-HRM can facilitate control and coordination of HRM practices in foreign subsidiaries through procedural standards of e-HRM's usage, communication and monitoring of goals through management reporting, centralisation and restricting access rights and layers of transaction authorisation. Therefore, the nature of e-HRM adoption goals in MNCs or MNC subsidiaries in Greece seems to be aligned with the international e-HRM literature and the global integration and standardisation drivers (Ruël et al., 2004; Parry and Tyson, 2011).

Regarding the new expectations of Greek HR directors that were created after their company's involvement in e-HRM, three areas were addressed: (1) cost reduction, (2) lack of additional investment despite the creation of new needs, and (3) technical compatibility with institutional parameters. As discussed in Section 9.2, cultural characteristics may explain why cost reduction or financial elements were not raised by Greek HR directors as initial e-HRM investment reasons. However, cultural characteristics cannot explain why this expectation was evident afterwards. Part of the explanation can be given by applying ACAP to HRM context. More specifically, this phenomenon can be attributed to the lack of specific prior knowledge and experience of the HR managers. Considering the ever-broadening scope of information technology and web-based solutions, technological ability and expertise is required (Hunter, 1999) and is also important for enabling HR professionals to manage technology vendors and to ensure technology utilisation and HRM service delivery (Schoonover, 2003).

As Bell et al. (2006) argued, HR professionals have an important new role in e-HRM environments that requires integrated competences with HR expertise, business understanding, combined knowledge between HRM practices and business, technological expertise and financial knowledge. According to Bell et al., these competencies can be developed through active learning (i.e., classroom but mainly work integrated learning through

experience and experimentation), experiential variety (i.e., knowledge application in different situations) and learning from errors (i.e., after action reviews). Therefore, it is highly likely that HR managers initially lacked some, or most, of these competencies during the system's adoption and ignored cost reduction potentials. However, they realised these potentials after using and experimenting with the system during or after the diffusion and exploitation processes.

Furthermore, the creation of new needs during or after the exploitation of e-HRM can be also considered to be an early failure of HR managers to foresee the future e-HRM needs of their company due to lack of technological ability and expertise. In other words, they learned about e-HRM applications, possibilities and needs after their involvement in and by using the e-HRM system in practice. This learning experience probably made them realise their errors and omissions in acquiring, for example, more applications, modules, or tools when their company had initially decided to invest in e-HRM (Bell et al, 2006). However, when they actively learned what they could do with e-HRM, this was not followed by additional financial support by their company especially since it was operating in an unstable financial environment. Therefore, it seems that lack of specific ability and expertise within a tough economic climate can reduce the possibility of a "second chance" (e.g., more investment in e-HRM). This phenomenon can have a detrimental effect on the HR profession in Greece particularly if it is accompanied by technological incompatibility or interconnectivity issues (see Section 9.4.1) and/or employee resistance (see Section 9.2.2).

As mentioned in Chapter 8, the four companies that used generic social media actually used LinkedIn for searching, approaching or choosing candidates. Two of them also used Facebook for unilateral or interactive communication between HR and employees, branding and employee satisfaction. Regarding the internal social media, all companies used intranet-based technology (e.g., content communities, specific blogs, social networking, and collaborative projects) mainly for employee communication

and collaborative knowledge sharing, career development, engagement and retention. In line with the existing literature (Joos, 2008; DeKay, 2009; Roberts and Roach, 2009; Girard and Fallery, 2009; Kluemper and Rosen, 2009; Davison et al., 2011), generic social media were independently used for recruitment and selection HRM practices while internal social media were expected to bring intangible HRM benefits mainly through virtual communication and collaborative knowledge creation (Prasarnphanich and Wagner, 2009; Martin et al., 2009).

However, it seems that the adoption of social media tools in the large Greek operating companies of this thesis' sample is at an early stage. For example, generic social media tools were not used for benefits administration, online training programs, performance reviews or 360-degree feedback. In addition, e-books, interactive job aides, podcasts, webinars and videos were also not used for online learning experiences (Pauker Kreitzberg, 2009) and the use of social networks, virtual reality, YouTube, forums and/or other sites was limited (except for Facebook and LinkedIn). As regards internal social media, although all companies used intranet tools (e.g., portals, blogs, wikis, networking pages, forums, content communities, etc.) for employee engagement, satisfaction, retention, talent management, career planning (i.e., transformational reasons) there were neither social media policies that ensured security, compliance, data protection and proper use nor integrated e-HRM strategies with interconnected technologies. For example, only one company (C3) had connected its HRIS with their intranet so employees could serve themselves without requesting data and information from HR.

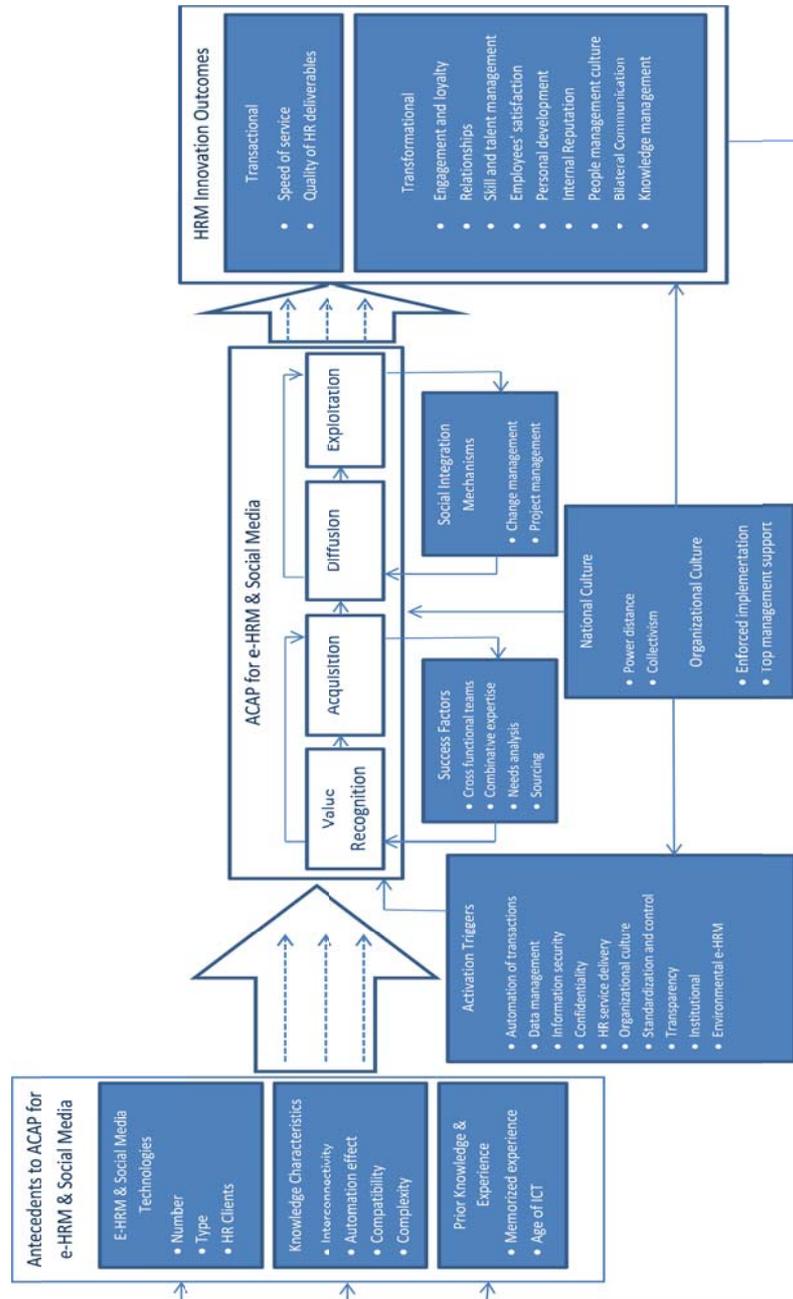
9.8 Theoretical Contribution of this Thesis: New Integrative Framework

Overall, this thesis expands the concept of ACAP in the HRM and e-HRM domains and notes the necessity of organisational ACAP for e-HRM and social media for HRM innovation. Moreover, the research develops a direct method of assessing the dynamic and multidimensional nature of ACAP for e-HRM

and social media and HRM innovation through surveying and interviewing key HR leaders of large Greek operating companies.

The deductive development of this thesis' exploratory conceptual framework presented in Figure 20 (see Chapter 3) combined the literature on e-HRM, social media and ACAP theory matched, for definitional clarity, with the innovation diffusion theory. The general logic of the model was that firms have different capacities for adopting, diffusing and exploiting e-HRM and social media. Based on this assumption, this model provided a view of ACAP as an integral part of innovation in HRM and demonstrated the interactions between ACAP's antecedents, ACAP, and HRMIO. Figure 44 integrates the quantitative and qualitative findings of this research and contributes a new framework to knowledge that directly links ACAP and HRM. More specifically, it demonstrates the integration between e-HRM and social media technologies and the application of ACAP theory to the HRM context showing the real impact of these technologies on HRM innovation.

Figure 44: New Integrative Framework of ACAP for E-HRM & Social Media



As it can be seen in Figure 44, the antecedents to ACAP include: (1) e-HRM and social media technologies, (2) the characteristics of these technologies, and (3) the organisations' prior knowledge and experience. E-HRM and social media technologies can vary in number and type and can be used by HR staff and by internal HR clients (Florkowski and Olivas-Lujan, 2006) and relate to what Haines and Petit (1997) called system conditions (e.g., application development, number and access of applications). This argument was validated by the results of this thesis which also provided further evidence on the effect of these technologies on HRM innovation through ACAP. Furthermore, organisational ACAP is determined by the attributes or characteristics of knowledge (Lane et al., 2006; Vega-Jurado et al., 2008) which refers to the collective amount of tacit and explicit complementary knowledge on e-HRM and social media (Kostopoulos et al., 2011).

This thesis addressed the following characteristics of e-HRM and social media technologies: complexity, automation effect, technological interconnectivity, and technological compatibility. It was revealed that firms can derive innovation benefits from complex e-HRM technologies if they have the capacity to absorb them. Also, the degree of automation of HRM practices moderates the relationship between the complexity of technology and ACAP. Despite the focus of e-HRM research on technological compatibility or the integration of technology with practices, rules, routines, laws or processes, this research did find at least one strong example that differentiated technological compatibility from interconnectivity in that the latter captures the connection and the interface between different technologies or the same technologies in different geographical areas. This is not definitive evidence that technological interconnectivity or compatibility can determine organisational ACAP and HRM innovation, however, that question is left for further work of a comparative nature (see Section 10.5 on future research).

In ACAP literature, prior knowledge and experience is considered a significant factor for the absorption of new knowledge and the development

of ACAP (Cohen and Levinthal, 1989, 1990; Matusik and Heely, 2005; Narasimhan et al., 2006). It has also been considered an important determinant of e-HRM usage and success (Haines and Petit, 1997). This thesis found that the firms' prior knowledge and experience in HR technology (ICT for HRM) can lead to HRM innovation if companies have the capacity to recognise the value, acquire, diffuse and exploit new e-HRM and social media technologies. Furthermore, the age of the ICT for HRM in a company, which is related to the users' positive or negative experiences and memories with HR technology, influences the relationship between the organisations' prior knowledge and experience and ACAP. Therefore, it is critical for absorbing new e-HRM technology and knowledge.

