IT Alignment of Performance Measurement System: the case of Thai government

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Abstract

This study explores IT alignment in the public sector using the case of Thai government agencies and performance measurement system. The concept of IT alignment highlights the importance of seamlessly integrating organisational objectives with supporting information systems to enhance long-term organisational performance. The ramifications of IT misalignment, such as inefficient resource allocation and project failures, present challenges to organizational objectives. Despite its significant impact, factors influencing alignment have received limited empirical attention, particularly in the context of public organisations. Given its strategic pedigree, IT alignment has been predominantly conceived as a strategic concept largely overlooking the social dimension of aligning. Social IT Alignment (SITA) encounters challenges, notably in users' resistance, interdepartmental collaboration, and personnel influence. Furthermore, bureaucratic structures significantly impact IT alignment, complicating connections between IT systems, organisations, people, and their practices.

The study explores the post-implementation alignment of IT system to examine misalignment from the perspective of system users. The research explores a bottom-up approach to IT alignment in the public sector, placing emphasis on user experience methodologies. Theoretically, the study builds on alignment literature. Methodologically, the study adopts a case study design focusing on the operation of performance measurement system in Thai government. The study employs a qualitative inductive approach with purposive sampling and analysis of 38 semi-structured interviews.

The findings highlight a nested character of alignment, where the causes of misalignment can be traced to different operational stages including e-Report, e-Reporting, IT projects, and public management systems. Within these stages, the study identifies several factors that hinder alignment. The findings contributing to a nuanced understanding of effective IT alignment strategies tailored for the unique context of the public sector. The exploration integrates a bottom-up approach to IT alignment in the public sector, with a specific focus on the Thai public sector. It delineates the incorporation of user experience methodologies in both IT implementation and information system strategic alignment.

Based on the findings, this study presents a comprehensive framework for IT alignment within a public sector organization. This framework is specifically tailored for facilitating the effective implementation of IT alignment in public organizations. Additionally, the misalignment model incorporates 12 factors categorized into 4 stages. Although limitations in the research may exist, the study proposes avenues for future research to expand upon the current understanding of IT alignment.

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Author's Declaration

"I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution".

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Signature:

List of Abbreviations

BSC	The Balanced Scorecard
BITA	Business-IT Alignment
BITMA	Business-IT Misalignment
eSAR	The Electronic Self- Assessment Report
GG	Good Governance
GT	Grounded Theory
GTM	Grounded Theory Methodology
PDC	The Public Sector Development Commission
PMS	Performance Measurement System
PSDG	The Public Sector Development Group
PS-ITA	Public Sector IT Alignment
PS-ITMA	Public Sector IT Misalignment
OPDC	The Office of Public Sector Development Commission
SAR	Self-Assessment Report
SITA	Social IT Alignment
SITMA	Social IT Misalignment

Chapter 1 Introduction

1.1 Introduction

This chapter presents an overview of the thesis, providing background information and theoretical underpinnings. It explains the chosen research setting, specifies the research objective, and outlines the research questions. The chapter also briefly discusses the methodology and its claimed contribution, providing an outline of the thesis structure.

1.2 Research Background

The concept of aligning Information Technology (IT) has been extensively explored due to its profound impact on organizational performance including the attainment of a competitive edge, improvement in profitability, and bolstering agility (Amarilli et al., 2023). Scholars have attempted to define IT alignment, a task that poses challenges in precision and clarity for researchers. Some contributions have lacked a definition altogether (Maes et al., 2000), whilst other works presented varied conceptions. One of the most notable definitions of alignment is the concept of "fit," proposed by Henderson and Venkatraman (1993), and "harmony," introduced by Luftman (2001). Luftman et al. (1993, p. 204) describe alignment as "the extent to which the IS strategy supports, and is supported by, the business strategy." These variations in terminology and conceptualization arise from differences in academic disciplines (Rusu and Jonathan, 2017a); for instance, "fit" is commonly used in the strategic management discipline, while "alignment" is almost exclusively employed in information systems literature. Unsurprisingly, IT alignment has drawn considerable attention of scholars and practitioners alike (Byrd et al., 2006, Gerow et al., 2016, Ilmudeen et al., 2023, Luftman, 2003, Pelletier et al., 2021, Chan et al., 1997) and the topic has been a subject of extensive research over the last few decades (Kappelman et al., 2019, Kappelman et al., 2021). It was initially recognized in academia in the 1970s with seminal works like McLean and Soden (1977) and remains a pertinent topic for IT leaders and professionals. The Society for Information Management (SIM) has consistently identified IT alignment as a significant concern in their annual Chief Information Officer (CIO) polls since 2009 (Kappelman et al., 2019, Benbya et al., 2019). The benefits of achieving IT alignment are substantial. When IT strategies align seamlessly with business strategies, organizations can enhance operational efficiency, reduce costs, performance enhancement (Njanka et al., 2021) improve service quality, foster innovation, and gain a competitive edge in the dynamic business landscape (Preston and Karahanna, 2009, Jobarteh et al., 2020, Jonathan, 2020, Sha et al., 2020, Rusu

and Jonathan, 2017b). As a result, substantial investments in IT necessitate effective management and control to ensure the ongoing alignment of business and IT (Njanka et al., 2021).

Alignment encompasses various levels, both strategic and operational (Amarilli et al., 2023), and involves multiple dimensions (Chan and Reich, 2007b), such as strategic/intellectual, structural, social, and cultural. Strategic IT alignment is defined as the extent to which the business strategy and plans align with the IT strategy and plans, potentially leading to enhanced organizational performance (Henderson and Venkatraman, 1989, Benbya et al., 2019). The structural dimension is the congruence of business and IT processes and infrastructures. The social dimension has typically involved a shared understanding among business and IT executives (Reich and Benbasat, 2000, Wagner et al., 2014, Ridwansyah and Rusu, 2020, Pelletier et al., 2021). While much emphasis has been placed on strategic IT alignment, both strategic and structural alignment contribute to shaping organizational performance. Additionally, alignment is intricately connected to numerous social aspects within an organization (Reich and Benbasat, 1996, Chan and Reich, 2007a). Despite the prevailing focus of existing research on strategic alignment and the exploration of successes and failures in IT alignment in organizations, the investigation of factors influencing alignment has continued for decades.

The social dimension refers to the state in which business and IT executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans (Reich and Benbasat, 2000). This dimension delves into individuals within organizations, specifically business executives and IT executives, exploring their values, interpersonal communication, and, fundamentally, their understanding of each other's domains (e.g., Reich and Benbasat, 2000, Schlosser, 2012, Alaceva and Rusu, 2015, Ridwansyah and Rusu, 2020, Levkov et al., 2023). Dulipovici and Robey (2013) and Coltman et al. (2015) emphasize that achieving strategic alignment necessitates attention to the complex social processes influencing how an information system is actually used. The imperative nature of studying social alignment is underscored by its recognized pivotal role in organizational success (Chan and Reich, 2007b). Highlighting the significance of the social dimension, Karpovsky and Galliers (2015) stress its dynamic nature, influenced by various organizational actors and grounded in team collaboration, integrated planning, and proactive communication between the business and IT sectors. Recognizing and understanding the dynamics of social alignment is crucial for achieving a comprehensive

understanding of how IT and business strategies align and interact within the organizational context.

Social IT alignment is a keystone for achieving successful strategic IT alignment within organizations (Jia et al., 2018, Ridwansyah and Rusu, 2020, Hu et al., 2023, Levkov et al., 2023, Alaceva and Rusu, 2015, Wagner et al., 2014). Highlighted prominently in academic discourse, its importance lies in fostering collaboration between business and IT personnel across every organizational tier. Rather than merely focusing on strategy, the social dimension focuses on shaping perceptions and driving actions of all stakeholders, ranging from executives to operational staff engaged in the alignment journey. Rooted in the foundational works of scholars like Reich and Benbasat (2000), this dimension accentuates the relationships between top-tier executives. Moreover, subsequent research, such as by Levkov et al., 2023; Ridwansyah and Rusu, 2020; Alaceva and Rusu, 2015; Chan and Reich (2007a); Chan (2002); and Ghosh and Scott (2009), has broadened this perspective to also encapsulate informal interactions between business and IT teams, underscoring the holistic essence of social IT alignment in organizational success. While the current literature addressing the social alignment dimension primarily centres on the understanding and commitment of business and IT executives within an organizational unit to the business and IT mission, some scholars argue that the social dimension has not received as much attention compared to the intellectual facets or strategic alignment of Business-IT Alignment (BITA) (Alaceva and Rusu, 2015, Schlosser et al., 2015, Ridwansyah and Rusu, 2020).

While strategic alignment is pivotal, the operational level equally contributes significantly to translating strategic plans into day-to-day activities (Fadi et al., 2020, Kurti et al., 2013, Wagner et al., 2014). Operational alignment is defined as a predetermined set of managerial mechanisms crafted to convert strategic alignment into actionable steps (Wagner and Weitzel, 2012). This intricate process involves translating strategic plans into practical, day-to-day activities, thereby yielding value from routine operations. At the operational level, individual actors execute tasks, utilize information technology, and conform to management expectations (Vander Elst and De Rynck, 2014) . This operational level plays a crucial role in ensuring the successful implementation, maintenance, and utilization of planned applications (Tarafdar and Qrunfleh, 2009). Despite a few operational alignment studies conducted in private firms, such as aerospace (Wagner and Weitzel, 2012), and Swiss municipality (Walser et al., 2016), the substantial contribution of the operational level to the achievement of IT alignment has been overlooked. It is noteworthy that empirical research on alignment at the operational level is scarce (Wagner and Weitzel, 2006). Scholars have

called for an in-depth study of the social alignment dimension from the operational perspective (Wagner and Weitzel, 2012, Walser et al., 2016, Wagner and Weitzel, 2006, Zhou et al., 2018, Chan, 2002, Meijer and Thaens, 2010, Rusu and Jonathan, 2017a).

Despite concerted efforts, organizations continue to grapple with achieving business-IT alignment, as substantiated by multiple studies (Alghazi et al., 2018, El-Telbany and Elragal, 2014, Fadi et al., 2020, Jobarteh et al., 2020, Luftman et al., 1999b, Wang and Rusu, 2018, Őri, 2016). Previous research has predominantly emphasized the positive impact of alignment on overall business performance, often overlooking obstructive challenges (Alaceva and Rusu, 2015). Despite Business-IT alignment (BITA) remaining a prominent concern for top management, scholars are actively striving to understand the factors that distinguish between alignment and misalignment (Fadi et al., 2020, Jobarteh et al., 2020). Understanding factors hindering IT alignment is significant as it allows organizations to address and mitigate these challenges. Overcoming hindrances can lead to improved alignment, ultimately enhancing organizational performance. Additionally, changes in the public organizational context emerge as critical factors, urging scholars to pay attention to them. The challenges of achieving and maintaining business-IT alignment underline the necessity of addressing its barriers (El-Telbany and Elragal, 2014, Alghazi et al., 2018, Gbangou and Rusu, 2016, Jonathan et al., 2020c, Őri, 2016). This study aims to fill the gap in understanding operational-level challenges in achieving the social dimension of IT alignment. Limited research has explored this aspect, especially in the implementation of IT systems within public sector organizations. The focus is on comprehending IT alignment in public organizations and developing a framework to effectively manage IT implementation for achieving and sustaining IT alignment.

1.3 Research Setting: IT alignment in the Thai public sector

The adoption of information technology systems plays a crucial role in public administration. Its impact extends across both public and private sectors, driving transformative changes in areas like healthcare, education, and social welfare. From basic data storage to advanced solutions like e-government and cloud systems, information technology has become indispensable in modern governance, enhancing efficiency, transparency, and accessibility (Twizeyimana and Andersson, 2019, Distel et al., 2019, Alruwaie et al., 2020, Pashutan et al., 2022). This digital transformation has elevated IT from a mere support function to a strategic cornerstone within organizations (He et al., 2021). Numerous studies have affirmed IT's pivotal role in enhancing public sector efficiency, management, and performance

(Andersen, 2002, Chadwick and May, 2003, Danziger and Andersen, 2002). IT's potential as a key driver for cost-efficiency in public organizations has been underscored by Bekkers and Homburg (2007), Dunleavy et al. (2006) and Osborne (1993).