Regarding ACAP, this thesis provided empirical evidence of four dimensions: value recognition, acquisition, diffusion and exploitation. These dimensions correlate positively with each other and form a dynamic capability that also correlates positively with HRMIO. Furthermore, this thesis highlighted the importance of cross-functional teams, combinative expertise, needs analysis and sourcing strategies during the value recognition and acquisition processes. In theory, cross-functional teams with HR and IT professionals can trigger a systematic research for new e-HRM and social media technologies since its team members will combine HRM, business and technological expertise that can be used for determining the needs of the users, what technology to adopt and how (Shrivastava and Shaw, 2003; Bell et al., 2006). This was confirmed by the interviews with Greek HR managers who also added that the early inclusion (during value recognition and acquisition) of potential e-HRM users in the cross-functional project teams can assist not only the need analysis process but also the forthcoming diffusion and exploitation processes since these people will commit to the success of the project and will try to "sell" it to their colleagues during implementation. Therefore, these elements are considered important success factors (Al-Mashari et al., 2003) for the adoption of e-HRM and social media technology.

Furthermore, Zahra and George (2002) referred to the effect of social integration in lowering the barriers for information sharing among firm members and allowing knowledge exploitation through formal or informal mechanisms. This thesis also showed that formal social integration mechanisms such as systematic project and change management approaches and tailor-made training strategies (Bell et al., 2006) may reduce resistance to change and increase technology acceptance and use (Davis et al., 1989; Venkatesh et al., 2003). Therefore, the dissemination and usage of technology can be enhanced by systematic information sharing and communication between its users allowing the coexistence of learning and technical structures in the company (see “loose coupling” concept in Lengnick-Hall and Lengnick-Hall, 2006). In some cases, enforced implementation or the company’s commitment and top management support seems to enhance diffusion and this has been clearly addressed in the IT literature (Ngai et al., 2008). However, this thesis only mentioned the importance of formal social integration mechanisms during diffusion and exploitation of e-HRM without examining its actual effect on HRM innovation (see future research suggestions in Chapter 10).

As it was mentioned in Chapter 2, the terms operational, relational and transformational have been used to describe the automation impact of IT on HRM, the drivers of e-HRM adoption, the types of e-HRM and the outcomes or consequences of e-HRM. I believe the use of the same terminology to explain different concepts, although quite analogous, has caused theoretical ambiguity. For this reason, I used in this thesis the terms operational, relational and transformational (Lepak and Snell, 1998; Snell et al., 1995; 2002) to describe the automation impact of IT on HRM and the terms transactional and transformational (Martin and Reddington, 2010) to describe the outcomes from e-HRM and social media absorption.

Regarding the adoption drivers, this thesis revealed not only internal drivers but also external (e.g., institutional isomorphism). For this reason, I used the term “activation triggers” because it includes both, internal and external events (and reasons) that motivate or require a firm to invest in e-

HRM and social media technologies (Zahra and George, 2002). The internal activation triggers of e-HRM and social media adoption raised in interviews were: automation of routine transactions and activities, improvement in data management, increase in information security and confidentiality, delivery of high quality HR service, and change in organisational culture through virtual interactions and communication. The external activation triggers were: development of environmental friendly HRM, institutional and mimetic behaviours, and in the case of MNCs, standardisation, harmonisation, transparency and control. These drivers, as well as the absorption process, appeared to be filtered by organisational culture as well as national socio-cultural elements (Ngai et al., 2008) such as power distance and collectivism that seem to partially explain why cost related drivers and outcomes were not mentioned by Greek HR managers.

Last but not least, ACAP for e-HRM and social media technologies varies between organisations (some are better than others) and is path-dependent on the organisations' prior level and experience in ICT for HRM. What a firm knows in relation to ICT for HRM is critical for absorbing new e-HRM technology and knowledge in the future. The interplay between a developed ACAP for e-HRM and social media that has resulted in HRM innovation can allow a firm to more readily accumulate additional knowledge in succeeding periods and exploit external knowledge that may become available (Cohen and Levinthal, 1990; Zahra and George, 2002). Thus, organisations able to absorb (i.e., recognise the value, acquire, diffuse and exploit) e-HRM and social media and innovate in HRM will have increased their prior knowledge and experience in ICT for HRM for a potential technology absorption in the future. This relationship is presented in Figure 44 by the arrow that goes from the HRMIO to the antecedents to ACAP.

In summary, the research model provides an effective mechanism for examining the links between the antecedents to ACAP for e-HRM and social media, ACAP, and HRMIO. Consequently, it shows the integration between e-HRM and social media technologies, the application of ACAP theory to the HRM context and the real impact of these technologies on HRM innovation.

9.9 Summary of the Chapter

In this chapter, the data derived from surveying the HR heads of two hundred large Greek operating companies and then interviewing the HR heads of eight of these companies that demonstrated high adoption of ICT for HRM were discussed and interpreted, leading to the development of a new integrative framework on HRM innovation through the absorption of e-HRM and social media technologies. The next chapter summarises the main findings of this research and offers general conclusions to the thesis declaring the contributions and the limitations of this thesis that lead to a number of suggestions for future research.

Chapter 10: Conclusions

10.1 Introduction

This work set out to explore HRM innovation from the adoption, diffusion and exploitation of e-HRM and social media technologies by examining the relationships between the organisations' ACAP for e-HRM and social media technologies and the impact on HRM innovation. It also addressed the research objectives and tested the research hypotheses that were deductively developed and proposed in Section 6.2. Following a pragmatic approach (Johnson and Onwuegbuzie, 2004; Morgan, 2007), it combined a mixed methods sequential research design that was quantitative dominant (Johnson et al., 2007) and included: first, surveying a sample of 200 companies which operated in Greece from various sectors (manufacturing, commercial and services) and employed more than 250 employees (large companies); and then interviewing eight companies that had participated in the survey, demonstrated high ICT adoption and their HR directors agreed to be interviewed.

The inquiry was grounded in widespread calls for attention in the e-HRM literature to the factors that enable or inhibit companies from innovating in HRM by adopting e-HRM and social media technologies and the general lack of theory application in this area. Therefore, the present chapter summarises the main findings from this research and offers general conclusions to the thesis. First, it describes the literature gap and the ways by which the objectives of the thesis have been addressed. Second, it presents analytically the contributions to theory and practice and offers commentary regarding the limitations of this study and its potential to generalise. Third, it outlines areas for possible further research and a final conclusion indicates how, in sum, the reported actions meet the overall aim of this thesis.

10.2 Literature Review - Research Gap

The critical evaluation of e-HRM and social media literature (see Chapter 2) showed that the current status of research is mainly characterised by one data collection method which is either the survey or case study, one type of measure which is usually perceptual, focus on specific e-HRM technologies and areas such as online recruitment, lack of a good theory that links the relationship between IT and HR, omission of social media technologies within e-HRM infrastructure, U.S. specific studies, debate on the strategic advantages of e-HRM, and variance between the goals of e-HRM and its practical/factual outcomes. Therefore, the unexplored integration between e-HRM and social media technologies, the questionable or debatable impact of these technologies, the lack of e-HRM and social media research outside the U.S., and the lack of a good theory application on e-HRM studies called for an alternative research approach.

Although the ACAP theory has been extensively used in the IS field, knowledge management or IT innovation (Roberts et al., 2012) it has been neglected by HRM or e-HRM researchers, which is especially surprising because ACAP refers to a firm's ability to identify, assimilate and apply external knowledge on technology for new innovative products or services (Cohen and Levinthal, 1989; 1990). More specifically, a critical evaluation of ACAP, ACAP and HRM and, ACAP and e-HRM literatures revealed that there is no academic work that explored empirically the HRMIO that derive from the adoption, diffusion and exploitation of e-HRM and social media technology.

To address the aforementioned literature gap, this research applied the ACAP theory to the HRM context and integrated different concepts of HR technologies (e.g., e-HRM and social media) into a single exploratory model. The ACAP construct was operationalised and measured as a firm's ability to deal with external e-HRM and social media knowledge and was parallelised with the innovation diffusion theory to highlight the absorptive capacities of all e-HRM and social media users and not just the HR function's. This exploratory model was tested in Greece during the financial recession in

2012 and also considered cultural and institutional factors that could potentially explain variations in the adoption of e-HRM and social media. Therefore, this thesis aimed to examine holistically the relationship between the organisations' ACAP, e-HRM and social media technologies and innovation in HRM and to meet the following theoretical objectives.

10.3 Theoretical Objectives

This research met the main objective defined in Section 1.3 which is the development of a new integrative and theoretically informed framework on HRM innovation through the adoption, diffusion and exploitation of e-HRM and social media (see Section 9.8). More specifically, the notion of ACAP in the HRM context was applied based on the assumption that organisations have different capacities for recognising the value, acquiring, diffusing and exploiting knowledge on e-HRM and social media in order to achieve HRM innovation, setting out specific conditions under which the theory is most or least likely to hold within the HR context.

10.3.1 Hypotheses 1a/1b/1c: The Antecedents to Organisational ACAP for E-HRM and Social Media and their Impact on HRMIO through ACAP.

The mediating effect of ACAP on the relationship between ACAP's antecedents and HRMIO seems to be of critical importance in predicting the transactional and transformational consequences of e-HRM and social media adoption, diffusion and exploitation processes. Firstly, it suggests that three important determinants of the organisations' ACAP are: (1) the external knowledge flows related to the number of e-HRM and social media technologies, (2) the complexity of these technologies, and (3) the level of the organisations' prior knowledge and experience.

Second, it indicates that firms need to be able to recognise the value, acquire, diffuse and exploit e-HRM and social media technologies in order to innovate in HRM. This can be true even if these technologies are complex and difficult to be used, not applicable to a company's routines and everyday practices and can be hardly exploited by its users. Furthermore, the companies' prior knowledge and experience in ICT for HRM can also lead

to HRM innovation provided their capacity to absorb new e-HRM and social media technologies.

Third, the mediating effect of ACAP and the qualitative data of this thesis suggest that a firm needs to be proactive during adoption, diffusion and exploitation, to consider the needs of its employees through project and change management activities, to examine their prior knowledge so as to arrange suitable training programs, and to have clear communication and information sharing strategy.

10.3.2 Hypotheses 2/4: Moderators between the Antecedents to Organisational ACAP for E-HRM and Social Media and ACAP

By examining the moderating effect of two important variables on the relationship between ACAP's antecedents and ACAP provides two additional conditions that increase the likelihood for companies to have a successful e-HRM and social media absorption. More specifically, results suggest that the age of the ICT for HRM system moderates the positive relationship between the organisations' prior knowledge and experience in ICT for HRM and ACAP while the degree of automation of HRM practices moderates the positive relationship between knowledge complexity and ACAP.

Furthermore, these two factors provide support on some important claims of ACAP research. First, the organisations' ACAP depends on its employees' (in this case, e-HRM users) prior knowledge and experience, thus, new knowledge (in this case, technology) will be absorbed if it is partially related to prior knowledge. Therefore, the age of the ICT for HRM actually represents the time that "old knowledge" is available for the employees and this seems to be one of the reasons why the age of the ICT for HRM affects organisational absorption of similar "new knowledge" (i.e., new e-HRM and social media technologies). Second, the organisations' ACAP is path-dependent which means that knowledge absorption in one period affects the future absorption of any similar knowledge because the initially absorbed knowledge has become prior knowledge, has been memorised and has created new expectations. Therefore, the degree of automation of HRM

practices represents again the degree and magnitude of “old knowledge” and can explain variations on the companies’ capacity to absorb new e-HRM and social media knowledge depending on its complexity.

The age of an ICT for HRM system and the automation of HRM practices affect the cumulateness of knowledge and the consequent expectation formation from absorbing that knowledge, thus, characterise its path-dependent nature. Similarly, there can be other factors that affect the cumulateness of new technological knowledge around HRM such as the amount of similar technologies used by a company for other non-HR activities (e.g., purchasing, budgeting, etc.). Therefore, it could be assumed that any factor that affects the organisations’ prior knowledge and experience in specific types of related knowledge (i.e., e-HRM technology) through the path-dependent process of absorption can offer interesting interpretations around the outcomes of this absorption process (HR innovation).