Scholars argue that directly applying findings from IT alignment research in the private sector to the public sector is impractical, given the distinct characteristics of public organizations and other influential factors within the IT alignment context (Jonathan, 2020, Rusu and Jonathan, 2017b, Vander Elst and De Rynck, 2014, Sawyer et al., 2008). Public organizations exhibit common traits including a system of rational rules and procedures, structured hierarchies, formalized decision-making processes, and progression based on administrative expertise (Bozeman, 1979, Parker and Bradley, 2000). These sectoral disparities prompt government organizations to adopt varied approaches, potentially leading to different outcomes, as demonstrated by Sawyer et al. (2008). In contrast to private firms, public organizations are influenced by political control rather than market forces, with external factors encompassing political influences rather than competition and consumer constraints (Parker and Bradley, 2000). Furthermore, political considerations often take precedence over financial ones in driving public sector organizations (Perry and Rainey, 1988). These distinctive characteristics underscore the incompatibility of applying outcomes from private sector IT alignment research to the public sector, as the uniqueness of public organizations requires different strategic preferences for alignment.

Furthermore, there is a dearth of research on IT alignment within the context of public organizations (Rusu and Jonathan, 2017a, Winkler, 2013, Vander Elst and De Rynck, 2014), particularly in Asian or Eastern countries (Maynard, 2007). Several researchers contend that achieving IT alignment is particularly challenging in the public sector, characterized by highly pluralistic structures (Winkler, 2013, László et al., 2017, Llamzon et al., 2021). The complexity of public organizations, marked by multiple stakeholders with diverse interests and administrative and political tensions, further compounds this challenge (Denis et al., 2007).

Studying IT alignment in the Thai Public Sector is crucial due to its significant impact on enhancing efficiency, effectiveness, service delivery, decision-making, cost management, risk mitigation, collaboration, transparency, and accountability. The Thai public sector, characterized by a centralized government, a historically influential monarchy, and a deeply institutionalized public structure, has undergone substantial transformation over time through significant reforms aimed at enhancing efficiency, effectiveness, and responsiveness to citizens' needs (Sutheewasinnon et al., 2016). These reforms have included the

decentralization of power, the integration of performance-based management systems, and the promotion of citizen involvement in decision-making processes. All of these characteristics make Thai public organizations an interesting case study.

There is a pressing need for a more systematic study of IT alignment within the Thai context. The allocation of several billion Baht by the Thai Budget Bureau to various public departments for IT projects each year signifies a concerted effort to enhance citizen services and bolster national competitiveness (Editorial, 2022). This investment is in line with Thailand's ambitious 4.0 model for digital transformation, which emphasizes the crucial role of increased productivity and efficiency in meeting citizens' needs (Abdelhakim et al., 2022). However, achieving these goals necessitates supportive policies and regulations aligned with national development objectives. Consequently, public departments have been spurred to invest in IT infrastructure and information systems to digitize services and optimize internal administration processes. Notable projects such as eSAR, e-Budgeting, and eProcurement have been developed to facilitate this transition. Despite the substantial financial commitment to IT, there remains a glaring gap in exploring IT alignment within Thai public organizations, as none currently exist. This oversight risks failing to ensure that IT initiatives are effectively aligned with organizational objectives. Therefore, a comprehensive study is essential to identify areas of need and development, facilitating progress in this regard. Therefore, the Thai public sector presents an ideal context for such an investigation, as it holds the potential to significantly enhance organizational effectiveness and service delivery through proper IT alignment.

The focus of this study centres on a significant IT system known as the performance reporting system within the performance measurement system (PMS), operated by a central agency, namely The Office of Public Sector Development Commission (OPDC). A Performance Measurement System (PMS) is a framework used to assess the efficiency, effectiveness, and overall, of an organisation, its department or its employees. This system, also referred to as the electronic reporting system (e-Report system) or electronic Self-Assessment Report (eSAR), plays a critical role in monitoring the performance of government departments under Thai Ministries. Through monitoring and the Self-Assessment Report (SAR), organizations' performance progress is meticulously detailed. The e-Report system facilitates tracking progress towards achieving organizational goals, identifying areas for improvement, making informed decisions, and aligning organizational efforts with strategic objectives. The study zooms in on the departmental level under ministries, where the emphasis on IT alignment in performance measurement systems is

paramount for two primary reasons. Firstly, the adoption of the performance measurement system (PMS) following the civil service reform in 2002 has spurred significant changes, fostering accountability, transparency, and improvements in decision-making, efficiency, and effectiveness. Government employees, well-versed with the PMS, are well-positioned to offer valuable insights into IT alignment efforts. Secondly, the development of the eSAR system highlights Thailand's ongoing digital transformation. Moreover, with the recent announcement of a digital transformation roadmap by the Thai government (DGA, 2022), there exists a unique opportunity to comprehensively assess the current progress in digitalization and information technology usage. This presents a valuable opportunity to explore the utility of integrating IT systems for reporting and evaluating performance measurement systems in public organizations in Thailand. Such an assessment is imperative for ensuring that IT initiatives closely align with organizational objectives, thereby facilitating the achievement of strategic goals and better serving the needs of citizens and society.

1.4 Aims and Objectives of Study.

The primary objective of this study is to delve into the intricacies of social IT alignment at the operational level within public organizations. Specifically, the focus is on addressing the challenges faced by public employees—the main actors in day-to-day operations — post the implementation of an online performance measurement system. A key emphasis was placed on understanding these challenges from the perspective of end-users. By identifying factors that hinder the achievement of IT alignment, the research aims to shed light on the complex dynamics involved in comprehending and managing IT alignments, which are pivotal for synchronization within the public sector.

The study explored the interrelationships among IT systems, IT projects, and public management administration within public organizations. The overarching goal is to unearth potential misalignments, particularly from an operational level perspective. Furthermore, the study seeks to bridge the existing theoretical and implementation gap by developing a comprehensive framework for reducing misalignment. This framework is carefully designed to assist Thai public policymakers in navigating challenges related to IT misalignment, thereby facilitating the implementation of more effective alignment strategies. The comprehensive exploration and analysis within this study aim to provide practical insights and actionable recommendations for improving the alignment of IT initiatives within the operational landscape of Thai public organizations.

The specific research questions include:

1. How is IT alignment perceived and how are the challenges of IT alignment addressed in public organization?
2. How do government employees perceive and experience the alignment of IT systems with their work processes, and what factors shape these perceptions in public organizations?
3. How can public organisations effectively ensure IT alignment and minimize IT misalignment from the user's perspective?

The study's broader objective is to contribute to a nuanced understanding of how social IT alignment can be achieved and sustained from an operational viewpoint post-implementation of IT systems. Identifying factors that impede the achievement of IT alignment would enable public organizations and policymakers to be aware of hindrances and issue necessary policies to prevent IT alignment failure. The successful accomplishment of IT alignment is anticipated to result in enhanced operational efficiency, reduced costs, improved service quality, convenience, innovation, and learning opportunities across public organizations (Ndou, 2004, Kim and Kim, 2020, Jonathan et al., 2022).

1.5 Research Methodology

This research employs a qualitative case study with grounded theory approach, to comprehensively explore the perceptions and experiences of users regarding IT alignment. The study also investigates the factors contributing to misalignment from a social dimension, particularly at the operational level. The adoption of the grounded theory approach is especially appropriate given its focus on discovering original insights related to the organized dynamics among individuals within society and how these interactions and engagements actively influence the construction of reality (Glaser and Strauss, 1967). The study examines the specific circumstances and perspectives within a particular case study setting, focusing on public sector departments located in Thailand. Central to this research is an investigation into the principal information technology system utilized within these organizations for a performance measurement system.

The participants in this study were purposefully selected (Bryman, 2016) from public departments under the ministries in Thailand. The utilization of a purposive sampling technique aimed to identify informants actively engaged in adopting IT systems, given their potential to illuminate the variables and constructs directly impacting the achievement of IT

alignment. By selectively choosing informants intimately involved with the subject of investigation, the study ensures that the collected data provided valuable insights into the realities and intricacies of IT alignment in public sector organizations.

The research methodology exclusively relies on interviews for data collection. Semi-structured interviews with informants were chosen due to their dynamic and flexible nature, providing profound insights into participants' perceptions and experiences (Opdenakker, 2006, Baker and Edwards, 2012, Cederblom, 1982). The primary objective was to extract comprehensive and nuanced information regarding the experiences of users involved in the IT project for performance measurement system. This interview-only approach allows for thorough qualitative examination, providing a holistic understanding of the factors influencing IT alignment within public agencies in Thailand.

1.6 Intended Contributions

Existing studies consistently reveal that organisations excelling in aligning their business and IT strategies tend to outperform those grappling with alignment challenges (Luftman et al., 2015, Ilmudeen et al., 2019, Pashutan et al., 2022). However, the failure to extract value from IT investments often results from a lack of alignment between an organization's business and IT strategies. Successful alignment, on the other hand, has the potential to significantly enhance the strategic utilization of IT, consequently improving overall organizational performance (Gerow et al., 2015). These critical findings underscore the compelling need for heightened academic attention to the field of IT alignment.

A comprehensive analysis of existing literature reveals a predominant focus on IT alignment studies within westernized and developed nations, such as Australia, the USA, and Sweden (Rusu et al., 2012, Wagner and Weitzel, 2012). In contrast, limited research has been conducted in developing countries like Nigeria, and no studies to date have explored culturally and bureaucratically similar Asian countries, such as Thailand. Notably, there is also a notable absence of comparative IT alignment studies between developed and developing nations (Sundoro and Wandebori, 2021, Ridwansyah and Rusu, 2020). Against this backdrop, this research aims to advance the understanding of IT alignment theory within public organizations, concurrently illuminating the factors contributing to social IT misalignment at the operational level within the specific context of Thailand as a developing nation.

The proposed alignment framework has the potential to make a substantive contribution to the current body of knowledge by enhancing and refining existing strategic alignment frameworks. This not only opens avenues for further theoretical and practical development but also provides a deeper insight into IT alignment processes within a global context. Moreover, the framework can serve as a valuable roadmap for other developing countries sharing similar cultural and bureaucratic contexts, thereby enhancing the study's generalizability.

A primary aspiration of this study is to make an impact on practice: to equip policymakers, public sector leaders, and public employees with valuable insights that help to deliver high-quality services and products tailored to the specific demands and needs of the citizenry. The research deeply investigates how elements such as IT systems, IT projects, and public management administration influence the achievement and attainment of IT alignment.

An understanding of these factors would empower policymakers to make informed decisions regarding IT adoption and enable more effective adaptation to the fast-paced environment of innovation and competitive markets.

The implications of this study extend beyond the borders of Thailand. The findings are relevant to other Southeast Asian nations that share similar cultural nuances and democratic contexts. Further, they extend to other public sector settings grappling with digital transformation. Acknowledging the transferability of these findings, policymakers and practitioners can leverage this knowledge to inform their strategies and initiatives. This research holds significant potential for fostering the efficacy and efficiency of public sector organizations, both within and beyond the confines of Thailand.

In addition, the study aims to craft a practitioner-oriented framework for IT alignment action plan, intending to provide comprehensive guidance for organizations seeking to achieve IT alignment while actively preventing misalignment. This framework stands as a valuable resource for top-tier management, including departmental directors, executive cabinet teams, and IT practitioners, offering insights into the intricacies of attaining IT alignment within IT systems. This initiative is poised to significantly narrow the knowledge gap in this domain. By proposing Thai public organizations as a case study, this research endeavours to illustrate successful approaches to achieving IT alignment while meticulously avoiding obstructive social IT misalignment factors. The implications of this study reach beyond the theoretical realm, presenting tangible contributions to organizations striving to enhance their IT alignment. Essentially, this research transcends academic literature, providing a practical blueprint that practitioners can utilize to refine IT alignment strategies, thereby elevating organizational performance and competitiveness in the digital age. The outcomes are specifically tailored to benefit policymakers, aiding them in formulating policies and plans that ensure the success of IT alignment within the ever-evolving landscape of information technology.

1.7 Structure of the thesis

The current thesis is organised as follows.

Chapter 1: Introduction.

This opening chapter serves as a foundation for the study, providing essential information about the problem's background.

Chapter 2: Literature Review

The chapter is structured into two main sections for a thorough analysis of scholarly works. The first part delves into the Public Management system, followed by IT alignment, covering its definitions, historical context, and insights into its importance. It explores various alignment dimensions, including intellectual and social aspects. The second part focuses on the social dimension of alignment, addressing IT misalignment and operational barriers to successful IT implementation. It also introduces a study on user resistance, recognized as a crucial factor in the failure of implementing new electronic systems.

Chapter 3: Research Methodology

This chapter comprehensively outlines the research methodology utilized in this study. It succinctly explains the chosen approach, research design, data collection and analysis methods, and strategies to ensure research validity and reliability.

Chapter 4: Study Findings

This chapter presents the findings from a qualitative semi-structured interview with public employees who have experience utilizing the IT system. t. The interviews delve into the perspectives and concepts held by informants regarding IT implementation. Valuable insights and perspectives have been extracted, shedding light on their experiences and perceptions related to IT implementation challenges.

Chapter 5: Discussion

This chapter provides a detailed analysis of the findings. The discussion with previous literature enhances understanding and adds nuance to existing knowledge. The analysis introduces new terms for IT alignment, factors that hinder IT alignment, and a misalignment model encapsulating the dynamic relationship of misalignment stages during implementation. The action plan is designed and purposed to enhance alignment between

information technology and public organizations. This chapter offers an extensive examination of the research findings, exploring their implications and potential applications.

Chapter 6: Conclusion

The conclusion offers a comprehensive summary of the research findings. Additionally, it discusses the substantial contributions made by this research to the issue of IT misalignment within public sector organizations. The chapter also addresses the study's limitations and provides valuable suggestions for future research in this field.

Chapter 2 Literature Review

2.1 Introduction

This chapter serves as the essential literature review for the study, offering a thorough analysis of pertinent scholarly works. The primary goal is to establish a comprehensive understanding of the IT alignment and its challenges to achieve IT alignment in public organisation. It begins by providing background information on the public management system, followed by the alignment concept, including a brief discussion of its historical development, a definition of alignment, and models that encompass multiple dimensions of IT alignment. By exploring the critical role of IT alignment in government organizations, the chapter aims to cultivate a shared appreciation for its value in this domain. Subsequently, it delves into the concept of social IT alignment at the operational level, highlighting obstacles that impede the achievement of efficient business-IT alignment. A relevant study on user resistance in regard to IT implementation is included. The chapter concludes with an evaluation of the presented findings and highlights research gaps.

2.2 Public Management System

A public sector organization, owned or controlled by the government, is dedicated to providing public goods and services to the community (Vasyunina et al., 2022). Unlike profit-driven entities, these organizations prioritize serving the public interest (Benington and Moore, 2010) and play a crucial role in overseeing the social, economic, and political aspects of a country. Public Management System is crucial in shaping the operations and effectiveness of public sector organisation, which are dedicated to fulling societal needs and fostering accountability and transparency in government (Pollitt and Bouckaert, 2017, Hood, 1991). It involves strategic planning and the implementation of policies and procedures within these entities (Lynn Jr, 2006). Unlike profit-driven entities, public sector organizations, owned or controlled by the government, prioritize serving the public interest (Benington and Moore, 2010), playing a crucial role in overseeing a country's social, economic, and political aspects. Public sector organisations, guided by managerial practices, continuously transform to enhance efficiency and adopt a more business-like approach Action controls, such as rules and procedures, have been pivotal in public organisation (Verbeeten, 2008), making them significant subjects for researcher to explore.

This study examines social IT alignment within Thai public organisations operating under a bureaucratic governing system. The term 'bureaucracy' is often viewed negatively in the realm of organisational studies, as it is commonly associated with inefficient processes, complex regulations, excessive bureaucratic paperwork, and significant challenges in addressing customer or user needs (Ferreira and Serpa, 2019). These perceptions substantially impact discussions on state governance, public administration, service delivery, and business operations.

However, biased portrayals frequently challenge and undermine the scholarly interpretations of bureaucracy, which include the seminal work of Max Weber. In his examination, Weber outlined a structure consisting of eight key characteristics that encapsulate the essence of bureaucratic administration (Weber, 1966; cited in Ferreira, 2019): (1) Definition of functions through law, entailing the formalization of roles and regulations. (2) Hierarchical authority structure, emphasizing the importance of abiding by legitimate order.(3) Selection and evaluation of employees based on their technical competence. (4) Formal social relationships established according to one's positional rank.(5) Stability in wages, ensuring a consistent income for employees and a secured pension post-retiremen.(6) Clear separation between the ownership and the functions performed by employees. (7) Provision for a regular and systematic career progression over time and (8) Highly specialized and standardized division of work. These principles highlight the systematic, rule-bound nature of bureaucracy and the expectations placed on its operators. The next section introduces relevant perspectives on public management systems influencing IT alignment in public organizations.

It is crucial to note the distinction between the Public Management System and the Performance Measurement System (PMS) amid potential confusion. The Performance Measurement System (PMS) centers on performance indicators, data collection, analysis, and feedback. In contrast, the Public Management System is specifically designed to oversee public resources and services, ensuring that public sector organizations fulfill their mandates and meet public demands effectively. This thesis focuses on an IT system that serves the purpose of a Performance Measurement System, while the Public Management System governs public organizations in shaping their operations and enhancing their effectiveness.

2.2.1 Rules, Regulation and Practice

When viewing organisations using an organisational theory perspective, it is common to associate them with rational systems that are based on rules. This association forms the basis of bureaucracies, with regulation playing a crucial role (Beck and Kieser, 2003, Cyert and March, 1963). According to Henningsson and Eaton (2023), regulation encompasses establishing a distinct boundary between actions regarded as legal and those deemed illegal. This demarcation is explicitly defined in formal documents such as legislation, command (governmental instructions with legal authority), and implementing provisions (legally binding instructions that specify how legislation should be enforced). This principle above emphasises the argument made by Sullivan (2010) that comprehending organisational behaviour is contingent upon the establishment and compliance with rules. Von Wright (1951) concurs with this sentiment, asserting that norms serve as guiding principles for commendable behaviour, delineating suitable acts within specific contexts. To avoid substantial disagreements, it is imperative to acknowledge that rules are prescriptive principles rather than factual assertions

It is common practice to formally record regulations to enhance comprehensibility and specificity (de Vaujany et al., 2015, 2018). Von Wright (1951) asserts that documenting norms might improve their clarity and establish a rationale for their implementation. The elements commonly found in written rules encompass the following: 1) the nature or objective of the rules, such as their function in prohibiting, guiding, or granting permission; 2) the individuals who are obligated to adhere to these rules; 3) the specific conditions under which the rules are applicable; 4) the specific behaviours that the rules regulate; and 5) the entity or individual with the authority to establish and enforce these rules. Consequently, written regulations, namely those related to technology, have become essential to contemporary institutions (Cyert and March, 1963; Crozier and Friedberg, 1977; cited in de Vaujany et al., 2015).

Rules can be derived from internal and external sources (de Vaujany et al., 2015). The process of internal rulemaking involves individuals formulating rules based on existing practices. For instance, someone responsible for a performance report may establish a rule dictating how and when they should gather information from various departments to complete and submit the report. This becomes a universally expected rule. In contrast, external rulemaking originates from sources outside the group, necessitating compliance. Examples include meeting application deadlines for an excellence award or adhering to

speed limits set by law enforcement. In both scenarios, rules provide clear behavioral expectations.

Putting rules in writing not only enhances clarity but also amplifies their effectiveness. Unlike instinctive actions, rule-following isn't automatic or mechanistic (de Vaujany et al., 2015). Therefore, for rules to be effective, they must be remembered and regularly reinforced. Writing rules down in material forms such as guidebooks or handbooks ensures this continuous acknowledgment and enforcement. Written rules are more precise, comprehensive, and complex (Beck and Kieser, 2003), and they provide a reference point for desired behaviors, thus reducing disparities and inequalities. However, written rules also have limitations. The process of creating written rules can become rigid, and as organisations evolve, so must the rules governing their behaviors (de Vaujany et al., 2018).

Twining and Miers (2010, p.80) define rules as general norms that guide or mandate conduct and actions in specific situations. These normative statements explicitly detail what actions should or should not be undertaken under certain circumstances. These rules aim to regulate and define expected behaviors within a group or organisation (de Vaujany et al., 2018). Therefore, a rule can be defined as a guideline or instruction that must be adhered to during a particular task. The reason behind these rules is clarified by their justifications, explaining why they were establishe (Andreoletti and Teira, 2019). In practice, de Vaujany et al. (2015) describe practice as ongoing activities carried out by an organisation, which involve creating, adhering to, or violating rules, with the corresponding IT artefacts being implemented.

Understanding and adhering to IT regulations is crucial in public organizations, where technology plays a vital role. These regulations provide a framework for IT operations, ensuring compliance with governmental instructions and legislation. Failure to comply can lead to legal consequences or reputational damage. Rules serve as guiding principles for IT behaviour within public organizations. They define expected actions, roles, and responsibilities concerning IT-related tasks and projects. This clarity helps streamline IT operations, enhance accountability, and facilitate effective decision-making. Without clear rules, IT initiatives may lack direction, leading to inefficiencies, conflicts, and ultimately, failure to achieve organizational objectives.

2.2.2 Red Tape

The concept of red tape has garnered significant attention in the literature on public organisations, particularly in relation to its implications for IT adoption and organisational effectiveness. Renowned scholars like Bozeman (1993), Moon and Bretschneider (2002), and Pandey and Moynihan (2006), have conducted in-depth analyses of this concept, emphasizing its pivotal role in the realm of public management.

Bozeman (1993) characterizes red tape as a set of administrative rules and procedures that create obstacles and negatively impact an organisation's performance. Contrary to prevailing notions, Bozeman asserts that public entities are not inherently more susceptible to red tape than their private counterparts. This misconception arises from two factors: strong external control and a uniformity of stakeholders. Conversely, Moon and Bretschneider (2002) underscore the tendency of organisations to introduce new initiatives and embrace innovative technological solutions when levels of red tape are minimal. The rationale behind this trend lies in the reduced administrative burden and transaction costs associated with technological innovation in organisations with lower levels of red tape. In essence, excessive red tape can lead to delays and disruptions in the decision-making process concerning the adoption of new technology. This perspective portrays red tape as a process-oriented constraint on IT innovativeness, where organisational processes either enable (facilitate) or impede IT innovation within the organisation.

Red tape serves as both a barrier and a catalyst (Bozeman, 1993). It establishes accountability and transparency through intricate networks of rules and regulations; however, these very elements can impede a government's responsiveness to the needs of its citizens. While Bozeman and Scott (1996) suggested that regulations optimize organizational effectiveness, Kaufmann et al. (2019) emphasized the escalating prevalence of red tape in government organizations, often attributed to a heightened emphasis on accountability or the absence of well-defined boundaries. He introduces the notion that red tape is a multifaceted and ambiguous concept, encompassing unnecessary regulations, inefficiencies, and delays that can lead to frustration.

In their study, George et al. (2021) categorised red tape into three types: internal, external, and general. Internal red tape consists of organisation's self-imposed rules, while external is dictated by outside regulations. The key difference lies in control: organisational leaders can

directly modify internal red tape, while altering external red tape is more difficult, requiring extensive lobbying.

2.2.3 Red Tape and Organisational Performance

The examination of how red tape exerts its influence on organisational performance stands as a foundational topic within the realm of public administration theory, research, and practical implementation (Brewer and Walker, 2010). Rainey (2009) and Brewer and Walker (2010) have posited that the ramifications of this influence could be among the most deleterious that an organisation may encounter. Pandey et al. (2007) assert that red tape has a detrimental impact on crucial management systems, including human resources, information systems, and procurement. Such repercussions impede the recruitment and retention of skilled personnel and complicate the expeditious access to vital performance data for managerial decision-making. Van Loon (2017) and Brewer and Walker (2010) assert that red tape negatively impacts organisational performance. Brewer and Walker (2010, 233) succinctly express that red tape is presumed to make public organisations less flexible and more self-oriented, less effective in their core missions, and less responsive to political superiors and service users. Thus, based on these arguments and empirical studies, it is logical to predict a negative impact of red tape on organisational performance.

2.3 IT Adoption and IT implementation

The terms IT adoption and IT implementation are often confused by practitioners, and the researcher is not exempt. The following section touches upon the terms and provides definitions for each, aiming to grasp the meaning of each term.

The evolution of Information Technology (IT) in the global public sector has established it as a standard for transactional processes in recent decades. The success of IT implementation in the public sector relies on the adoption of IT by government employees, as emphasized by Rehouma and Hofmann (2018). Previous studies highlight that employees in public organizations often encounter more barriers to Innovative Work Behaviour (IWB) compared to those in the private sector (Nijenhuis, 2015, Buurman et al., 2012). Research on IT adoption focuses on analysing factors influencing the uptake of specific systems, including the willingness of users, particularly employees, to leverage information processing potential and engage with new technologies (Rehouma and Hofmann, 2018, Engelbert and Graeml, 2014, Huda et al., 2021).