10.3.3 Hypotheses 3/5/6: Automation of HRM Practices, Internal and External Stakeholders of E-HRM and Social Media (HR Clients)

The number of e-HRM and social media technologies adopted by companies influences the degree of automation of HRM practices and formation. This is important and highlights that different tools can be used independently for different reasons. However, it is equally important for companies to have clear e-HRM investment goals by considering in advance not only the tools and their purpose but also the required technological interconnectivity and compatibility between these tools and the automated HRM practices. Furthermore, the degree of automation of HRM practices influences the amount of e-HRM service thus highly automated operational or relational HRM practices relate to increasing degrees of HR service offered to different internal or external HR clients. Therefore, when considering the automation of HRM practices from e-HRM technology it appears that the HR function increases the service it offers and broadens the addressees of this service.

From an ACAP perspective, it has thoroughly been discussed in this thesis that the organisations' capacity to absorb e-HRM and social media technology is a path-dependent process that is affected by the characteristics of the absorbed knowledge (i.e., HR technology) and the "absorbers" (i.e., HR technology's users). Therefore, the individual capacities of e-HRM and social media users increase when companies adopt more e-HRM and social media technologies, automate their HRM practices more, produce more HR service and serve more HR clients. This interrelationship correlated positively with the overall capacity of organisations to absorb HR technologies and innovate in HRM. Consequently, this can be an additional way for the HR functions to justify the value they offer their firms.

10.3.4 Hypothesis 7: The Dimensions of ACAP for E-HRM and Social Media and their Impact on HRMIO

The importance of e-HRM and social media technologies on explaining HRM innovation depends on the ACAP of organisations. Organisations able to recognise the value, acquire, diffuse and exploit technological knowledge can potentially gain the benefits of that knowledge and innovate. However, the organisational ACAP for e-HRM and social media is a dynamic capability that involves various employees, functions and units inside and outside the HR territory. It also covers the interplay between new external e-HRM and social media technologies with the company's existing knowledge base and structures. Therefore, companies able to manage effectively the interplay between their existing knowledge base and structures with the transformation requirements of the newly adopted technologies can be equally effective in both; exploring new e-HRM and social media technologies (technological developments) and exploiting new e-HRM and social media technologies once adopted.

10.4 Contributions of the Present Research

The contributions of this thesis are discussed analytically in the next two sections under two main categories: contributions to *theory* and

contributions to *practice*. The former covers the theoretical literature that this thesis draws on in order to study HRM innovation through technology in Greece. The latter discusses a set of practical implications and recommendations to companies and HR functions that aim to adopt, diffuse and exploit e-HRM and social media technologies.

10.4.1 Contributions to Theory

This thesis contributes to e-HRM literature by merging the research on e-HRM and social media into a unique conceptual model which was then tested. Although several academics have engaged in a discussion about the impact of social media on organisations and the HR function, a holistic integration between e-HRM and social media technologies beyond recruitment and selection is still underexplored. Martin et al. (2009) were among the first to refer to the potential transformational impact of social media strategies. Also, Heikkilä (2010) referred to the potential transparency that social media will bring to organisational life in the future and the opportunity of the HR function to take advantage of this change by raising its strategic role and Pauker Kreitzberg (2009) referred to the unique position of the HR function to use social media for its own purposes and at the same time to be the change agent and prepare the whole company to use social media for business purposes.

This research, however, differentiated between generic/external and internal social media technologies, examined how these are integrated with e-HRM and are used by some Greek operating companies specifically for HRM purposes. Therefore, the conceptualisations differ and allow a different perspective of the same phenomenon. The integration of research into a single model allowed the assessment of the real automation impact of these technologies on HRM practices under a more holistic theoretical coherence. This was important because it highlighted that e-HRM and social media technologies indeed have an automation impact on HRM and serve not only the HR function but also the HR clients. At the same time, the qualitative stage from the mixed methods research design allowed the examination of the reasons and the ways these technologies were absorbed.

As a result, this research has contributed to the debate regarding the impact of e-HRM and social media technologies by adopting a comprehensive perspective that involved the interrelationship between e-HRM and social media technologies used for HRM purposes, the automated HRM practices, and the different stakeholders served by these technologies. The results showed their synergistic and positive interactions.

This thesis further contributes to HRM and e-HRM literatures by empirically testing the relationship between the organisations' capacity to absorb e-HRM and social media technologies and HRMIO. Despite the increasing interest of researchers in the potential of e-HRM to reduce costs from routine and administrative activities, to speed up processes and improve service quality to managers, employees or external partners, and to gain a more strategic and business partnership role within the organisation, there were various critiques and contradictory findings. By viewing, however, e-HRM and social media as a way companies can manage their people in order to achieve certain goals, the operational, relational and transformational effect of IT on HRM (through the automation of HRM practices) and the actual HRM transactional and transformational innovation outcomes from the absorption of e-HRM and social media were examined separately. Therefore, by linking technology, automation, and HR clients and by showing the positive interrelations with ACAP and HRM innovation, the potential for the changing role of the HR function may be on its way. With this in mind, the main theoretical contribution of this thesis is the construction and testing of a conceptual model that applied the ACAP theory to the HRM context and resulted in a new integrative framework that addressed how the adoption, diffusion and exploitation of e-HRM and social media technologies can lead to transactional and transformational HRMIO.

This thesis also contributes to HRM innovation literature by providing an empirical grounding which has not been attempted before. More specifically, a methodological contribution of this thesis is the empirical analysis of ACAP and its influence on HRM innovation. HRM innovation is viewed as the outcomes from the deliberate absorption of e-HRM and social

media technologies which are new to the adopting companies. Therefore, the absorption of e-HRM and social media technologies result in HRM innovation that demonstrates the effect that these technologies have on the HR function and the nature of interaction and relationship between the company and its employees (see details in the next section). Furthermore, this thesis contributes to HRM innovation literature by empirically testing the concepts of e-HRM, social media, ACAP, and HRM innovation within the Greek context. The limited e-HRM and social media research in Greece has neglected to examine the actual HR processes and administrative innovations that derive from the adoption, diffusion and exploitation of these technologies. Additionally, institutional, fashion, cultural and rational elements that affect HRM innovations through HR technology have not been examined in Greece. However, given the unique sociocultural, economic and institutional characteristics of the country it is critical to understand the factors that affect the capability of Greek operating companies to absorb ICT to innovate in HRM. Therefore, this study has contributed to the exploration and theorisation as concerns the factors that enable or inhibit large companies that operate in Greece to innovate in HRM through technology.

This thesis contributes to the ACAP literature by offering an alternative operationalisation of ACAP. It provides at least a partial to the criticism that ACAP has not been efficiently operationalised (Lane et al., 2006) by treating ACAP as a dynamic capability and process; by exploring ACAP empirically in the HRM (or a non-R&D) context using metrics that capture each dimension of the ACAP process in a manner appropriate for that context; by using a multidimensional perceptive and measurement instrument without focusing only on one dimension of ACAP (i.e., acquisition or exploitation); and by treating e-HRM and social media as external knowledge inflows that denote the collective amount of tacit and explicit complementary knowledge.

However, although this thesis basically lies in the ACAP theory, it also brought together ideas from different theories. More specifically, this thesis drew on the innovation diffusion theory (Rogers, 2003) and contrasted the

dynamic capability and process perspective of the ACAP theory with the process perspective of the innovation diffusion theory paralleling ACAP dimensions (Todorova and Durisin, 2007) with three major innovation diffusion processes (Cohen and Levinthal, 1990; Lane et al., 2006). Moreover, it addressed technology acceptance (Davis et al., 1989; Venkatesh et al., 2003) considering the reactions of key individuals to the adoption of new HR technology and the institutional environment (DiMaggio and Powell, 1983) that potentially justified some of the external reasons organisations which operate in Greece absorb e-HRM and social media.

Therefore, the results of this thesis provide evidence that the absorption of e-HRM and social media involves various levels of the organisation such as individual, unit, organisational and external. Furthermore, the consideration of these theories highlights that companies are dynamic systems that identify, integrate and exploit external technological knowledge. As a result, a comprehensive research approach basically on the lens of the ACAP theory and the supplementary reference of additional frameworks provided evidence of the importance of the organisations' dynamic capacities to absorb external knowledge in order to innovate. This contributed to the operationalisation of ACAP in the HRM context considering the different theoretical arguments identified in the literature around the lack of theory application in studying e-HRM and social media.

10.4.2 Contributions to Practice

The discussion of the practical implications of this research from the alignment between ACAP and HRM innovation has led to a set of recommendations for HR practitioners, managers and companies that plan to adopt, diffuse and exploit e-HRM and social media technologies. This is also the last goal of this thesis and it has derived from the analysis of all the data collected.

First, this research contributes to HR practitioners by eliciting the actual impact of their organisations' capacity to absorb e-HRM and social media technologies and consequently innovate in HRM. The firms' ACAP for e-HRM

and social media has a significant effect on HRM innovation. For this reason, HR managers need to understand the factors that determine their company's ACAP and the consequent HRMIO. Based on the results of this thesis, these factors include: the prior knowledge and experience in ICT for HRM purposes and the age of the existing ICT for HRM; the characteristics of e-HRM and social media technologies such as complexity, technological interconnectivity, automation effect of IT, and technological compatibility; the number and type of, as well as the HR clients served by, e-HRM and social media technologies; and context specific characteristics such as national and organisational culture.

The adoption of e-HRM and social media technologies requires early consideration of the employees' and users' needs, HR leadership and cooperation between HR, IT and other functions in order to combine technical, financial, business, and HRM competencies. These competencies are necessary for recognising the value of these technologies, can determine whether to get a standardised versus a customised technology or to create technology internally versus buy it externally, and enhance negotiations with potential technology vendors and consultants. The inclusion of knowledgeable e-HRM potential users in project teams will also assist a company to spread the diffusion and internalisation processes and consequently the actual use of e-HRM technology. The availability of technical skills can foster the adoption and implementation of e-HRM (Panayotopoulou et al., 2007; Lau and Hooper, 2009).

Second, this study contributes to identifying some "barriers" to e-HRM and social media absorption, suggesting different ways to manage them. For example, the diffusion and exploitation of e-HRM and social media can be challenging for companies whose users are older, have limited prior knowledge and experience, lower educational level and/or limited access to personal computers (PCs). In other words, the absorption of e-HRM and social media is more likely to occur among companies whose employees have prior knowledge and experience in ICT for HRM, higher educational level and belong to younger generation categories (e.g., net generation or

those born between 1982 and 1991). Considering in advance the characteristics of users that will potentially affect the absorption of technology can lead to accurate implementation time estimations and budget (e.g., for the training of users).

The employees' prior knowledge and experience and the potential absorption of e-HRM technology by a company is affected by the time previous ICT for HRM purposes is in place. Companies that have had a system for a long time should not expect high absorption of a new system even if their employees have enough prior knowledge and experience. Therefore, by examining these characteristics in advance will also allow companies and HR functions to: (1) determine the complexity of the system they intend to adopt and the potential positive or negative experiences of its users, (2) plan specific diffusion and exploitation strategies for employees that do not share the above characteristics (i.e., tailor-made training programs), and (3) create specific preventive or motivating policies and procedures around the use of e-HRM and social media technologies.