The processes of IT adoption and user acceptance play pivotal roles in shaping the successful integration of new technologies within organizations. According to Huda et al. (2021), IT adoption is the decision-making process in which individuals or organizations carefully consider and decide whether to accept and incorporate a new technological solution into their existing framework. Complementing this, user acceptance, as defined by Dillon and Morris (1996), signifies the observable willingness within a user group to actively engage with information technology for its intended tasks. The concept of user acceptance further evolves over time, manifesting as a state characterized by the comprehensive adoption and continual use of IT applications, as highlighted by Rehouma and Hofmann (2018). While the terms adoption and acceptance are frequently used interchangeably, subtle distinctions exist. Adoption specifically denotes a user's initial decision to employ a system, contrasting with acceptance, which pertains to the subsequent post-adoption stage, as articulated by Hofmann et al. (2012). Further nuances arise based on whether the utilization of the technology is voluntary or mandated, as discussed by Engelbert and Graeml (2014). In this intricate interplay of decisions and perceptions, understanding IT adoption and user acceptance becomes paramount for effectively navigating the evolving landscape of technological integration.

The implementation of IT systems in public organizations marks a critical juncture characterized by challenges and opportunities. Information and Communication Technology (ICT) tools play a vital role in enhancing operational efficiency, reducing costs, improving service quality, providing convenience, fostering innovation, and facilitating learning across both private and public sectors (Ndou, 2004, Kim and Kim, 2020). To maintain sustainability and a competitive edge, public organizations must consistently reinvent themselves. Beyond its technical aspects, this phase is a strategic initiative that shapes the organization's overall functioning. The driving force behind this strategic endeavour is the pursuit of goals and the enhancement of competitive advantages (Sengik and Lunardi, 2023, Sarwar et al., 2023). The process of implementing IT systems intricately involves translating strategic visions and organizational needs into tangible technological solutions.

Cooper and Zmud (1990) broadly defined information technology (IT) implementation as "an organizational effort directed toward diffusing appropriate information technology within a user community". Recognizing information technology as a potential catalyst for transforming government operations, Kim and Kim (2020) highlight its role in improving internal processes for organizational effectiveness or enhancing interactions with external entities. This multifaceted process encompasses selecting appropriate technologies,

designing robust architectures, and seamlessly integrating systems into existing workflows. Successful implementation goes beyond installing software or hardware; it demands a comprehensive strategy aligned with organizational goals, ensuring the efficient utilization of IT resources. Abdelhakim et al. (2022) argue that recognizing the intricacy of IT implementation necessitates significant investments in IT resources and the development of information technology.

The successful implementation of IT systems is a critical determinant for achieving IT alignment, playing a pivotal role in steering digital transformation within organizations (Jonathan et al., 2023b, Jonathan et al., 2023a, Falk et al., 2022). Ndou (2004) studied the e-government implementation of developing countries and found that challenges for a successful implementation of e-government initiatives face challenges, including strategy, policy issues (legislation), ICT infrastructure, partnership and collaboration, and leadership role. Falk et al. (2022) highlighted that success ensures technology solutions meet not only technical standards but also align seamlessly with organizational goals, providing a solid groundwork for achieving IT alignment. This alignment empowers public organizations to navigate various factors affecting IT alignment, including organizational structure, culture, agility, leadership skills, human resource management, digital metrics, external domain alignment, and stakeholder relationships, as identified by Dairo et al. (2021). Recognizing the strategic importance of aligning business and IT strategies, Kohler et al. (2023) and Jonathan (2020) highlight that successful IT implementation is a key indicator of IT alignment, emphasizing the necessity for organizations to foster extensive IT capabilities and realize their business objectives.

Information Technology comprises technology itself and services facilitating its effective implementation in organizations (Sarwar et al., 2023). Despite ongoing discussions and research, scholars find the management of digital transformation challenging (Jonathan et al., 2022). Digital transformation involves IT-driven changes through the digitization of products, services, core processes, customer interactions, and business models (Heilig et al., 2017). Success in digital transformation initiatives depends on aligning organizational changes with the introduction of new technologies (Fischer et al., 2020, Luftman et al., 2017) and ensuring compatibility between IT and overall organizational strategies - a concept known as IT alignment (Kahre et al., 2017, Kappelman et al., 2021). IT alignment is recognized as a crucial factor in digital transformation success (Fischer et al., 2020), prompting a growing call for research exploring the relationship between IT alignment and digital transformation.

Various terms are employed to characterize the interaction between users and IT artifacts, with adoption, acceptance, and appropriation being the most commonly discussed (Engelbert and Graeml, 2014, Venkatesh et al., 2003). Investigating the adoption, acceptance, and utilization of information technology (IT) within organizational contexts constitutes recurring themes in the field of information systems (IS) research. This sustained interest arises from the realization that the benefits intended by the adoption of available technology cannot be realized if it is not actively utilized by an organization's employees (Davis, 1989, Venkatesh et al., 2003). Organizations are primarily concerned not just with pursuing potential economic returns from technology but, more crucially, with obtaining returns from its active utilization (Orlikowski and Scott, 2008). Nevertheless, adoption and acceptance represent moments in time and might transpire in a bureaucratic manner, lacking enthusiasm, as individuals may comply with the adoption of technology due to expectations rather than choice. This raises the question of whether there would be a sincere effort to convert mere acceptance into active usage and eventual success (Engelbert and Graeml, 2014).

This study extends beyond these considerations of IT adoption, as it explores IT implementation and IT alignment in public organizations not merely from the standpoint of users utilizing IT but also comprehensively exemplify the IT system alignment within the broader context of public management. This broader perspective encompasses the IT system itself, IT projects, user involvement, perceptions of government employees, and the public administrative structures within the government.

2.4 Perspective of IT Alignment

2.4.1 Historical Development of IT Alignment

Concerns regarding alignment gained prominence in the late 1970s, standing out as a key focus in research studies (Kappelman et al., 2019, Kappelman et al., 2021). However, despite the passage of several decades, many studies on this topic remain at a basic or rudimentary stage (Ridwansyah and Rusu, 2020).The alignment of Information Systems (IS) with business objectives, commonly known as IS alignment, has been a major managerial focus for over three decades and remains a significant area of research in the IS discipline (Chan and Reich, 2007b, Rusu and Jonathan, 2017b, Ridwansyah and Rusu, 2020, Sledgianowski and Luftman, 2005, Benbya et al., 2019). This historical development is rooted in recognizing the changing role of IT in organizational strategy and the ongoing challenge of realizing benefits from increased investments (Henderson and Venkatraman, 1989, Earl,

1989, Wiseman and MacMillan, 1984). This acknowledgment of IT's changing landscape prompted the formulation of methodologies in the 1970s and 1980s, exemplified by Business Systems Planning, Information Systems Study, and Information Engineering. These methodologies, regarded as precursors to the Business-IT Alignment theory (Luftman et al., 1999a, Martin and Leben, 1989, Silvius et al., 2009), aimed to lay the foundation for extensive bespoke information systems, emphasizing the analysis and structure of organizational data. The historical context establishes a compelling rationale for the critical necessity of strategic alignment between IT and business requirements.

However, the practical application of these traditional methodologies resulted in extensive and user-unfriendly schemes and reports, lacking the user perspective (Silvius, 2007). IT planning, initially conceived as a tool for business management, evolved into a procedure primarily for IT professionals, isolating the business and user sides of organizations. Despite their theoretical soundness, the rigid and structured nature of these methodologies led to diminishing use and engagement from the business and user perspectives. In response, a shift occurred in the 1990s towards a "Modern IT planning" approach, less formalized but more practical, focusing on strategy, employing a less formal methodology, aiming for quick but effective results, and emphasizing the IT infrastructure as a company asset. This transition represents a pragmatic response to the limitations of traditional methodologies, aligning IT planning more closely with business strategy, fostering collaboration, and adapting to the evolving role of IT in organizations (Silvius et al., 2009, Silvius, 2007).

In recent years, scholarly research on alignment has prominently revolved around three primary themes. Firstly, there has been a concerted effort to establish a clear and comprehensive definition of alignment (Luftman et al., 2015, Chan and Reich, 2007b). Secondly, scholars have undertaken a detailed examination of various dimensions of alignment, encompassing strategic/intellectual, structural (Karpovsky and Galliers, 2015, Luftman et al., 2015, Luftman et al., 2017, Rusu and Jonathan, 2017a, Karpovsky and Galliers, 2020, Amarilli et al., 2023), social (Reich and Benbasat, 2000, Schlosser, 2012, Schlosser et al., 2015, Ridwansyah and Rusu, 2020, Hu et al., 2023, Levkov et al., 2023), and cultural aspects. Lastly, extensive attention has been directed towards identifying and analysing the factors that facilitate or hinder alignment (El-Mekawy et al., 2015a, El-Mekawy et al., 2015b, Gbangou and Rusu, 2016, Alghazi et al., 2018, Őri and Szabó, 2019a, Jobarteh et al., 2020, Alphanso et al., 2022, Mantey, 2022). The subsequent section of this study systematically explored the existing body of knowledge concerning alignment literature.

2.4.2 Definition of IT Alignment

The subsequent review aimed to identify the terminology related to business IT alignment, recognizing the challenging task of defining strategic alignment. Scholars have encountered difficulties in precisely delineating the concept, stemming from the variability of interpretation depending on context and circumstances. This complexity complicates the analysis and assessment of the alignment concept, as highlighted by various studies (Tarafdar and Qrunfleh, 2009, Luftman and Ben-Zvi, 2012, Karpovsky and Galliers, 2015, Luftman et al., 2015, Luftman et al., 2017, Gajardo and La Paz, 2019, Jonathan, 2020, Karpovsky and Galliers, 2020, Henriques et al., 2019).

Despite the diversity in terms, the underlying concepts of IT alignment exhibit remarkable similarity (Chan and Reich, 2007b, El-Mekawy et al., 2015a). The essence of IT alignment lies in the process whereby strategic intent and coordination become integral to business activities, enabling the seamless integration of information systems and technology with organizational goals and objectives. Consequently, drawing clear distinctions among these terms becomes challenging (Jobarteh et al., 2020, Silva et al., 2007, Wagner and Weitzel, 2012). It is essential to highlight that the interchangeable use of the terms "IS/IT alignment" is a prevalent practice (Mantey, 2022). This study consistently adopts the term "IT alignment" throughout the research, underscoring its broad acceptance and applicability within the field.

Researchers have attempted to delineate the concept of IT alignment, facing challenges in precision and clarity, with some instances lacking a definition altogether (Maes et al., 2000). Numerous publications often sidestep explicitly outlining the concept, resorting to circular definitions or entirely omitting a definition. For example, Luftman et al. (1993, p. 204) describe alignment as "the extent to which the IS strategy supports, and is supported by, the business strategy." This lack of clarity persists with slight variations in other works. Reich and Benbasat (2000, p. 4) make a slight adjustment, defining alignment as "the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives, and plans." Nadler and Tushman (1980) characterize alignment as "the degree to which the needs, demands, goals, objectives, and/or structures of one component align with those of another component.” In contrast, Maes et al. (2000) articulate alignment as "the continuous process of consciously and coherently interrelating all components of the business-IT relationship through management and design sub-processes, aiming to contribute to the organization's performance over time”. This lack of a

precise and clear definition of alignment contributes to ambiguous interpretations across the literature.

Despite numerous investigations into IT alignment, achieving a universally accepted definition for it remains challenging (Ilmudeen et al., 2019, Luftman et al., 2015, Wu et al., 2015a, Gerow et al., 2015). Scholars bring diverse perspectives to the definition, utilizing different terminologies. For instance, Henderson and Venkatraman (1993) conceptualized it as "strategic alignment," while Luftman (2000) described it as "harmony". Other terms used include "strategic fit" and "linkage" (Reich and Benbasat, 1996), "integration" (Weill and Broadbent, 1998), "fusion" (Smaczny, 2001), "IS alignment" (Benbya and McKelvey, 2006), "business-IT alignment" (Luftman and Kempaiah, 2007), and simply "IT alignment" (Chan and Reich, 2007a). Chan and Reich (2007a) argued that the variations in both the terminology and conceptualization of this phenomenon can be attributed to distinctions in academic disciplines. For instance, the term 'fit' is predominantly used in the realm of strategic management, whereas 'alignment' is prevalent within Information Systems literature. This study distinguishes the terminology of IT alignment based on organizational contexts: public and private sectors.

On one hand, numerous scholars, such as Henderson and Venkatraman (1993), Reich and Benbasat (1996), Luftman and Brier (1999), Luftman (2001), Chan and Reich (2007a), Silvius et al. (2009), and Luftman et al. (2015), have delineated IT alignment within commercial organizational contexts. Alignment underscores the sharing and support of the mission, objectives, and plans within the business strategy through IT strategy. This process involves the timely application of suitable IT to align with business strategy, goals, and needs. Additionally, it encompasses managerial behaviours that coordinate and harmonize activities across both domains, ultimately adding business value. On the other hand, Winkler (2013) and Vander Elst and De Rynck (2014) defined IT alignment within the public sector as the extent to which IT goals support the strategic objectives of the agency, emphasizing the commitment of both administration and IT stakeholders to uphold these goals. The following table summarised IT alignment definitions between private and public context.

Table 2-1 Summary of IT Alignment Definitions

Context	Authors	Definition
Private	Henderson and Venkatraman (1993)	Alignment is the degree of fit and integration among business strategy, IT strategy, business infrastructure, and IT infrastructure.
	Reich and Benbasat (1996, p. 56)	The degree to which the mission, objectives, and plans contained in the business strategy are shared and supported by the IT strategy.
	Luftman and Brier (1999)	The organization is applying appropriate IT in given situations in a timely way, and that these actions stay congruent with the business strategy, goals, and needs.
	Maes et al. (2000)	The continuous process, involving management and design sub-processes, of consciously and coherently interrelating all components of the business – IT relationship in order to contribute to the organisation's performance over time.
	Lutman (2001)	Business-IT alignment refers to applying Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals and needs. It is still a fundamental concern of business executives.
	Chan and Reich (2007, p.300)	The degree to which the business strategy and plans, and the IT strategy and plans, complement each other'.
	Silvius et al. (2009)	The degree to which IT applications, infrastructure and organization enable and support the business strategy and processes, as well as the process to realize this".
	Luftman et al. (2015, p. 2)	IT-business and business-IT related managerial behaviours that facilitate and encourage the can enable and promote the coordination and 'harmonisation' of activities across the business and IT domain in ways that add business value.
Public	Winkler (2013)	The degree to which the IT goals support the strategic goals of a public agency, and to which administration and IT stakeholders are committed to support these goals.
	Vander Elst and De Rynck (2014)	Alignment as a continuous interaction process on different levels and takes into account political and institutional variables.
	Jonathan (2022)	The process of ensuring that the organisation's IT systems and technologies are aligned with strategic goals and objectives.

Source: Author

This study adopts Winkler's (2013) definition of IT alignment, which emphasizes the alignment of IT goals with the strategic objectives of a public agency and underscores the commitment of both administration and IT stakeholders. The choice of this definition aligns with the research's specific focus on assessing information systems alignment within a public agency. Winkler's (2013) definition is particularly valuable as it recognizes the collaborative nature necessary for effective IT alignment in the public sector. In this context, where organizational objectives prioritize public interest and societal goals, the commitment of both administrative and IT stakeholders is crucial. This commitment ensures a shared understanding and dedication to strategic objectives, fostering a holistic and integrated approach to information systems alignment. Overall, Winkler's comprehensive definition provides a suitable framework for exploring the complexities of IT alignment within public agencies, addressing both technical and human aspects essential for successful alignment initiatives.

2.4.3 Process view of Alignment

The interpretation of alignment exhibits significant variability and contradictions due to its ambiguous definition. A prominent example of this disparity revolves around whether alignment should be regarded as a final or temporary outcome, or as an ongoing process that leads to such an outcome. Broadbent and Weill (1993), Chan et al. (1997) advocate for the former interpretation, positing that alignment is an outcome. In contrast, Burn (1997) views alignment as a continual process, emphasising that ‘alignment is not a one-time activity but a constant balancing act between a lead or lag strategy’. Reich and Benbasat (1996) assert that alignment is conceptualise as an outcome while determinants of alignment are likely to be processes (e.g., communication and planning). Luftman and Brier (1999) argue that “alignment is a dynamic, complex process that takes time to develop and even more effort to sustain”. Achieving alignment demands a focus on maximizing the enablers and minimizing inhibitors. The prevailing perspective among authors leans towards alignment being an outcome, resulting in the sporadic acknowledgment of the imperative to dynamically maintain alignment, as highlighted by Coakley et al. (1996).

The IT literature increasingly acknowledges that alignment is an ongoing process shaped by various actions of different actors within organisations (Karpovsky and Galliers, 2015, Yeow et al., 2018). Recent studies have conceptualized this process as coevolution, emphasizing the continuous mutual adaptation between business and IT at multiple levels (Peppard and Breu, 2003, Benbya and McKelvey, 2006, Zhang et al., 2021). This recognition

underscores the dynamic nature of alignment and its significance in driving organisational success. However, it is important to note that this does not diminish the value of measuring alignment at specific time points. The rationale behind conducting periodic assessments is to acknowledge that achieving and sustaining alignment requires continuous effort and adaptation.

Karpovsky and Galliers (2015) suggest that alignment occurs through various activities classified into thirty-two categories and four metaphors. These activities primarily fall into two areas: tools (aligning as translation and adaptation) and actors (aligning as integration and experience). Tool-related activities involve translating business plans into IT strategies, system development, and evaluating the external and internal environment. Adaptation occurs through scanning emerging technologies, clarifying objectives, and measuring performance. Integration focuses on strengthening relationships among organisational actors, involving top management involvement, improving communication, changing culture, and providing training. Aligning as an individual experience involves negotiations, learning processes, decision-making, and actions by specific actors. Alignment encompasses a range of activities, including translation, adaptation, integration, and experience. Therefore, this study regards alignment as a continuous and dynamic process that culminates in the realization of organisational aims and objectives.

2.4.4 The Significance of IT Alignment in Public Organisations

Scholars strongly emphasize the impracticality of applying private sector IT alignment research outcomes to the public sector, highlighting the distinct characteristics of public organizations and other influential factors specific to the context of IT. Traditionally, public organizations have often been associated with governmental bureaus, while private organizations have been broadly categorized as all other entities, such as business firms (Perry and Rainey, 1988). Regarding characteristic impurities, Winkler (2013), Plesner et al. (2018) and Jonathan (2022) distinguish public and private sectors based on two key points: (1) IT investments are evaluated using non-financial metrics, prioritizing added value creation, and (2) Public organizations have the responsibility to fulfil social, economic, and political objectives while managing diverse stakeholder interests. Additionally, Meijer and Thaens (2010) and Vander Elst and De Rynck (2014) assert that this complexity becomes apparent in decision-making frameworks, where both political and administrative authorities wield power, and formal bureaucratic structures and procedural obstacles are put in place (Parker and Bradley, 2000). Winkler (2013) reinforces these observations, highlighting

substantial contrasts in services provided by public and private organizations, underscoring the intricate challenges in applying private sector IT alignment insights to the public sector.

Chan and Reich (2007a) emphasize the need for concise empirical studies across diverse organizational environments, including private and public sectors, to address unique needs, utilization, and implementation of IT artifacts in the context of alignment. The disparities between these sectors lead government organizations to adopt varied approaches, potentially yielding different outcomes. Sawyer et al. (2008) demonstrate that this uniqueness influences distinct strategic preferences for alignment, necessitating different approaches. Ndou (2004) and Benbya et al. (2019) revealed a paradigm shift in the understanding of IT alignment. While it was initially seen as a static concept focused on the strategic "fit" between IT and business strategies, current research underscores a paradigm shift. This shift redirects attention towards the structural, cultural, and social dimensions of IT alignment for a more comprehensive perspective. Gerow et al. (2014) and Jonathan et al. (2021) acknowledge the crucial influence of contextual factors in comprehending IT alignment, notably encompassing considerations related to the dynamic business environment, organizational agility, and the intricacies of complex organizational structures in IT alignment research.

The investigation into IT alignment in public organizations is crucial due to the existing research gap in IT studies, which has overlooked this area (Jonathan et al., 2020a). In essence, the evolving understanding of IT alignment necessitates a thorough and updated exploration, emphasizing the requirement for extensive studies to uncover the intricacies of IT alignment. This imperative is crucial for bridging the knowledge gap in the public sector domain, particularly in addressing the existing research void concerning IT alignment disparities between public and private sector organizations. Consequently, the focus of this study is to scrutinize the context of IT alignment within public organizations.

2.4.5 The Dimension of IT alignment

Alignment dimensions typically refer to different aspects or perspectives that contribute to the overall alignment of IT with business goals. Adopting a dimensional perspective of alignment is essential for a comprehensive understanding of the concept (Ilmudeen et al., 2019, Liang et al., 2017). These dimensions play a crucial role in evaluating and comprehending various aspects involved in ensuring effective alignment of information technology with the strategic objectives of an organization. Ilmudeen et al. (2019) argued that concentrating on specific alignment dimensions rather than the overall strategies of a

firm contributes to better decision-making. According to Henderson and Venkatraman (1993) in their influential research, Business-IT alignment focuses on the extent of coherence and integration among business strategy, IT strategy, business infrastructure, and IT infrastructure. Amarilli et al. (2023) argue that alignment encompasses various levels, both strategic and operational, and involves multiple dimensions, including the intellectual dimension (harmony between business and IT strategies), the social dimension (shared understanding among business and IT executives and staff), and the structural dimension (congruence of business and IT processes and infrastructures). This understanding provides a robust framework for assessing and enhancing the relationship between business and IT.

Several scholars have identified various dimensions of alignment (Reich and Benbasat, 1996, Henderson and Venkatraman, 1993, Chan and Reich, 2007b, Gerow et al., 2015, Luftman et al., 2015). In the context of alignment discussions, Reich and Benbasat (1996) argued that an organization's social and cultural factors play a crucial role in determining how alignment is achieved. Additionally, Reich and Benbasat (2000) highlighted the inherent complexity of alignment dimensions, emphasizing their relevance in the field. Expanding on this understanding, Chan (2002) echoed similar sentiments, underscoring the intricate interplay of multiple organizational factors in achieving alignment. Chan and Reich (2007b) further contributed by delineating five specific dimensions of alignment: the strategic and intellectual dimension, the structural dimension, the informal structure, the cultural dimension, and the social dimension. Building on these insights, Gerow et al. (2015) identified six types of alignment, including alignment between IT and business strategies (external integration or intellectual alignment), between IT and business infrastructures and processes (internal integration or operational alignment), and between strategies and infrastructures (cross-domain integration). In a more recent examination, Llamzon et al. (2022) presented a simplified perspective, proposing that alignment can be compartmentalized into two primary dimensions: strategic (often used interchangeably with the intellectual dimension) and structural. This study employs Reich and Benbasat's (1996, 2000) categorization of IT alignment, encompassing two dimensions: intellectual and social alignment.

The terms "intellectual dimension" and "strategic alignment" are often used interchangeably within the field of IT literature (Chan and Reich, 2007b). It holds a significant and central role where business and IT strategies converge, as highlighted by Sabherwal and Chan (2001) and Gerow et al. (2015). Reich and Benbasat (2000, p.82) stress the importance of strategic alignment, defining it as "…the degree to which the information technology

mission, objective, and plans s*upport and are supported by the business mission, objectives and plans*". Building on this perspective, Luftman and Brier (1999) and Chan and Reich (2007b) describe IT-business strategic alignment as the skilful and synchronized application of IT that aligns with business strategies, goals, and requirements. It is essential to highlight that achieving optimal strategic alignment between business and IT not only enhances effectiveness in both realms but also showcases their inherent interdependence (Chan and Reich, 2007b).

The second dimension, termed the "social dimension," is characterized by Reich and Benbasat (1996) as *'the state in which business and IT executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans*.' This dimension accentuates the significant role of mutual understanding and alignment between business and IT executives, particularly at the strategic level, in relation to overarching plans, objectives, and missions. Reich and Benbasat's pioneering work (1996) underscore the importance of distinguishing between the intellectual dimension (content) and the social aspects of alignment. The social dimension revolves around individuals who are pivotal in establishing alignment. This distinction underscores the importance of studying the social dimension in alignment research, recognizing the influential role that individuals and social factors play in the alignment process. By delving into the social dimension, researchers gain insights into the human dynamics, interactions, and relationships that contribute to the successful alignment of IT and business strategies. Understanding the social dimension becomes pivotal for comprehensively addressing the complexities involved in achieving effective and sustainable alignment within organisational context.