The adaptation challenges of e-HRM users during the diffusion and exploitation processes (e.g., resistance to change or limited use) can be mitigated by the presence of a project management approach that will include: proactive communication of the company's intentions and reasons to change, early declaration of the specific benefits per e-HRM user category (i.e., line managers, employees, top management), the company's commitment and obligatory approach and the arrangement of suitable training programs with internal trainers from various functions (e.g., e-HRM vendors train potential users included in the e-HRM adoption project team to train afterwards their colleagues in their respective function). The general importance of communication on e-HRM adoption has also been addressed by a number of academics (e.g., Florkowski and Olivas-Luján, 2006; Panayotopoulou et al., 2010).

Third, this study contributes to identifying the reasons why large companies which operate in Greece adopt, diffuse, and exploit e-HRM and social media technologies and give advice to HR managers and companies that plan to

adopt similar technologies in the future. The adoption of e-HRM and social media technologies presupposes clear investment drivers. HR practitioners need to know in advance the expected outcomes from HR technology by considering proactively the needs of its users and the company. Knowing in advance the investment drivers can determine the type of technologies needed to achieve specific goals and the design of these technologies in terms of automation, complexity, interconnectivity and compatibility.

Companies which plan to adopt e-HRM and social media technologies must align their investment objectives and reasons with the potential automation effect that ICT will bring on HRM. More specifically, they need to determine whether they want to automate major routine and administrative activities that mainly involve the HR function (e.g., operational effect), HRM practices beyond the HR function that involve remote collaboration between HR, line managers, employees, departments and external partners and allow them to access HR information and perform HR activities themselves (relational effect), or communication and decision-making activities with boundless and constant communication and information sharing among people, virtual teams and network structures that allow the creation of new management methods, operations, technology, products and services and better allocation of resources, time and talent (transformational effect).

Knowing why you want to do something helps you realise what you want to do. In the light of this thesis' findings, the degree of automation of HRM practices moderates the impact of complex e-HRM technology on the companies' ACAP. This means that the early alignment between investment goals and the HRM automation effect offers one more indication to companies which plan to adopt enhanced and complex features that will require their users to have specific capabilities and transform their daily routines and knowledge. Therefore, early realisation of e-HRM adoption goals can determine the type of technology that is suitable for the achievement of specific goals (Florkowski and Olivás-Luján, 2006).

Fourth, this research provides evidence concerning the importance of contextual factors on e-HRM and social media adoption. Cultural elements

like power distance and in-group collectivism appear to affect e-HRM drivers and cost related transactional HRMIO. Therefore, cultures which share similar characteristics may require organisations and HR practitioners to discover alternative cost reduction practices through technology adoption. For example, the HR practitioners who wish to build a case for a future, or justify a past, HR technology investment can consider the potential ecological, branding and cost benefits of e-HRM from the consequent paper reduction, thus, avoid headcount minimisations. Also, the HR practitioners who aim to convince top management towards e-HRM adoption can estimate the potential cost reduction from the automation of bureaucratic paperwork (e.g., reduction of storage or logistic expenses) and add one more argument in their agenda for faster e-HRM return on investment (ROI). In relation to that, they can initiate an ecological campaign that will promote the company's reputation and innovation through the ecological outcomes of e-HRM technology.

Furthermore, this study contributes to the role of HR practitioners of MNCs by considering their unique needs. MNCs need to consider early on in the value recognition and acquisition phases of e-HRM adoption the institutional needs, cultural characteristics, particularities, context and language of local subsidiaries. Such an early consideration will generate information about the technical compatibility and technical interconnectivity that is required from an e-HRM system in order for a company to achieve global harmonisation, standardisation, transparency and control goals. Early knowledge on a company's technical requirements and needs from an e-HRM system will lead to better cost benefit analysis and more reasonable decisions on technology sourcing. Last but not least, communication or conflict of interest issues can be avoided between headquarters and local subsidiaries since, for example, headquarters will not try to persuade local subsidiaries about e-HRM benefits that contradict their cultural (i.e., headcount minimisation and control to a power distant and collectivist culture) or institutional (i.e., labour law) characteristics.

The HR functions of headquarters can engage the HR departments of local subsidiaries in local and inexpensive market research for global e-HRM solutions and by doing so investigate the local acquisition opportunities and the economies of scale from the countries in which their company has presence (i.e., exchange rate gains, different vendors, or same vendors with different pricing policies per country). This will create a key actor role for the local HR managers whose active participation in such a global project can be communicated and viewed as a developmental opportunity. Therefore, engaging local HR managers actively in the value recognition and acquisition stages of an e-HRM adoption can result in a global market research and tendering process for the benefit of the company and the career development of local HR managers. Last but not least, potential conflicting positions between the needs of the HR function of the headquarters, local HR function and e-HRM vendors and consultants can be mitigated early on in the adoption process (e.g., during value recognition attempts) and not after acquisition when the opportunities of a second chance are minimised.

Fifth, this research contributes to defining capabilities that are important for HR managers for the successful adoption, diffusion and exploitation of e-HRM and social media technologies in their firms. HR practitioners need to be trained in order to develop their competencies and learn how to cooperate and communicate remotely with people outside the HR function. Therefore, HRM knowledge and business understanding is not enough to catch up on the developments in ICT for HRM purposes. As Gratton (2011) argued, the competencies of HR need to grow in parallel with the technological evolution. In other words, a holistic developmental perspective is required that includes: IT expertise and ability to realise the overall “virtual value chain” (Martin and Reddington, 2010) of technology mediated transactions in order to persuade and handle internal or external HR clients; project management and communication skills to handle cross-cultural conflicts of interest and institutional incompatibility through local needs analysis; financial skills and analytics necessary to convince top management in favour of e-HRM investments, handle vendors and

consultants and estimate ROI; combined HRM and business knowledge (Bell et al., 2006; Hilbert, 2009) to create an integrated e-HRM strategy that foresees the future needs of the company and policies that ensure security, compliance, data protection and proper use of technology.

Finally, this thesis provides managers a useful tool with which to assess their companies' strengths and weaknesses regarding ACAP for e-HRM and social media. The proposed measures allow the comparison of a firm's ACAP to those of other firms, providing a basis for companies and HR functions to determine where additional investments should be made to upgrade and improve the use of ACAP. HR practitioners with multiple competencies can increase their chances to persuade their companies to adopt e-HRM and social media technologies while managers and employees (HR clients) can creatively leverage their firms' ACAP by comprehending and exploring ways to integrate the four ACAP dimensions. Exposing managers and employees to the absorption of e-HRM and social media technologies can increase the capacity of organisations to absorb ICT since what a firm knows in relation to ICT for HRM is path-dependent and a function of the firm's prior knowledge and experience.

If some portion of that prior knowledge and experience in e-HRM and social media is closely related to any new ICT adoption, the diffusion and exploitation of this new technology will be smoother particularly if the whole process is managed properly to avoid competency traps. Therefore, the results from the efforts of both, the HR function and the different HR clients, to configure their companies' ACAP through its creative and ingenious use to create HRM innovations can lead to an appreciation of HR's strategic role but most importantly to a broader organisational ACAP (e.g., for different but related types of knowledge) that may lead to new products, systems and processes that distinguish a company from its rivals and create a competitive advantage. For this reason, ACAP for e-HRM and social media requires attention and investment as in the case of any other intangible resource.

10.5 Limitations of the Present Research

Any research, no matter the claims made in it, has important limitations. In this section I address a number of these.

First, the controversial answer to a common question that dealt with the nature of Likert scale data is considered a limitation of this thesis. Likert scales are very often used in social sciences to reflect categorical variables as they consist of ordered categories. On the one hand, the fact that ordered categories are still categories and that the intervals between the scale values are not equal is supported, thus, only non-parametric statistics should be used (Jamieson, 2004). On the other hand, contradictory arguments support that Likert scaled variables which have a satisfying number of categories, reflect underlying continuous variables, are skewed like a normally distributed variable, can be used in parametric tests, and provide true parameter values in factor analysis (Lubke and Muthen, 2004). In addition, normality issues in parametric tests used in factor analysis or in regressions, could be faced given the Central Limit Theorem (CLT) which states that the arithmetic mean of a large number of iterates (more than 30) of independent random variables with certain expected value and variance, is approximately normally distributed.

In simple terms, a 5 point Likert-type response scale lacks the granularity that is necessary to provide a basic approximation of normality compared for example to a 10 point Likert scale. In other words, when there are more options in the ordered categorical variable, it is more likely that the item will approximate a normally distributed variable. Therefore, the inclusion of 5 point Likert scale in this thesis contributed to the assumption of not-normally distributed data (see Appendix III). Moreover, this thesis considered all 5-point scale Likert variables to be continuous given the limitation of SPSS to deal with factor analysis of categorical variables at least for sensible sample sizes.

Data arising from Likert-type items is often analysed as multivariate normal outcomes in these models although the data are in fact ordered categorical.

The main difference between multivariate normal and ordered categorical outcomes lies in parameters that govern the distribution of the items. More specifically, the distribution of multivariate normal outcomes is completely specified by the item means and covariances while for ordered categorical items, information concerning the means and covariances is not sufficient (Lubke and Muthen, 2004).

Second, the moderate sample size of this research restricted statistical analysis and the validation of results. For example, larger samples would have allowed the use of techniques such as structural equation modeling (SEM). Alternatively, they would allow the conduction of EFA and CFA in different samples or in the case of a larger sample (e.g., 400 companies) by splitting it off. However, the use of diverse statistical methods alleviated effectively the limited population of large companies that operate in Greece and the consequent moderate sample size.

Third, although mixed methods were employed to enhance the robustness and rigorousness of the empirical analyses, these only tested association and not causation. In other words, causality was presumed based on systematic theory construction that strongly supported the direction of relationships hypothesised and tested. However, the ACAP and HRM innovation measures in the model are contemporaneous or lagged and the reverse direction of causation is less likely in this context. Furthermore, the data of this research includes a snapshot of reality (e.g., cross-sectional), thus, causation or validation or results would require replication of the study in the future. Similarly, a longitudinal study that would examine the companies' prior and after e-HRM and social media absorption could further verify the theoretical contention that ACAP develops in a path-dependent process and leads to HRM innovation. For example, panel data analysis or focus groups could show if ACAP for e-HRM and social media leads to HRMIO and if this innovation feeds into future ACAP that, in turn, fosters innovation in HRM at different time periods.

Fourth, surveying first and then interviewing HR directors (i.e., key informant) can be considered vulnerable to social desirability or the

potential tendency of HR people to argue that e-HRM and social media resulted in positive outcomes and single informant or single data source bias. To avoid such common method biases, I had intended to use focused groups and a case study strategy in order to explore further how the absorption of e-HRM and social media is perceived by HR clients (e.g., line managers or employees) in the company with the higher ICT adoption level. This single and embedded case approach would be the third stage of research with the purpose to study various employees, line managers, departments or work groups in a firm and understand the phenomenon of e-HRM and social media absorption from the “eyes” of different actors and through their interactive effect. As Strohmeier (2007) claimed, some categories have been repeatedly neglected in e-HRM research. This stage was not applied though due to access restrictions. More specifically, the political and economic context of Greece had affected HR managers who were cautious and skeptical in allowing a researcher to meet with various managers and employees outside the HR function. Another reason was the time constraints of this research.

However, a unique informant strategy resulted in a good response rate, short duration of the study, moderate cost and macro level of analysis. Furthermore, a number of procedural remedies have been applied in this research to control common method biases prior to conducting and analysing the survey (Podsakoff et al., 2003). Regarding the former, respondents’ anonymity was protected, meaning that they were less likely to edit their responses to be socially desirable, compassionate, agreeable, and consistent with how they assumed the researcher wanted them. Also, the scale items had been derived from previous research (see Chapter 6) and were improved through the experts’ review and the pretesting of the questionnaires (see Chapter 5) minimising item ambiguity and potential method biases. Finally, the method biases caused by commonalities in scales and anchoring effects were “protected” by assigning different meanings on the answering scales of different questions (e.g., q.19). Regarding the later, Harman’s single-factor test was also used to control for common method biases (see Appendix IV).