2.4.6 Alignment Models

A number of alignment models and frameworks have been developed for conceptualising IT alignment into various dimensions, level and its components by different researchers (e.g. Henderson and Venkatraman, 1993, Luftman, 2001, Reich and Benbasat, 2000, Sabherwal and Chan, 2001). Scholars have employed two most cited and widely used approaches to define the dimensions of alignment; Strategic alignment Model (SAM) which considered one of the most effective models used by scholars and practitioner (Renaud et al., 2016, Őri and Szabó, 2019a) and Strategic Alignment Maturity Model (SAMM).

2.4.6.1 Strategic Alignment Model (SAM)

The Strategic Alignment Model (SAM), introduced by Henderson and Venkatraman in 1983, serves as a foundational guide for strategic IT management. Recognized for its influential role in shaping research on IT alignment, SAM aims to delineate strategic alternatives and emphasize their interdependencies. According to Henderson and Venkatraman (1993), SAM's objective is "*to formulate a model that outlines the range of strategic options that managers have and discover how they are interlinked*" (Henderson and Venkatraman, 1993, p.5). The model offers an integrated framework for understanding the dynamic interrelation between business and IT within organisations. SAM categorizes an enterprise into two primary domains: the business and the IT domain. Each of these domains is further broken down into three distinct levels where alignment can be analysed: strategic, structural (or operational), and cross-domain.

On the strategic level, the focus is on external factors, involving relationships with entities like product markets and outsourcing partners. This tier integrates business and IT strategic perspectives. On the structural level, the analysis delves into internal aspects, concentrating on processes, competencies, and overall organizational setup, encompassing both the organizational framework and its IT infrastructure. Lastly, the cross-domain level captures the interplay between business and IT strategic objectives and the synergy between their structures, emphasizing the pivotal interconnectedness across strategic and operational spectrums.

SAM comprises of four domains. First, business strategy domain is vital for an organisation's position and competitiveness in the market. It includes selecting product/service offerings and developing distinctive competencies for a competitive advantage. Business governance also involves establishing interfirm relationships. Second, business infrastructure domain encompasses the organisational structure, operational management, essential processes, and necessary skills required to implement business strategies effectively. Next, IT strategy domain determines the organisation's position in the IT market, including the selection and application of relevant technologies. It incorporates systemic competencies for gaining an edge over competitors and encompasses IT governance for achieving IT capabilities. Lastly, IS infrastructure domain comprising the technical structure and configuration of the IS architecture, along with the core IS processes and required skills for its management and operation.

Numerous studies have utilized the SAM as a foundation for further research and the development of frameworks. For example, Sha et al. (2020) applied the SAM in a healthcare organisation following the implementation of healthcare information systems (HIS), while Tafti et al. (2019) used the SAM as a reference model for collaborative open innovation networks. Furthermore, Audretsch and Belitski (2022) utilized the SAM to facilitate reliable assessment of the level of strategic alignment for the entrepreneurial university managers and external stakeholder. For a comprehensive understanding of the alignment process, it is necessary to study further into the Strategic Alignment Model (SAM). Such an investigation would illuminate key issues, including the significance of misalignment, the identification of organisational characteristics that may lead to IT misalignment, and the prioritization of factors that hinder organisations from achieving optimal alignment (Earl, 1989).

After a thorough examination of the Strategic Alignment Model (SAM), it becomes evident that adopting SAM for studying IT alignment in public organizations may not be suitable. One significant drawback lies in SAM's perceived neglect of the influence of institutional contexts, particularly in public organizations, where the political nature is inherent (Vander Elst and De Rynck, 2014). Despite the recognized transformative impact of IT on political dynamics, SAM seems to overlook this crucial aspect. Furthermore, SAM's portrayal of alignment as a primarily top-down, fully manageable process is incongruent with the bottom-up approach taken in this study, which examines alignment from the operational perspective. This misalignment makes SAM unsuitable for the specific focus of this study. Moreover, Ciborra (1997) criticizes SAM as an unrealistic abstraction, further reinforcing the argument that SAM may not be suitable for this study. The mismatch between SAM's theoretical framework and the practical orientation of this study emphasizes the need to explore alternative models that better align with the unique dynamics of IT alignment in public organizations.

2.4.6.2 Strategic Alignment Maturity Model (SAMM)

Luftman (2003) expanded the original Strategic Alignment Model (SAM) created by Henderson and Venkatraman in 1993, leading to the development of the Strategic Alignment Maturity Model (SAMM). SAMM aimed to enhance the connection between business and IT strategies. Although Henderson and Venkatraman are acknowledged pioneers in Business-IT alignment frameworks (Luftman, 2001), Luftman's SAMM has gained more practical prominence (Chan and Reich, 2007b, Jonathan et al., 2020a).

Chan and Reich (2007a) underscore three key reasons supporting the extensive adoption of SAMM. Firstly, it adopts a bottom-up perspective, emphasizing the importance of defining goals related to the interconnectedness between business and IT. Secondly, the framework positions business-IT Alignment (BITA) as a holistic process beyond the initial establishment, recognizing alignment maturation by optimizing enablers and minimizing inhibiting factors. Lastly, the modular structure enables a focused exploration of critical BITA areas, breaking down the alignment process into six distinct criteria: communications, competency/value measurement, governance, partnership, scope and architecture, and skills. Similarly, El-Mekawy et al. (2015a) argued that SAM is considered as theoretical framework for classifying BITA barriers and identifying relationship between each barrier in its business area.

The six dimensions presented offer a comprehensive set of attributes for both business and IT units within an organization. For example, the communications dimension promotes knowledge exchange and collaboration between IT and other units. The value measurement dimension enables organizations to quantify the impact of IT initiatives comprehensibly. The IT governance dimension guides decision-making processes and management of IT resources. The partnering dimension fosters a collaborative relationship, viewing IT as a strategic partner. The dynamic IT cope dimension enhances adaptability by anticipating emerging technologies. The business and IT skills development dimension emphasizes nurturing a workforce with the necessary competencies for leveraging IT resources and driving organizational success.

The exclusion of SAM and SAMM in this study is attributed to their misalignment with the study's primary objectives. While both SAM and SAMM provide extensive benefits and a comprehensive value model, the focus of this research differs. The study aims to identify factors hindering the achievement of IT alignment in public organizations, rather than assessing alignment effectiveness or measuring alignment maturity. SAM emphasizes aligning business strategy with IT strategy for organizational effectiveness, and SAMM concentrates on evaluating the maturity of strategic alignment. These aspects do not align with the specific goals of this study, which centres around understanding obstacles to IT alignment. Therefore, both SAM and SAMM are considered inappropriate for the current research focus on hindrances to achieving IT alignment in public organizations.

2.5 Social IT Alignment (SITA)

The IT alignment literature focuses on two primary dimensions (Reich and Benbasat, 2000, Horovitz, 1984). The structural dimension, primarily concerned with analysing organizational strategies, structures, and planning methodologies, is supported by various studies (e.g., Luftman and Brier, 1999, Kovács et al., 2017, Kahre et al., 2017, Amarilli et al., 2023). The social dimension, on the other hand, centres on the values, visions, communication, and mutual knowledge and comprehension among the IT and business participants engaged in establishing alignment (e.g., Reich and Benbasat, 2000, Schlosser, 2015, Wagner et al., 2014, Alaceva and Rusu, 2015, Ridwansyah and Rusu, 2020, Pelletier et al., 2021, Levkov et al., 2023). Dulipovici and Robey (2013) and Coltman et al. (2015) emphasize that achieving strategic alignment requires attention to the complex social processes influencing how an information system is actually used. Social alignment promotes the bridging of knowledge disparities and the cultivation of a common understanding between IT and business (Preston and Karahanna, 2009, Reich and Benbasat, 2000, Schlosser et al., 2015). The imperative nature of studying social alignment is underscored by its recognized pivotal role in organizational success (Chan and Reich, 2007b).

Reich & Benbasat, pioneers in the 1990s, introduced "social IT alignment" (SITA), emphasizing that intellectual alignment faces challenges rooted in individual-level misalignment. Reich & Benbasat, in their seminal work in 2000 publication, specifically defined the social dimension of alignment as "*the state in which business and IT executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans"*. Further expanding on this concept, they subdivided social alignment into short-term and long-term categories, offering insights into its temporal dynamics. A critical factor they identified influencing social alignment was the quality of communication leading to a shared vision.

Building on Reich & Benbasat's foundational ideas, Lee et al. (2008) suggested that the social dimension might also represent the degree of integration between the human components in business processes and IT systems. According to Schlosser et al. (2015), social alignment is influenced by a diverse range of IT governance practices, including trust and respect, where business and IT collaborate eye-to-eye, top management support, IT representation on the executive board, collaborative IT planning, IS training, frequent meeting cycles, and liaison units. Thus, within the scope of this research, the social

dimension underscores human interactions in the alignment of information systems with other business facets. This perspective helps explore how both individual and group interactions impact the congruence of business aims and IT functionalities.

The classification of IT alignment proposed by Reich and Benbasat (1996) holds significant relevance, finding widespread application in various studies (Wu et al., 2015b, Hu et al., 2023, Liang et al., 2017). Horovitz (1984) highlighted that studies exploring the intellectual dimension tend to centre on the substance of plans and planning methodologies. On the other hand, investigations into the social dimension are more inclined to emphasize the individuals engaged in the development of alignment. This breakdown highlights the importance of strategic development in the intellectual realm and the informal interactions among actors. As agility becomes increasingly crucial, human actors play a pivotal role in identifying emerging threats, opportunities, and participating in decision-making processes, thereby emphasizing the significance of social alignment (Reich and Benbasat, 2000, Jia et al., 2018, Nagle and Golden, 2008). Hence, this classification, encompassing both strategy artifacts and human actors, is well-suited for the research context. It not only recognizes the value of intellectual-based strategy development but also underscores the informal interactions and knowledge-sharing among individuals (Nelson and Cooprider, 1996, Titi Amayah, 2013, Seba et al., 2012). Furthermore, the pivotal role of human actors in recognizing and understanding emerging threats and opportunities, as well as in decision-making, further reinforces the relevance of social alignment within this classification.

Understanding the social dimension is vital for a thorough comprehension of IT alignment, specifically in the context of individual actively participating in the alignment process (Horovitz, 1984). This approach accentuates the significance of the perceptions and actions of organizational actors, key participants in the alignment journey. As articulated by Karpovsky and Galliers (2020), an actor represents a convergence of individuals crucial to the alignment narrative, encompassing internal stakeholders and external affiliations such as top and middle management, information systems (IS) management, politicians, consultants, and researchers. Each actor contributes uniquely to the alignment process, utilizing their expertise and influence to ensure effective harmony between business and IT strategies. This perspective emphasizes that a sole focus on artifacts, such as plans and structures, falls short of fully predicting alignment outcomes.

Given the complexity of IT alignment, it is crucial to explore the cognitive dimensions influencing the beliefs, attitudes, and understanding of individuals involved in the alignment process. This research is propelled by a discerned gap in the definition proposed by Karpovsky and Galliers (2020), specifically emphasizing the pivotal role of actors in the alignment landscape. Karpovsky and Galliers (2020) advocate for a heightened focus on the daily alignment activities of organizational actors in alignment research. This emphasis becomes particularly critical, as pointed out by Campbell (2005), considering the limited understanding of the specific day-to-day endeavours undertaken by organizational actors to achieve alignment. The deliberate emphasis in this study is directed towards actors at the operational level, serving as key informants with direct experience in utilizing the IT system. This targeted approach seeks to bring to light the social dimension of IT alignment, especially from the operational level perspective. The rationale behind such emphasis is rooted in the aspiration for a comprehensive understanding of the distinctive and vital roles enacted by actors in the intricate realm of IT alignment within public organizations. This focused inquiry is poised not only to fill a crucial research gap but also to offer valuable insights that can guide and enhance strategies for effective IT alignment, acknowledging and harnessing the unique perspectives brought by operational-level actors.

In conclusion, this literature review has thoroughly explored the identification of alignment dimensions documented in existing studies. While various dimensions have received extensive attention, the social dimension has been notably overlooked in several studies (Alaceva and Rusu, 2015, Levkov et al., 2023, Nagle and Golden, 2008, Ridwansyah and Rusu, 2020, Jia et al., 2018). This oversight is particularly striking, given the significance of Social IT Alignment (SITA), which underscores the pivotal role of individuals in achieving alignment. Organizations increasingly rely on their personnel for success, making the social dimension-covering relationships, communication, mutual understanding, trust, cultural facets, and informal structures-increasingly vital. Noteworthy studies, such as Reich and Benbasat (2000) and Alaceva and Rusu (2015), have highlighted its importance for overall strategic business-IT alignment. However, the research focus on the level of social dimension, as highlighted by Schlosser et al. (2012), has been somewhat narrow, concentrating on only a few of its aspects. Importantly, the intricacies of social alignment in the public sector remain largely unexplored (Reich and Benbasat, 2000, Schlosser et al., 2015, Ridwansyah and Rusu, 2020). Against this backdrop, this research aims to delve further into the less-explored aspects of the social dimension in business-IT alignment, striving for a comprehensive understanding of this pivotal facet.

2.6 Business-IT Misalignment and Barriers

In the management domain, business-IT alignment (BITA) assumes a central and focal role, capturing the attention of top executives (Benbya et al., 2019). This focus has led scholars to investigate distinctions between alignment and misalignment (Fadi et al., 2020, Jobarteh et al., 2020). In contemporary organizations, misalignment is both a challenge and an opportunity for deeper understanding (Ridwansyah and Rusu, 2020, Sundoro and Wandebori, 2021). In this context, barriers act as root causes hindering effective alignment while misalignment results from a lack of synchronization between business and IT functions. Identifying these barriers gains significance, especially in public organizations.

The concept of misalignment has been articulated through various definitions. Őri (2016) characterizes misalignment as an unfavourable state where organizations are unable to attain or maintain alignment. Alghazi et al. (2018) define business-IT misalignment as the breakdown or absence of coordination between the business and IT functions. When misalignment occurs, it can have detrimental effects on business performance since achieving alignment between business and IT strategies is crucial for enhancing business value. Failure to establish this alignment can hinder the organization's ability to thrive and effectively achieve its objectives. El-Telbany and Elragal (2014) describe business-IT misalignment as the continuous efforts, involving management and information systems, to detect and test the interrelation of all components of the business-IT relationship consciously and coherently. They emphasize that a change in one component would instantly influence the other, contributing to the organization's performance over time. For this study, the research synthesizes the perspectives of Őri (2016) and Alghazi et al. (2018), integrated with insights from El-Telbany and Elragal (2014). Business-IT misalignment, as perceived herein, refers to ineffective management between IT and business, leading to an undesired state that hampers the achievement of business objectives. This definition underscores essential characteristics of misalignment, highlighting its undesired state, the need for sustainable management, and its impact on business requirements.

Moving forward, it is imperative to recognize that the failure to attain alignment or experiencing insufficient business-IT alignment gives rise to a variety of unintended consequences. These repercussions encompass suboptimal utilization of IT resources, decreased levels of user satisfaction, restricted returns on investments in IT infrastructure, and compromised business performance, as highlighted by Wagner and Weitzel (2012). Fadi et al. (2020) emphasize that inadequate alignment carries the risk of resource wastage

and unsuccessful IT projects, exerting a negative influence on both organizational and financial outcomes. This underscores the critical need for effective business-IT alignment to avert such detrimental consequences.

Luftman and Brier (1999, p.3) emphasize the need to ensure effectiveness by doing the "right thing" and efficiency by doing it in the "right way" to maximize enablers and minimize inhibitors. Overlooking a single inhibitor, as highlighted by the authors, can jeopardize the resolution of the entire issue, underscoring the imperative nature of addressing inhibitors comprehensively. In the pursuit of alignment, organizations encounter persistent barriers extending beyond the initial phase, impacting the ongoing maintenance of alignment over time (El-Mekawy et al., 2015b). These barriers necessitate a comprehensive approach to addressing inhibitors and maximizing enablers for sustained alignment.

Recognizing the significance of effective alignment, El-Mekawy et al. (2015a) propose strategic resource allocation to strengthen alignment facilitators and address obstacles that impede optimal alignment. They particularly highlight concerns about IT, emphasizing its diverse metrics of value and the inadequacy in demonstrating its value. This contributes to a perceived low IT value, prompting businesses to encourage IT to take a more proactive role in developing new solutions. Additionally, El-Mekawy et al. (2015b) emphasize that an inhibitor arises from inadequate time for creative and proactive thinking due to a heavy workload. Therefore, they recommend the provision of additional time and resources to generate and present ideas, ensuring their visibility.

Despite the abundance of studies on IT misalignment and barriers, the predominant focus on the private sector raises concerns about its applicability to the public sector, given the distinct characteristics and driving forces. Notably, variations in metrics for evaluating IT investments and the prioritization of added value exist in public organizations. Furthermore, the influence of organizational structures on decision-making complexity is significant in the public sector, where political and administrative authorities wield power, and bureaucratic structures and procedural obstacles are prevalent (Winkler, 2013, Plesner et al., 2018, Jonathan, 2022). Recent research by Benbya et al. (2019) emphasizes a paradigm shift in understanding IT alignment, moving from a static concept focused on the strategic "fit" to a contemporary exploration of the structural, cultural, and social dimensions. This research identifies a crucial gap in understanding IT alignment, particularly in the context of a dynamic public sector environment, organizational agility, and the complexities of public sector structures.

This identified research gap underscores the necessity to identify barriers and enhance alignment, particularly in diverse organizational settings and developing countries (Jobarteh et al., 2020, Jonathan et al., 2020c, Alaceva and Rusu, 2015, Jonathan et al., 2020b). On the contrary, empirical studies targeting public organizations, especially in the context of Asian countries with bureaucratic governance (Rusu and Jonathan, 2017a), are notably scarce. Consequently, urgent attention is required to investigate misalignment within the public sector. To address this need, this study aims to unveil obstacles hindering public organizations in achieving and maintaining alignment, with a specific focus on scrutinizing the social factors contributing to IT misalignment and impeding their progress (Jobarteh et al., 2020, Jonathan et al., 2020c, Alaceva and Rusu, 2015, Jonathan et al., 2020b).

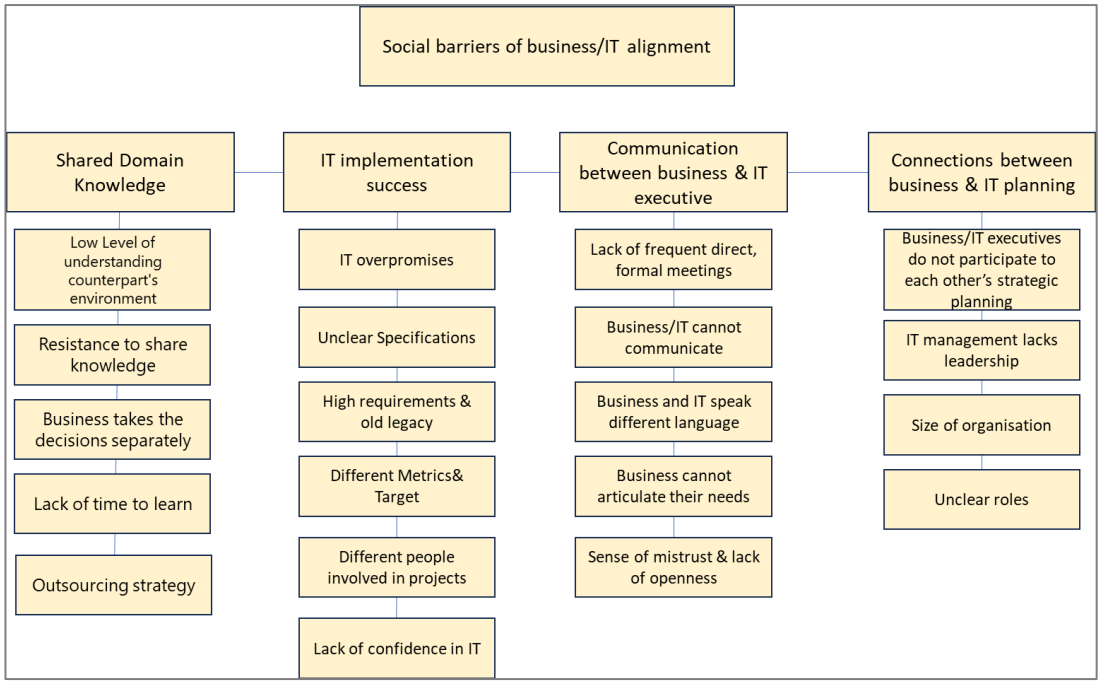
2.6.1 Social Alignment Barriers

Amidst the extensive body of research extolling the benefits of business-IT alignment (Karpovsky and Galliers, 2015, Luftman et al., 2015, Luftman et al., 2017, Gajardo and La Paz, 2019, Kappelman et al., 2021, Jonathan, 2022), there is a noticeable gap in studies dedicated to uncovering the challenges hindering its realization, especially in the social dimension. This social dimension specifically focuses on fostering mutual understanding and alignment between business and IT executives (Reich and Benbasat, 2000). While strategic alignment is crucial, the operational level also plays a vital role in translating strategic plans into day-to-day activities (Fadi et al., 2020, Kurti et al., 2013). Identifying this gap emphasizes the urgent need for further investigation to enhance our understanding of the dynamics and formulate tailored strategies for improvement. The lack of focused attention on obstacles in the social dimension calls for exploration to pave the way for a more comprehensive understanding of alignment challenges and the development of targeted strategies for improvement. The next section presents an important finding from previous literature.

Alaceva and Rusu (2015) highlighted the importance of addressing barriers within the social dimension, particularly at the operational level, based on their investigation outlining nineteen obstacles in large organizations hindering business-IT alignment. Through insights gained from seven semi-structured interviews, critical impediments were identified, such as limited mutual understanding, lack of trust, ineffective communication, unclear specifications, restricted collaboration, and a lack of shared dedication and support. These factors hinder the alignment of social aspects in the business and IT domains. Additionally, a prevalent issue arises where IT projects often fall short of meeting user expectations. This

is attributed to business executives not thoroughly articulating the functionalities they anticipate, leading IT to initiate projects in a manner that deviates from the intended direction. To address these challenges, business and IT leaders are urged to expand their perspectives, encompassing both business and technical realms. This immersion fosters a better understanding of each other's essential roles, operations, and intricacies, facilitating a stronger mutual understanding of collaborative initiatives and challenges. Alaceva and Rusu (2015) emphasize that improving the connection between business and IT not only amplifies their collaborative input but also strengthens their joint dedication to the success of IT alignment. This comprehensive approach enhances the overall effectiveness of collaborative efforts between business and IT.

Figure 2-1 Social Barrier by Alaceva and Rusu

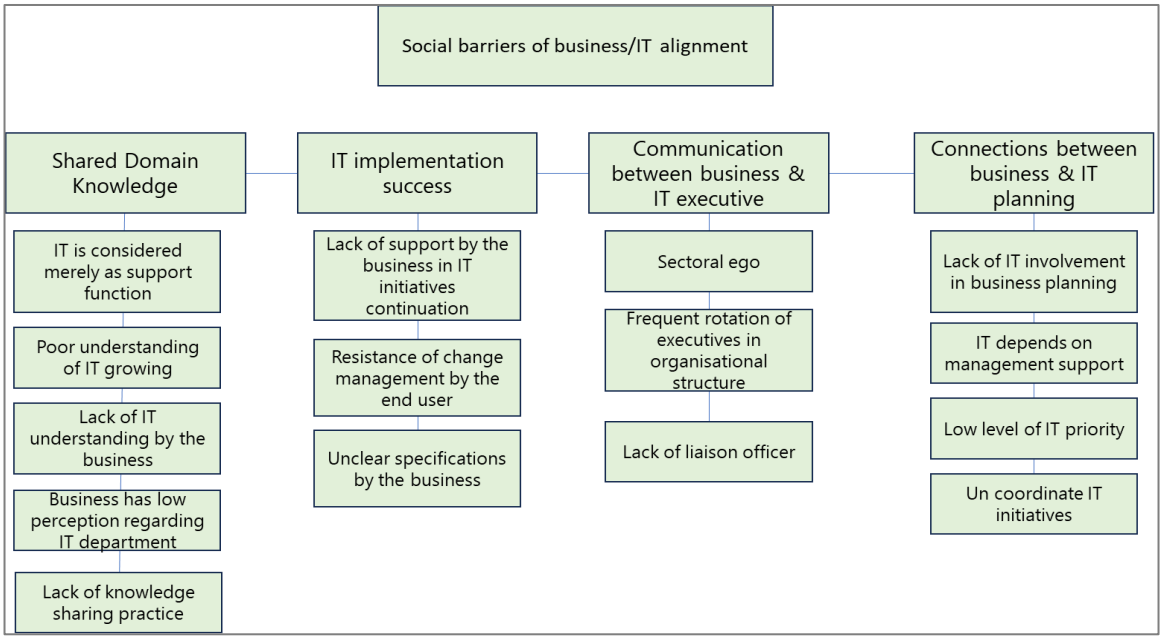


Source: Alaceva and Rusu, 2015

In a similar vein, Ridwansyah and Rusu (2020) conducted a study that delved into the social alignment barriers within the Ministry of Energy and Mineral Resources of the Republic of Indonesia (MEMR). They employed management-level interviews, ultimately pinpointing 15 social barriers to business-IT alignment, as illustrated in figure 2-2. These barriers were classified into four primary themes: (1) shared domain knowledge; (2) IT implementation success; (3); communication between business and IT and (4) connection between IT and business planning. They contended that in a governmental institution, strong executive support is crucial, and robust endorsement of IT by executives profoundly influences

business outcomes. Despite the notable executive backing for IT, certain interviewees perceived a persistent low priority for IT, representing an additional social barrier in BITA. This diminished priority is linked to the budget allocation, with IT being viewed as prohibitively expensive, incurring costs due to its infrastructure. Despite the similar study context within the public sector, it's worth noting that their participants were at the management level, overlooking the perspectives of operational-level individuals concerning IT alignment.