Fifth, this research is limited to a specific national context and to companies that employ more than 250 employees (i.e., large companies or non SMEs). Although Greece is predominated by SMEs, the existence of large companies and the particularities of the country's institutional framework offered the opportunity to examine the adoption, diffusion and exploitation of e-HRM and social media while considering the lack of context specific e-HRM and social media research in this country. Furthermore, the sampling criterion of more than 250 employees assured the existence of both; HRM department and the use of e-HRM and social media technologies. Furthermore, my intention was to generalise to a subset of Greek operating organisations from all three broad sectors and not to all organisations that operate in Greece. However, despite the aforementioned "generalisation boundaries", similar results are expected by other "homogeneous" countries in south-eastern Europe that demonstrate a slow transfer from agricultural to industrial economy; slow development of HRM among other professions; strong national cultural norms and values; French legal tradition with an archetypical civil law that includes both weak owner and weak employee rights; distinct sub-variation of Mediterranean capitalism; deregulated employment relations; high employment protection in the larger firms and state sectors; lower employment protection in smaller and family owned firms; many micro, as well as large state or private companies and SMEs; limited literature on HRM; institutional dynamics, such as modernisation and mimetic behaviours; and a financial recession.

Sixth, the questionnaire used in this research is new and the measurement of ACAP consists of specific knowledge components that structure a composite ACAP indicator (i.e., specifically for e-HRM and social media knowledge components). Nevertheless, this metric is a proxy that lacks precision in measuring the subtle and general qualities of the different dimensions of ACAP for different knowledge categories. However, in this research a multidimensional perspective of ACAP was followed. Also, common knowledge base proxies such as R&D, R&D human capital or output oriented proxies were not used to measure ACAP. Therefore, the questionnaire was precise enough in measuring the subtle qualities of the

different dimensions of ACAP, focusing, however, on e-HRM and social media technological knowledge. Furthermore, the HRMIO had a positive orientation which means that the negative aspects of e-HRM and social media technologies were not included in the questionnaire despite analogous research evidence (Martin and Reddington, 2010). However, the interviews with HR directors offered corroboratory data regarding the barriers and issues faced before, during and after e-HRM and social media absorption, thus, future research can be guided accordingly (see next section).

Seventh, there is no agreement in operational definitions and classifications on both e-HRM and ACAP and this situation makes the comparison of this thesis' results in different contexts difficult. However, the integration between e-HRM and social media technologies based on a highly cited and accepted e-HRM definition (Bondarouk and Ruël, 2009), the application of ACAP in the HRM context and the extensive review of both literatures (ACAP and e-HRM) led to the employment of a different research approach that addressed this problem from different perspectives providing useful and complementary insights.

Eighth, the e-HRM and social media technologies were treated in a general manner as an integral whole. In other words, it was not specified which technology caused or significantly affected which outcome and various technologies were included under the "e-HRM umbrella" with the criterion of whether they were used or not for HRM purposes. However, the systematic categorisation of technologies allowed the examination of their general automation effect on HRM practices and the consequent service offered to various HR clients. Therefore, although different e-HRM and social media technologies were used into a single measure, this thesis offers distinctive empirical evidence. Finally, the size of the questionnaire resulted in the collection of numerous data that was not analysed for the purposes of this thesis. However, I tried to utilise my professional HR network in Greece so as to assure a good response rate and focus on the analysis of data around the initial research questions and objectives.

10.6 Future Research

This thesis represents a first attempt to examine the capacity of large companies which operate in Greece to absorb e-HRM and social media technologies and innovate in HRM. However, the results of this thesis discussed in Chapter 9 and the limitations presented in the previous section provide interesting directions for future research. To begin with, the study of ACAP in the HRM context focusing on HR technology in large Greek operating companies using a mixed methods sequential design with two newly created research instruments can be considered pioneering. This means that further empirical validation of the results is required and this can be achieved by replicating this study using the same instruments and checking whether the results remain the same. Although the survey results (Chapter 7) with the use of different statistical techniques have been corroborated by the data derived from the interviews (Chapter 8), further research could focus on refining conceptual definitions, measurement scales and constructs, thus, increase further our understanding in complex and multidimensional concepts such as e-HRM and ACAP.

Furthermore, the e-HRM and social media consequences are more complex than the reported, in this thesis, HRMIO. For example, the adoption, diffusion and exploitation of these technologies can have various unexpected and/or negative implications (Strohmeier, 2009; Martin and Reddington, 2010). Although a number of unexpected issues were addressed in the qualitative stage of this thesis, further research focused on the undesired consequences of these technologies could offer very useful insights. Providing initial evidence on some important factors that affect large organisations' capacity to absorb HR technology and innovate can also drive future research to examine: additional factors that affect the organisations' capacity to absorb HR technology and innovate, how this capacity is shaped over time, and the resulting variations in HRM innovation through, for example, longitudinal studies that will combine mixed research methods (e.g., large surveys, panel data analysis, focus groups). Also, future research could investigate the adoption, diffusion and exploitation of e-HRM

and social media in SMEs and compare these findings with large companies and/or MNCs.

It would be equally interesting to analyse and compare the differences of this research in other contexts and countries. As Johns (2006) argued, context refers to situational opportunities and constraints that affect the occurrence and meaning of organisational behaviour and the functional relationships between variables. Understanding the context where individual and group behaviour occurs can help explain interactions between individuals and situations (Johns, 2006). In other words, although this thesis offered some situational factors (e.g., institutional, cultural and economic), micro level analysis with various actors included would offer additional insight into this context specific research that could be used for cross-cultural comparisons. For example, Bondarouk et al. (2009) found that managers and employees have different and contradictory viewpoints on e-HRM in relation to the decentralisation of HR tasks. Therefore, future studies require attention to both the efficiency and effectiveness measures of e-HRM including various stakeholder categories to other occupational settings and countries.

As it was not possible to cover all areas on e-HRM and social media, further research is required with larger samples in order to reveal more critical factors that cause successful results from the adoption, diffusion and exploitation of these technologies. For example, expanding further or creating more enhanced proxies of ACAP for e-HRM and social media may offer additional tools to companies and HR functions to move towards e-HRM initiatives and investments in the future. These factors can include organisational forms and more external or internal activation triggers or social integration mechanisms (Van den Bosch et al., 1999; Zahra and George, 2002). For example, Panayotopoulou et al. (2010) referred to some external variables that could be examined such as legal or government regulations, as well as some internal, such as level of skills, managerial attitudes, structural complexity, or stakeholder considerations. Additionally, it is very important that research pays equal attention to IT

and HRM (Khatri et al., 2010). For example, the design and the technical aspects of technology from interconnectivity and compatibility perspectives will help academics define and practitioners understand e-HRM and social media.

Without the right software needed for e-HRM or the technical skills to handle the various functions, the implementation of e-HRM would definitely be impeded if companies that are unfamiliar with e-HRM were left to figure out problems in e-HRM initiatives on their own (Hooi, 2006: 482).

Therefore, this can be done by isolating technologies and examining their impact on specific HRM practices.

Finally, research can also examine whether the capacity of organisations to absorb e-HRM and social media is correlated to the companies' performance and/or competitive advantage. This linkage will increase the understanding of general knowledge absorption dynamics and can help to identify the automated HRM practices that foster the adoption, diffusion and exploitation of knowledge in organisations. In other words, this thesis provided empirical evidence through the lens of ACAP that the adoption, diffusion and exploitation of e-HRM and social media can result in HRM innovation. This is very important because new technologies allow organisations to transform their organisational structures, work processes and job design in order to adapt to turbulent environments. However, can HRM innovation contribute to the companies' sustainable competitive advantage (Wolfex et al., 2006)? Therefore, I hope that the theoretical and empirical results of this thesis provide a useful starting point to develop future research directions that will combine more IT and HRM as well as ACAP and HRM innovation perspectives and will offer more opportunities for academics and practitioners.

Appendix I: Research Questionnaire



QUESTIONNAIRE

INTRODUCTORY NOTE

As part of the research for my PhD degree on the subject of “Human Resources Innovation through technology in Greece: Factors influencing the adoption, diffusion and exploitation of electronic human resources management (e-HRM) and social media”, I am conducting a study into the capacity of companies operating in Greece to adopt these technologies. For this reason I would be grateful if you could dedicate some of your valuable time to complete this questionnaire, following the guidelines for each question.

The term e-HRM is “an umbrella term that covers all possible integration mechanisms and contents between HRM and Information Technologies aiming at creating value within and across organizations for targeted employees and management” (Bondarouk & Rußl, 2009 p. 507). In practice, it involves the use of Technology for automating human resources processes and for linking the HR department with other departments in a company. The term social media or Web 2.0 relates to a series of technologies, such as blogs, wikis, podcasts, information tagging, prediction markets, and social networks (e.g. Facebook, Twitter, LinkedIn, etc.), which can also be used by the HR department in order to manage human resources.

Your answers will remain confidential and will be used solely and exclusively for the purposes of this study. No individual company will be identified in the written report. If you wish, you may receive a summary of the research once the study has been completed. This questionnaire is anonymous and you are requested to answer each question in accordance with the guidelines.

The information given in this questionnaire will be used for solely research and scholarly purposes. The questionnaire will take less than thirty minutes to complete and I would like to thank you in advance for your cooperation.

If you need more information about this research project please read the Plain Language Statement or you may contact the researcher and/or the scientific supervisors. In addition, if you have any questions on the Ethical Standards of this research you may also contact the Ethics Officer.

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1. How long has your company operated in Greece?					
<i>Less than 1 year</i>	<i>1-4 years</i>	<i>5-9 years</i>	<i>10-20 years</i>	<i>21-30 years</i>	<i>Over 31 years</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. In which sector is your company most active?	

3. Is your company in the process of adopting (or being trained in) a new Information Communication Technology (ICT) that has been deemed essential for its competitiveness?	
Yes	<input type="radio"/>
No	<input type="radio"/>

4. Have you ever attended seminars, courses or training programs on the application of ICTs in HRM?	
Yes	<input type="radio"/>
No	<input type="radio"/>

5. Have you ever attended seminars, courses or training programs for the use of social media such as social networking (e.g. Facebook, Twitter, LinkedIn, Wikis, Blogs, Yahoo, Google, YouTube etc) in HRM?	
Yes	<input type="radio"/>
No	<input type="radio"/>

6. How many full time equivalent permanent people does your organization operating in Greece (not the whole group) employ throughout the year?					
<i>Up to 500 employees</i>	<i>501-1000 employees</i>	<i>1001-1500 employees</i>	<i>1501-2000 employees</i>	<i>Over 2001 employees</i>	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

7. What is your company's size in Greece (not the whole group) in terms of profit?					
<i>€0 – €100 million</i>	<i>€101 – €200 million</i>	<i>€201- €300 million</i>	<i>€301- €400 million</i>	<i>Over €400 million</i>	<i>Don't know</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. What is your company's overall size (the whole group) in terms of profit?					
<i>€0 – €100 million</i>	<i>€101 – €200 million</i>	<i>€201- €300 million</i>	<i>€301- €400 million</i>	<i>Over €400 million</i>	<i>Don't know</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. What is the average age of all your company's permanent full time employees in Greece (not the whole group)?					
<i>Below 25 years old</i>	<i>26 – 34 year old</i>	<i>35 – 44 years old</i>	<i>45 – 54 years old</i>	<i>Above 55 years old</i>	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

10. What is the average number of employment years of the full time equivalent permanent people working in your organization operating in Greece (not the whole group)?					
<i>Up to 3 years</i>	<i>4 - 6 years</i>	<i>7 - 9 years</i>	<i>10 - 12 years</i>	<i>13 - 15 years</i>	<i>Over 15 years</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Does the company have a separate department or division for the study or support of new technological activities (e.g. Information Systems or Information Technology Department)?	
Yes	<input type="radio"/>
No	<input type="radio"/>

12. What is the percentage of your company's permanent employees in Greece (not the whole group) that belongs to each of the below educational categories? Please assure the sum/total is 100 %.

<i>Education Level</i>	<i>Percentage (%) of Company's Employees</i>
Mandatory education (Junior High School)	0%
Secondary education (High School)	0%
Post-High School or further education (Vocational Training College, Technical College)	0%
Higher education (University, Technical Institute)	0%
Graduate studies (Master Degree)	0%
Graduate Studies (Phd Degree)	0%
Total	0%

13. Which of the following organizational forms most closely represents your company's structure?	<input type="radio"/>	<i>A multinational group whose headquarters are located in Greece</i>
	<input type="radio"/>	<i>The subsidiary of a multinational group whose headquarters are located outside of Greece</i>
	<input type="radio"/>	<i>The subsidiary of a multinational group whose headquarters are located in Greece</i>
	<input type="radio"/>	<i>A large Greek Societe Anonyme (SA) limited liability company</i>

14. Where is your company as a whole mostly active (in which of the following markets does it make its greatest profit)?	<input type="radio"/>	<i>In the Domestic Market (ie., throughout Greece)</i>
	<input type="radio"/>	<i>In the International Market</i>

15. When did your company (in Greece) first adopt its major ICT system(s)?					
<i>Never</i>	<i>In the past 3 years</i>	<i>Over 4 - 6 years ago</i>	<i>Over 7 - 9 years ago</i>	<i>Over 10 - 12 years ago</i>	<i>Over 13 years ago</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. When did your company (in Greece) first adopt ICT system(s) specifically for HRM purposes?					
<i>Never</i>	<i>In the past 3 years</i>	<i>Over 4 - 6 years ago</i>	<i>Over 7 - 9 years ago</i>	<i>Over 10 - 12 years ago</i>	<i>Over 13 years ago</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. When your company first became interested in the adoption of ICT for HRM purposes, how experienced and knowledgeable in these technologies were your potential users?					
<i>No knowledgeable and experienced</i>	<i>Little knowledgeable and experienced</i>	<i>Moderately knowledgeable and experienced</i>	<i>Enough knowledgeable and experienced</i>	<i>Very knowledgeable and experienced</i>	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

18. Does your company have a payback period that is used to assess the returns on investment on ICT? If so, how long is it (in years)?

- Does not have a payback period*
- Less than one year*
- 2-3 years from implementation*
- 4-5 years from implementation*
- More than 5 years from implementation*
- I don't know*

19. Which of the following e-HRM and social media technologies or tools are used in your company specifically for human resources management purposes? Please select one answer for each technology.					
<i>Please tick the appropriate box as follows: Used (1), Not Used (2), Will be used in the near future (3), I don't know whether it is used or not (4), I am not sure what this technology is about (5)</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Company's web site – internet	<input type="radio"/>				
Intranet	<input type="radio"/>				
Internet Blogs (or micro blogs) such as Blogspot, Wordpress or Tweeter	<input type="radio"/>				
Intranet Blogs only for company's employees	<input type="radio"/>				
RSS (Really Simple Syndication) through internet	<input type="radio"/>				
RSS (Really Simple Syndication) through intranet	<input type="radio"/>				
Internet based collaborative projects such as wikipedia or social bookmarking	<input type="radio"/>				
Intranet based collaborative projects such as company's wikis	<input type="radio"/>				
Intranet podcasts	<input type="radio"/>				
Internet podcasts	<input type="radio"/>				
Social Networking Sites such as Facebook, LinkedIn, Myspace etc	<input type="radio"/>				
Social networking "space" only accessible by company's employees.	<input type="radio"/>				
Online content communities such as YouTube, Slideshare etc	<input type="radio"/>				
Intranet based content communities only for company's employees	<input type="radio"/>				
Human Resources Information System (HRIS) which is used by the HR function mainly for specific HR processes (ie., payroll, performance management)	<input type="radio"/>				
Managers self-service applications	<input type="radio"/>				
Employees self-service applications	<input type="radio"/>				
Interactive Voice Response Technology (IVR)	<input type="radio"/>				
Virtual Game Worlds such as "World of Warcraft"	<input type="radio"/>				
Mobile technology (e.g. smartphones such as blackberry, i-phone, etc.) that allows employees to access company's applications	<input type="radio"/>				
Intranet Virtual Game Worlds only for company's employees	<input type="radio"/>				
Virtual Social Words such as Second Life	<input type="radio"/>				
Intranet Social Words only for company's employees	<input type="radio"/>				
Enterprise Resource Planning (ERP) that is connected to other departments (ie., accounting, finance, purchasing)	<input type="radio"/>				

20. To what degree do the following statements apply to your company regarding the characteristics of e-HRM technologies?					
<i>Please tick the appropriate box as follows: Strongly Disagree (1), Disagree (2), Neither Agree nor Disagree (3), Agree (4), Strongly Agree (5)</i>					
	1	2	3	4	5
The e-HRM technology was complex and difficult to use	<input type="radio"/>				
The e-HRM technology was not applicable to company's routines and everyday practices	<input type="radio"/>				
The e-HRM technology was not easily exploited by the users	<input type="radio"/>				
The e-HRM technology was totally new in relation to systems and tools that were already in place	<input type="radio"/>				
The e-HRM technology complemented users' previous experience with and knowledge on technology in HRM	<input type="radio"/>				
The company used existing technology vendors without searching for new options	<input type="radio"/>				
The company invested in this technology because other close competitor companies used it	<input type="radio"/>				
The e-HRM technology was simple and user friendly	<input type="radio"/>				
The e-HRM technology was applied easily to company's routines and everyday practices	<input type="radio"/>				
The e-HRM technology was used quickly by the users	<input type="radio"/>				
The e-HRM technology was relevant to systems and tools that were already in place	<input type="radio"/>				

21. Which of the following HRM practices are at least partially automated through your company's e-HRM system(s)?					
<i>Please tick the appropriate box as follows: Not automated at all (1), A little automated (2), Moderately automated (3), Enough automated (4), Very automated (5)</i>					
	1	2	3	4	5
Staff search and selection (e.g. job applications, management of advertising and resumes)	<input type="radio"/>				
Staff recruitment (e.g. personal details, personnel files)	<input type="radio"/>				
Performance evaluation (e.g. personnel evaluation files)	<input type="radio"/>				
Internal company communications (e.g. personnel announcements, newsletters)	<input type="radio"/>				
Communication with third parties outside the company (e.g. through the company website: job announcements, information on the company's working environment, information on the company's organisational chart, etc.)	<input type="radio"/>				

Payroll (e.g. preparation, files)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Benefits (e.g. preparation, files)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Training (e.g. training records, application forms)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Career development plan (e.g. organisational chart, career paths)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Time Tracking (e.g. personnel attendance, absence, leave)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Travel management (e.g. files on business trips, costs, dates)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Health and Safety (e.g. safety regulations, compliance with procedures)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Staff search and selection (e.g. job applications, management of advertising and resumes)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Other. Please indicate	

22. Who and to what extent does your company's e-HRM system serve?					
<i>Please tick the appropriate box as follows: Not at all (1), A little (2), Moderately (3), Enough (4), Very much (5)</i>					
		1	2	3	4 5
The HRM department	<input type="radio"/>				
Company's managers (departmental, functional, seniors, etc.)	<input type="radio"/>				
Company's employees	<input type="radio"/>				
Other stakeholder groups (shareholders, unions, etc.)	<input type="radio"/>				
Groups or individuals without a direct relationship to the company (e.g. future job candidates, future investors, potential future clients, potential future suppliers, etc.)	<input type="radio"/>				
Groups or individuals who have or had a direct relationship with the company (e.g. former company employees, suppliers, clients, insurance agencies, etc.)	<input type="radio"/>				

23. Thinking of your company's adoption of e-HRM technology, how important were the following approaches?					
<i>Please tick the appropriate box as follows: Totally insignificant (1), Quite insignificant (2), Neither insignificant nor important (3), Important (4), Very important (5)</i>					
		1	2	3	4 5
My company first compared different e-HRM systems and afterwards proceeded with acquiring the best available system	<input type="radio"/>				

My company first identified the specifications of different e-HRM options (systems) and, once it had determined which system covered the company's exact needs, it acquired that system	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company first formulated an opinion on the value of different e-HRM systems and then acquired the system it had understood best	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company was well informed about existing e-HRM systems and, having determined the value of each, proceeded with the purchase of the one that was seen to be of most benefit to the company	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company gave priority to existing good relations with specific technology suppliers	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company extended or expanded the HR technology which was already in place because this was easier for the HR function	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company's first preference was to explore whether the in-house IT department could 'design' or 'adapt' existing HR technology systems into an e-HRM system	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
My company first compared different e-HRM systems and afterwards proceeded with acquiring the best available system	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

24. Thinking of your company's adoption of e-HRM technology, how much attention did your company pay to the following factors?					
<i>Please tick the appropriate box as follows: Not at all (1), A little (2), Moderately (3), Enough (4), Very much (5)</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
To learn about the system's advantages and disadvantages	<input type="radio"/>				
To develop a company 'conception' of the system's functionality	<input type="radio"/>				
To determine the 'value' of the system and the benefits for the company through its purchase	<input type="radio"/>				
To understand the system's specifications	<input type="radio"/>				
To recognize the necessity of the system for the company	<input type="radio"/>				
To quickly collect a great deal of information on alternative technological choices	<input type="radio"/>				
To examine the extent to which a specific technology can be 'developed' or 'installed' by the IS or IT department (i.e. without going through an external supplier)	<input type="radio"/>				
To estimate the depreciation period and/or return on investment	<input type="radio"/>				
To cover commercial or client interests (e.g. collaboration with existing clients and suppliers in the technology field)	<input type="radio"/>				
Its functionality (operation) and efficient performance	<input type="radio"/>				
Its user-friendliness (e.g. if it is easy or difficult to use)	<input type="radio"/>				
The number and type of potential problems that might arise during its application	<input type="radio"/>				
The level of user acceptance or rejection of the program (system)	<input type="radio"/>				
The degree of compatibility with the other programs used by the company	<input type="radio"/>				
Its complementarity with the other programs used by the company	<input type="radio"/>				
The degree of complexity in the applications of the system	<input type="radio"/>				

To what extent the specific program (system) is aligned to the company's business strategy	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
The different interests of the users through the use of the specific program (system)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
The level of 'benefits' that the system (program) 'promises' for the companies that use it	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
The development of the general knowledge level of system (program) users	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
The degree of the system's influence on the relationship between the HR department and other departments	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
The possibility of increasing the work performance of system users	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Improving time management of system users	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

25. Thinking of your company's adoption of e-HRM technology, which of the following methods of gathering information on the principles (e.g. components, functionality, etc.) and benefits of the new e-HRM technology did your company follow?

Please tick the appropriate box as follows: *Not at all (1), A little (2), Moderately (3), Enough (4), Very much (5)*

	1	2	3	4	5
Participation in technology conferences	<input type="radio"/>				
Contact with training organisations	<input type="radio"/>				
Contact with company headquarters	<input type="radio"/>				
Contact with other companies in your sector	<input type="radio"/>				
Contact with companies in sectors other than that of your company	<input type="radio"/>				
Contact with specialist technology suppliers that the company had collaborated with in the past	<input type="radio"/>				
Contact with 'new' specialist technology suppliers that the company had not collaborated with in the past	<input type="radio"/>				
Contact with the company's IS or IT department so as to develop the system within the company	<input type="radio"/>				
Research through channels that advertised or promoted new technologies	<input type="radio"/>				
Systematic research on the internet	<input type="radio"/>				
Systematic observation of developments in the ICT sector	<input type="radio"/>				

26. Considering the degree of compatibility between the new e-HRM technology and the prior knowledge and experience of the employees, to what extent do the following scenarios describe your company's situation?					
Please tick the appropriate box as follows: <i>Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), Strongly Agree (5)</i>					
		1	2	3	4 5
The individuals or teams who had to work with the new e-HRM technology <i>interpreted and understood easily</i> this e-HRM system because its principles (e.g. components, functioning etc) were compatible with their prior knowledge on and experience with technology	<input type="radio"/>				
The individuals or teams who had to work with the new e-HRM technology <i>did not interpret and understand easily</i> this e-HRM system because its principles (e.g. components, functioning, etc.) were not compatible with their prior knowledge on and experience with technology	<input type="radio"/>				

Please tick the appropriate box as follows: <i>Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), Strongly Agree (5)</i>					
	1	2	3	4	5
The individuals or teams who had to work with the new e-HRM technology <i>redefined and changed a lot from what they already knew about technology</i> in order to eventually adapt to the logic and frame of this technology because its principles (e.g. components, functioning, etc.) were not compatible with their prior knowledge on and experience with technology	<input type="radio"/>				
The individuals or teams who had to work with the new e-HRM technology <i>did not redefine and change a lot from what they already knew about technology</i> in order to eventually adapt to the logic and frame of this technology because its principles (e.g. components, functioning, etc.) were compatible with their prior knowledge on and experience with technology	<input type="radio"/>				

Please tick the appropriate box as follows: <i>Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), Strongly Agree (5)</i>					
	1	2	3	4	5
After the acquisition of new e-HRM technology, the company <i>interpreted and understood easily</i> this e-HRM system because its principles (e.g. components, functioning, etc.) were compatible with company's prior knowledge on and experience with technology, working processes and everyday routines	<input type="radio"/>				
After the acquisition of new e-HRM technology, the company <i>did not interpret and understand easily</i> this e-HRM system because its principles (e.g. components, functioning, etc.) were not compatible with company's prior knowledge on and experience with technology, working processes and everyday routines	<input type="radio"/>				

Please tick the appropriate box as follows: <i>Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), Strongly Agree (5)</i>					
	1	2	3	4	5
After the acquisition of new e-HRM technology, the company <i>redefined and changed</i> a large part of its previous knowledge, routines and processes that were standard aspects of its daily activity because the principles (e.g. components, functioning, etc.) of the new e-HRM system were not compatible with company's previous knowledge, processes and working habits	<input type="radio"/>				
After the acquisition of new e-HRM technology, the company <i>did not redefine and change</i> part of its previous knowledge, routines and processes that were standard aspects of its daily activity because the principles (e.g. components, functioning, etc.) of the new e-HRM system were compatible with company's previous knowledge, processes and working habits	<input type="radio"/>				

27. To what degree do the following statements apply to your company regarding the exploitation of e-HRM technology?					
Please tick the appropriate box as follows: <i>Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), Strongly Agree (5)</i>					
	1	2	3	4	5
The individuals who worked with new e-HRM technologies typically exploited their potential to create new uses for them	<input type="radio"/>				
The individuals who worked with new e-HRM technologies reorganised daily tasks in a more effective way	<input type="radio"/>				
The individuals who worked with new e-HRM technologies extended and leveraged their existing competencies on technology by incorporating the new system into their standard job	<input type="radio"/>				
The individuals who were called upon to work with these new technologies continued their work as before without any essential change	<input type="radio"/>				
After adopting and diffusing new e-HRM technologies within the organisation, the company gradually began to operate more effectively than before	<input type="radio"/>				

After adopting and diffusing new e-HRM technologies within the organisation, the company created new routines and processes in order to use the system in a better way	<input type="radio"/>				
After adopting and diffusing new e-HRM technologies within the organization, the company incorporated the system into its standard HRM practices and routines	<input type="radio"/>				

28. To what extent were the following a result of the new e-HRM technologies?					
<i>Please tick the appropriate box as follows: Not at all (1), Low (2), Moderate (3), Enough (4), Very much (5)</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Improvement in the quality of HR 'deliverables'	<input type="radio"/>				
Reduction of human error in HR 'deliverables'	<input type="radio"/>				
Reduction of administrative expenses in the HR department	<input type="radio"/>				
Reduction of staff in the HR department	<input type="radio"/>				
Reduction of operating expenses in the HR department	<input type="radio"/>				
The information that the HR department supplied (unilateral communication) to other departments increased	<input type="radio"/>				
The communication between the HR department and the other departments (bilateral communication) was improved	<input type="radio"/>				
Improvement in the speed at which HR department's services were delivered	<input type="radio"/>				
The employees redefined the way they viewed their personal development	<input type="radio"/>				
The company reorganised the way it managed the skills and the talents of its people	<input type="radio"/>				
The company improved its image and reputation internally	<input type="radio"/>				
The company improved its image and reputation externally	<input type="radio"/>				
The employees' relationships were improved	<input type="radio"/>				
The employees' engagement and loyalty was increased	<input type="radio"/>				
The employees' satisfaction was increased	<input type="radio"/>				
The paper work was minimized	<input type="radio"/>				
Some HR staff found more time to get involved with more strategic work	<input type="radio"/>				
The company improved the way it managed knowledge	<input type="radio"/>				
The company's culture towards people management was improved	<input type="radio"/>				
Employees redefined their need for improving their individual knowledge	<input type="radio"/>				
The company improved its technology competencies	<input type="radio"/>				
The HR function improved its reputation	<input type="radio"/>				

Thank you very much for your time and cooperation!

After adopting and diffusing new e-HRM technologies within the organisation, the company created new routines and processes in order to use the system in a better way	<input type="radio"/>				
After adopting and diffusing new e-HRM technologies within the organization, the company incorporated the system into its standard HRM practices and routines	<input type="radio"/>				

28. To what extent were the following a result of the new e-HRM technologies?					
<i>Please tick the appropriate box as follows: Not at all (1), Low (2), Moderate (3), Enough (4), Very much (5)</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Improvement in the quality of HR 'deliverables'	<input type="radio"/>				
Reduction of human error in HR 'deliverables'	<input type="radio"/>				
Reduction of administrative expenses in the HR department	<input type="radio"/>				
Reduction of staff in the HR department	<input type="radio"/>				
Reduction of operating expenses in the HR department	<input type="radio"/>				
The information that the HR department supplied (unilateral communication) to other departments increased	<input type="radio"/>				
The communication between the HR department and the other departments (bilateral communication) was improved	<input type="radio"/>				
Improvement in the speed at which HR department's services were delivered	<input type="radio"/>				
The employees redefined the way they viewed their personal development	<input type="radio"/>				
The company reorganised the way it managed the skills and the talents of its people	<input type="radio"/>				
The company improved its image and reputation internally	<input type="radio"/>				
The company improved its image and reputation externally	<input type="radio"/>				
The employees' relationships were improved	<input type="radio"/>				
The employees' engagement and loyalty was increased	<input type="radio"/>				
The employees' satisfaction was increased	<input type="radio"/>				
The paper work was minimized	<input type="radio"/>				
Some HR staff found more time to get involved with more strategic work	<input type="radio"/>				
The company improved the way it managed knowledge	<input type="radio"/>				
The company's culture towards people management was improved	<input type="radio"/>				
Employees redefined their need for improving their individual knowledge	<input type="radio"/>				
The company improved its technology competencies	<input type="radio"/>				
The HR function improved its reputation	<input type="radio"/>				

Thank you very much for your time and cooperation!

Appendix II: Semi-Structured Interview Guide

E-HRM Questions

1. What were the reasons your company adopted and invested in e-HRM technology?
2. What steps did your company follow in acquiring these technologies?
3. Were your expectations satisfied from the investment in and acquisition of e-HRM technology?
4. Did you observe the generation/creation of new expectations through your company's involvement in e-HRM technology?
5. Did your company face any issues during the process adoption, internalisation/diffusion and exploitation of these technologies?
6. Why do you think that these problems existed and what were the consequences for the company?
7. What were the main factors that enabled or inhibited the outcomes associated with the adoption, diffusion and exploitation of e-HRM? Which factors do you consider to be the most important and why?
8. Besides these problems, what were the positive but unexpected outcomes that your company had not considered prior to the adoption of these technologies?
9. Why do you believe your company tried (or did not try) to recognise the value of the new e-HRM technology before acquiring it?
10. Why do you believe your company understood and incorporated (or did not understand and incorporate) new e-HRM technology?
11. Why do you believe your company redefined and changed (or did not redefine and change) its daily routines and elements that had previously been standard aspects of its daily activity in order to utilise its new e-HRM technology?

12. How much time did your company require in order to adopt, diffuse/integrate and then exploit new e-HRM technology?

Generic Social Media Questions

13. What generic social media tools are used in your company for HRM purposes?

14. Can you describe to me the ways you use these tools (blogs, wikis, podcasts, online data sharing, social networking websites, video sharing, virtual worlds, RSS) and who are their respective audiences?

15. How did your company adopt these tools? Can you describe the steps you followed?

16. When did you start integrating these tools in your e-HRM practices and why?

17. What are those characteristics of employees/users that you think affected most the process of adoption, diffusion and exploitation of generic social media technologies?

18. In what ways did these characteristics affect these processes?

“Internally Built” Social Media Questions

19. Why did your company create social media tools only for its personnel?

20. How did you adopt these tools?

21. How do they use these tools and what is their main use?

22. How intensively are they used and why?

23. Do you have any future plans (e.g., project, thoughts, etc.) on adopting more generic or internally built social media technology? If yes, what kind of technology and for what reason?

Appendix III: Normality Tests

The Kolmogorov-Smirnov Test was used to test the assumption of not normally distributed data regarding the variables used for testing the conceptual model of this thesis. As it can be seen in the below table, the null hypothesis of normal distribution is rejected since p-value < .001 for each item variable.

Question	N	Normal Parameters ^{a,b}		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
q16	200	3.90	1.547	.175	.175	-.167	2.471	.000
q17	200	2.87	1.078	.175	.164	-.175	2.472	.000
q19.1	200	1.81	.397	.493	.312	-.493	6.976	0.000
q19.2	200	1.66	.475	.423	.258	-.423	5.982	0.000
q19.3	200	1.22	.415	.482	.482	-.298	6.815	0.000
q19.4	200	1.22	.415	.482	.482	-.298	6.815	0.000
q19.5	200	1.10	.301	.530	.530	-.370	7.499	0.000
q19.6	200	1.10	.301	.530	.530	-.370	7.499	0.000
q19.7	200	1.12	.326	.524	.524	-.356	7.406	0.000
q19.8	200	1.15	.358	.512	.512	-.338	7.246	0.000
q19.9	200	1.11	.314	.527	.527	-.363	7.454	0.000
q19.10	200	1.11	.314	.527	.527	-.363	7.454	0.000
q19.11	200	1.50	.501	.343	.343	-.338	4.855	0.000
q19.12	200	1.23	.422	.477	.477	-.293	6.748	0.000
q19.13	200	1.17	.377	.504	.504	-.326	7.130	0.000
q19.14	200	1.21	.405	.489	.489	-.306	6.912	0.000
q19.15	200	1.89	.320	.525	.360	-.525	7.431	0.000
q19.16	200	1.35	.477	.420	.420	-.260	5.946	0.000
q19.17	200	1.34	.473	.426	.426	-.255	6.018	0.000
q19.18	200	1.14	.343	.518	.518	-.347	7.329	0.000
q19.19	200	1.06	.238	.539	.539	-.401	7.629	0.000
q19.20	200	1.64	.483	.410	.271	-.410	5.802	0.000
q19.21	200	1.07	.256	.538	.538	-.392	7.606	0.000
q19.22	200	1.06	.238	.539	.539	-.401	7.629	0.000
q19.23	200	1.08	.264	.537	.537	-.388	7.592	0.000
q19.24	200	1.67	.473	.426	.255	-.426	6.018	0.000
q20.1	200	3.54	.913	.260	.180	-.260	3.674	0.000
q20.2	200	3.68	.956	.308	.207	-.308	4.357	0.000
q20.3	200	3.57	.954	.301	.199	-.301	4.254	0.000
q20.4	200	2.96	1.102	.203	.203	-.192	2.873	.000
q20.5	200	3.59	.968	.304	.206	-.304	4.300	0.000
q21.1	200	2.76	1.328	.160	.160	-.146	2.265	.000
q21.2	200	3.69	1.238	.230	.144	-.230	3.258	0.000

q21.3	200	3.19	1.450	.178	.133	-.178	2.518	.000
q21.4	200	3.14	1.375	.214	.137	-.214	3.029	.000
q21.5	200	3.07	1.358	.188	.140	-.188	2.662	.000
q21.6	200	4.36	.918	.309	.241	-.309	4.367	0.000
q21.7	200	3.55	1.235	.242	.120	-.242	3.425	0.000
q21.8	200	3.09	1.251	.183	.137	-.183	2.587	.000
q21.9	200	2.63	1.312	.169	.169	-.167	2.396	.000
q21.10	200	3.84	1.267	.262	.179	-.262	3.702	0.000
q21.11	200	2.65	1.348	.195	.195	-.137	2.760	.000
q21.12	200	2.60	1.303	.202	.202	-.179	2.862	.000
q22.1	200	4.59	.738	.401	.289	-.401	5.667	0.000
q22.2	200	3.59	1.208	.269	.136	-.269	3.809	0.000
q22.3	200	3.01	1.278	.202	.127	-.202	2.855	.000
q22.4	200	1.99	1.178	.295	.295	-.200	4.168	0.000
q22.5	200	2.00	1.139	.275	.275	-.190	3.890	0.000
q22.6	200	1.81	1.132	.348	.348	-.237	4.921	0.000
q24.1	200	4.01	.985	.228	.156	-.228	3.224	0.000
q24.2	200	3.88	.954	.250	.165	-.250	3.536	0.000
q24.3	200	3.98	.935	.299	.201	-.299	4.222	0.000
q24.4	200	4.08	.953	.233	.167	-.233	3.293	0.000
q24.5	200	4.26	.891	.283	.202	-.283	4.009	0.000
q24.6	200	3.44	1.030	.212	.160	-.212	2.992	.000
q24.7	200	3.08	1.266	.181	.163	-.181	2.565	.000
q24.8	200	3.25	1.172	.204	.126	-.204	2.883	.000
q24.9	200	2.59	1.204	.176	.176	-.150	2.495	.000
q24.10	200	4.28	.795	.274	.181	-.274	3.875	0.000
q24.11	200	3.99	.913	.269	.186	-.269	3.809	0.000
q24.12	200	3.73	1.007	.268	.167	-.268	3.784	0.000
q24.13	200	3.09	1.071	.227	.151	-.227	3.213	0.000
q24.14	200	3.82	1.093	.280	.150	-.280	3.966	0.000
q24.15	200	3.72	1.052	.260	.160	-.260	3.676	0.000
q24.16	200	3.46	1.065	.221	.159	-.221	3.120	0.000
q24.17	200	3.63	1.067	.251	.159	-.251	3.544	0.000
q24.18	200	2.89	1.120	.189	.137	-.189	2.675	.000
q24.19	200	3.48	1.042	.276	.184	-.276	3.906	0.000
q24.20	200	3.42	1.076	.247	.168	-.247	3.488	0.000
q24.21	200	3.42	1.109	.236	.154	-.236	3.340	0.000
q24.22	200	3.86	.993	.281	.174	-.281	3.975	0.000
q24.23	200	4.11	.934	.268	.170	-.268	3.792	0.000
q25.1	200	2.36	1.219	.192	.192	-.133	2.712	.000
q25.2	200	2.51	1.199	.188	.188	-.144	2.662	.000
q25.3	200	3.37	1.544	.230	.162	-.230	3.247	0.000
q25.4	200	2.86	1.209	.183	.128	-.183	2.584	.000
q25.5	200	2.61	1.244	.167	.167	-.145	2.357	.000
q25.6	200	3.42	1.104	.262	.173	-.262	3.704	0.000
q25.7	200	3.21	1.150	.234	.151	-.234	3.308	0.000

q25.8	200	3.40	1.352	.261	.118	-.261	3.696	0.000
q25.9	200	2.50	1.236	.197	.197	-.128	2.787	.000
q25.10	200	2.65	1.268	.160	.160	-.157	2.256	.000
q25.11	200	3.20	1.325	.203	.116	-.203	2.874	.000
q26.1	200	3.45	.960	.268	.192	-.268	3.796	0.000
q26.3	200	2.82	1.042	.198	.198	-.167	2.799	.000
q26.5	200	3.41	.897	.281	.199	-.281	3.979	0.000
q26.7	200	2.95	.993	.186	.169	-.186	2.629	.000
q27.1	200	3.74	.828	.358	.262	-.358	5.066	0.000
q27.2	200	3.95	.762	.331	.274	-.331	4.683	0.000
q27.3	200	3.88	.743	.352	.283	-.352	4.975	0.000
q27.4	200	3.94	.874	.320	.230	-.320	4.520	0.000
q27.5	200	3.80	.833	.330	.250	-.330	4.665	0.000
q27.6	200	3.62	.842	.349	.246	-.349	4.937	0.000
q27.7	200	3.58	.948	.333	.227	-.333	4.710	0.000
q28.1	200	4.18	.755	.276	.249	-.276	3.901	0.000
q28.2	200	4.11	.726	.297	.278	-.297	4.207	0.000
q28.3	200	3.47	.966	.245	.175	-.245	3.467	0.000
q28.4	200	2.52	1.147	.182	.155	-.182	2.576	.000
q28.5	200	3.04	1.004	.201	.169	-.201	2.844	.000
q28.6	200	4.22	.756	.268	.242	-.268	3.791	0.000
q28.7	200	3.69	1.034	.293	.177	-.293	4.141	0.000
q28.8	200	4.12	.771	.321	.269	-.321	4.536	0.000
q28.9	200	3.04	1.002	.184	.176	-.184	2.603	.000
q28.10	200	3.10	1.146	.215	.135	-.215	3.044	.000
q28.11	200	3.49	1.070	.270	.170	-.270	3.816	0.000
q28.12	200	3.10	1.087	.200	.155	-.200	2.831	.000
q28.13	200	2.82	1.013	.252	.188	-.252	3.570	0.000
q28.14	200	2.81	1.014	.254	.196	-.254	3.596	0.000
q28.15	200	3.19	1.063	.227	.153	-.227	3.210	0.000
q28.16	200	3.57	.990	.240	.165	-.240	3.391	0.000
q28.17	200	3.63	.990	.288	.202	-.288	4.068	0.000
q28.18	200	3.66	.965	.335	.225	-.335	4.733	0.000
q28.19	200	3.39	1.041	.251	.169	-.251	3.551	0.000
q28.20	200	3.31	.983	.215	.167	-.215	3.043	.000
q28.21	200	3.73	.912	.341	.239	-.341	4.829	0.000
q28.22	200	3.73	.951	.274	.191	-.274	3.872	0.000

Appendix IV: Common Method Biases

The Harman's Single-Factor Test was used to test whether the variance associated to the model threatened the validity of conclusions and whether the systematic measurement error of that variance was not statistically significant. Therefore, it was examined the unrotated single-factor solution for each of this thesis' latent variables (HRM Practices Automation, Knowledge Complexity, ACAP and HRMIO) and as it can be seen in the below tables, the total variance explained for each of these variables was not significant (< 50%) showing that there is no substantial common method bias effect.

HRM Practices Automation
Unrotated Single Factor Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.325	44.378	44.378	4.776	39.797	39.797
2	1.378	11.483	55.861			
3	.920	7.666	63.527			
4	.761	6.343	69.871			
5	.725	6.044	75.915			
6	.613	5.105	81.020			
7	.529	4.407	85.428			
8	.450	3.749	89.177			
9	.385	3.205	92.382			
10	.372	3.102	95.484			
11	.275	2.295	97.779			
12	.267	2.221	100.000			

Extraction Method: Principal Axis Factoring.

Knowledge Complexity**Unrotated Single Factor Total Variance Explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.767	34.248	34.248	3.207	29.159	29.159
2	1.432	13.014	47.261			
3	1.170	10.633	57.894			
4	.998	9.068	66.962			
5	.751	6.829	73.791			
6	.679	6.175	79.966			
7	.613	5.572	85.539			
8	.506	4.600	90.139			
9	.449	4.083	94.222			
10	.347	3.158	97.379			
11	.288	2.621	100.000			

Extraction Method: Principal Axis Factoring.

ACAP**Unrotated Single Factor Total Variance Explained Total Variance Explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.748	30.550	30.550	13.148	29.218	29.218
2	2.920	6.488	37.038			
3	2.424	5.387	42.425			
4	2.030	4.511	46.936			
5	1.889	4.198	51.135			
6	1.608	3.573	54.708			
7	1.548	3.439	58.147			
8	1.307	2.905	61.052			
9	1.214	2.698	63.750			
10	1.020	2.266	66.016			
11	.979	2.175	68.191			
12	.928	2.063	70.254			
13	.897	1.992	72.246			
14	.830	1.845	74.091			
15	.761	1.690	75.781			
16	.708	1.574	77.355			
17	.694	1.543	78.898			
18	.650	1.444	80.342			
19	.604	1.342	81.684			
20	.586	1.303	82.987			

21	.561	1.246	84.233
22	.495	1.100	85.333
23	.483	1.074	86.408
24	.472	1.050	87.457
25	.446	.991	88.448
26	.421	.936	89.384
27	.415	.922	90.305
28	.368	.819	91.124
29	.348	.774	91.898
30	.334	.741	92.639
31	.324	.721	93.360
32	.318	.707	94.066
33	.303	.673	94.740
34	.294	.654	95.393
35	.280	.622	96.016
36	.253	.563	96.579
37	.251	.558	97.136
38	.223	.496	97.632
39	.200	.443	98.076
40	.182	.404	98.480
41	.173	.384	98.865
42	.160	.357	99.221
43	.134	.298	99.519
44	.119	.264	99.783
45	.098	.217	100.000

Extraction Method: Principal Axis Factoring.

HRMIO

Unrotated Single Factor Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.693	48.602	48.602	10.202	46.372	46.372
2	1.967	8.941	57.544			
3	1.489	6.768	64.311			
4	.920	4.182	68.493			
5	.850	3.863	72.357			
6	.610	2.772	75.129			
7	.593	2.694	77.822			
8	.561	2.551	80.373			
9	.528	2.401	82.775			
10	.501	2.278	85.052			
11	.480	2.183	87.235			
12	.415	1.887	89.122			
13	.375	1.706	90.828			
14	.318	1.443	92.271			
15	.311	1.412	93.683			
16	.270	1.228	94.911			
17	.232	1.055	95.965			
18	.215	.977	96.942			
19	.197	.895	97.837			
20	.166	.754	98.591			
21	.160	.725	99.316			
22	.150	.684	100.000			

Extraction Method: Principal Axis Factoring.

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