Figure 2-2 Social Barriers by Ridwansyah and Rusu



Source: Ridwansyah and Rusu, 2020

In a recent study by Levkov et al. (2023) an exploration of the temporal aspects of social alignment between business and IT at the operational level was undertaken. Their research unveiled the substantial influence of eight-time dimensions and three temporal events on this alignment. The time dimensions included factors such as time allocation, entrainment, time horizon, deadline behaviour, scheduling, cycle, interruptions, and polytonicity. Additionally, three pivotal temporal events were identified, significantly impacting communication between business and IT at the operational level: (1) business decisions shaping the final design of business demand, (2) IT decisions determining the implementation approach for the demand, and (3) corporate approval for IS change requests when they have implications for the global platform architecture.

Sundoro and Wandebori (2021) undertook a case study involving two state-owned telecommunication companies in Indonesia, employing five semi-structured interviews, field notes, and recordings. Their research identified twelve factors contributing to misalignment between business and IT during the implementation of a balanced scorecard. Their findings emphasized that human factors, enterprise architecture, and IT project implementation were three primary thematic sources contributing to misalignment. They highlighted that misalignment often stems from IT projects overpromising at their inception, leading to difficulties in efficiently and cost-effectively delivering the promised benefits to the company.

While previous studies, notably by Ridwansyah and Rusu (2020) and Alaceva and Rusu (2015), have primarily concentrated on uncovering social barriers to business-IT alignment at the strategic level, specifically emphasizing interactions between business and IT executives, a conspicuous gap remains in the current literature. This gap centres on the limited attention given to the operational level, where essential interactions between users and systems take place. Consequently, there arises a compelling and immediate need for a more in-depth investigation into the operational level, as it forms the bedrock for successful alignment through intricate individual relationships (Keen, 1991). Delving deeper into the operational dynamics of business-IT alignment and recognizing the pivotal role of user interactions in day-to-day activities can yield a more comprehensive and nuanced understanding of the subject matter. This thorough exploration holds the potential to significantly advance the field of business-IT alignment.

2.6.2 Operational Alignment Barriers

Business-IT alignment (BITA) is a comprehensive concept that encompasses various dimensions, including operational, strategic, and tactical alignment, as emphasized by Wagner and Weitzel (2012). El-Mekawy et al. (2015b) further highlight the importance of both strategic and tactical alignment, suggesting that barriers to BITA may manifest at different organizational levels, spanning operational, tactical, and strategic dimensions. This study focuses specifically on operational-level barriers, recognizing the pivotal role of the operational level in translating strategic plans into daily activities and ensuring successful application implementation aligned with business requirements. Operational alignment involves seamlessly integrating strategic plans into everyday activities to derive value from routine operations while achieving strategic objectives (Ridwansyah and Rusu, 2020, Fadi et al., 2020). Wagner and Weitzel (2012) describe operational alignment as a crucial link

between strategic alignment and actionable steps, as emphasized by Fadi et al. (2020) and Kurti et al. (2013). This justification underscores the necessity for a comprehensive understanding of BITA across various organizational dimensions. Moreover, scholars have shown keen interest in the role of the human factor in IT alignment. Reich and Benbasat (1998) and Maes et al. (2000) draw attention to the limited focus on human actors, while Alghazi et al. (2018) and Sundoro and Wandebori (2021) emphasize the critical significance of human factors. Neglecting these factors can lead to misalignment, as the prevailing interpretation often overlooks "organizational learning" and concentrates solely on IT strategy and infrastructure (Ciborra, 1997). This highlights the need for a holistic understanding of BITA, considering various organizational dimensions and acknowledging the interconnectedness of human factors in achieving successful alignment.

In previous studies, scholars emphasized the significance of operational alignment. Wagner and Weitzel (2012) conducted an alignment project within a leading global aerospace industry, specifically focusing on operational barriers. They identified factors such as limited shared knowledge, lack of interaction, and trust issues between the business and IT. Their study underscored the importance of top management evaluating communication links, cultivating connections between the business and IT domains, fostering both formal and informal interactions, and instituting regular interaction patterns to facilitate the transfer and exchange of knowledge. In information system development projects, the significance of communication channels for information transmission is emphasized, with a focus on the consistent use of established channel. In a separate investigation, Fadi et al. (2020) conducted a case study using the SAMM framework and semi-structured interviews. Their research unveiled nine critical barriers to operational alignment, encompassing miscommunication, mistrust between business and IT, and challenges in knowledge sharing.

While experts like Kurti et al. (2013) undeniably acknowledge the importance of operational alignment and highlight that top management's dedication directly influences assistance levels from functional managers and user behaviour, Wagner and Weitzel (2012) underscore its pivotal role in generating value through daily operations. Despite this consensus, there is a distinct call for further research, particularly at the operational and individual levels (Chan and Reich, 2007b, Tallon and Pinsonneault, 2011, Wagner et al., 2014). The dynamic relationship between technology and human interaction requires deeper exploration, especially in understanding how users shape strategy. Foundational research has primarily concentrated on IT alignment at the organizational or firm level, necessitating exploration at additional levels of analysis. Hence, there is a need for further exploration at various levels

of analysis (Chan and Reich, 2007a, Tallon and Pinsonneault, 2011, Wagner et al., 2014). In this context, the operational and individual levels emerge as promising avenues for investigation (Benbya and McKelvey, 2006). This study aims to uncover operational barriers hindering the success of IT alignment, shedding light on users' interpretations and perceptions of IT implementation. By delving into these nuanced aspects, the research seeks to provide a comprehensive understanding of operational alignment at multiple levels of analysis.

2.7 User Resistance

User resistance to the implementation of information systems has been acknowledged as a pivotal factor contributing to the failure of the new electronic systems implementation (Ali et al., 2016, Kim and Kankanhalli, 2009, Rey-Moreno et al., 2018, Almatrodi et al., 2023). Ansoff and McDonnell (1988) refer resistance as a complex phenomenon that introduces unforeseen delays, expenses, and instabilities into the process of strategic change. Recognizing and managing user resistance is imperative for the success of an information system implementation, as it can result in delays, budget overruns, and underutilization of the new system (Beaudry and Pinsonneault, 2005, Kim and Pan, 2006). In the literature on IS research, user resistance is often conceptualized as an adverse reaction or the opposition of users to perceived change related to a new IS implementation (Hirschheim and Newman, 1988, Markus, 1983). This study specifically defines user resistance as the opposition of a user to change associated with a new IS implementation.

Kim and Kankanhalli (2009) identified resistance as the primary hurdle to IT adoption and introduced the status quo bias perspective (SQBP) (Samuelson and Zeckhauser, 1988) to explain user resistance, highlighting a preference for maintaining the current status or situation. The focus of the status quo bias theory is to explain resistance to change by identifying the reasons and approaches through which users favour the current system over a new one (Almatrodi et al., 2023). Consequently, this theory contributes to a more profound comprehension of why users exhibit a psychological preference for current systems, outlining why and how organizational actors choose to resist (Li et al., 2016, Almatrodi et al., 2023). It enhances understanding regarding information systems (IS) and resistance, delineating the origins of resistance and strategies for overcoming it.

Samuelson and Zeckhauser (1988) categorized explanations for status quo bias into three main categories: rational decision-making, cognitive misperceptions, and psychological commitment. Firstly, rational decision-making involves evaluating costs and benefits, considering (1) transition and (2) uncertainty costs during the adaptation to a new system, leading to decisions consistent with past experiences. This might lead leaders to retain previous systems and methods of working. Status quo bias happens when the costs outweigh the benefit. Changing things can be costly and might affect how the organization is set up, like removing or combining departments. The uncertainty cost in status quo bias happens when using automation might make leaders worry about losing control, whether it is supported or opposed.

Secondly, cognitive misperceptions linked to the status quo bias suggest that the fear of perceived losses can influence decision-making, even if refusing to embrace change might result in even greater losses. These misperceptions can occur when influential organizational members do not fully grasp the advantages of automation. This becomes especially crucial in the context of changes in business processes and automation, as opposition and resistance may arise if employees and managers do not comprehend the potential overall benefits. Lastly, psychological commitment encompasses sunk costs, social norms, and efforts to uphold control, impacting an individual's status quo bias and encompassing worries about making irreversible wrong decisions. Sunk costs centre around transitioning to a new way of working, involving the adoption of new methods. Social norms pertain to behaviours and actions accepted as the norm, which can either strengthen or weaken individuals within an organization. The loss of control may be felt by individuals who have adhered to specific norms before the implementation of automation, and this can also lead to status quo bias.

Several studies have focused on user resistance perspective during the IT implementation. Kim and Kankanhalli (2009) combined technology acceptance literature with bounded rationality concepts to explain user resistance, aiming to understand technology implementation evaluation. They explained that resistance from users arises when they encounter challenges in the process of implementing a new system. The study suggests that management should increase the perceived value of change by emphasizing the viewpoint of users. In addition, enhance organizational support with training, guidance, time, and resources to facilitate learning the new system and reduce user resistance. Ali et al. (2016) conducted a literature review and proposed that no single tactic or definitive solution exists to prevent user resistance. They categorized user resistance into three types: system-oriented (related to technology factors such as user interface and ease of use), people-oriented

(involving individual factors like background traits, attitudes, experience with technology, and required skills), and interaction-oriented (pertaining to factors like employee autonomy and access to real-time data). Various approaches are suggested to address user resistance, including training, heightened user involvement, integrating their feedback into decision-making processes, effective communication, and job reassignment.

Similarly, Lee and Joshi (2017) emphasized the pivotal role of delving into user resistance within Information Systems (IS) research. Their scrutiny of IS research literature revealed a predominant focus on cost-benefit analysis. Notably, they underscored the value of the Status Quo Bias Paradigm (SQBP) in shedding light on sources of bias and the underlying mechanisms in decision-making processes that contribute to maintaining the status quo. By directing attention to user biases, researchers can forge novel paths in IS research on user resistance, especially given that certain SQBP-related constructs, such as loss aversion and regret avoidance, remain underutilized in the IS domain.

In a related context, Rey-Moreno et al. (2018) conducted a mixed-method study employing a questionnaire to evaluate hypotheses with two user groups regarding e-government adoption. They posit that habit serves as the primary inhibitor in e-government adoption and emphasize that resistances and status quo bias should be treated as distinct forms of inertia, categorized as inhibitors. This perspective accentuates the importance of recognizing these factors as primary obstacles in the e-government adoption process, warranting a comprehensive understanding and a strategic approach to effectively address these challenges. Similarly, user perceptions have come to the forefront of consideration. Ahn and Chen (2022) conducted a study investigating how the perceptions of government employees influence their willingness to support the use of AI technologies in government. Drawing on survey data from government employees in the United States, they revealed that the readiness to implement and adopt AI technologies in the government hinges on a spectrum of both positive and negative views regarding these emerging technologies. These findings underscore the significant role of IT value perception among government employees, aligning with the broader discourse on understanding and addressing challenges in IT adoption.

Almatrodi et al. (2023) studied the perceived risks linked to the adoption of a new automated system, recognizing it as a pivotal factor contributing to resistance to change. They employed in-depth interviews, engaging employees across different hierarchical levels within a singular public organization in Saudi Arabia. The underlying objective of the study is to

provide valuable insights for organizations aiming to build a robust foundation for change before integrating more advanced technologies. Through their research, various factors contributing to status quo bias were identified, encompassing concerns about job security, adaptations to laws and regulations, limited comprehension or knowledge of the technology, a deficit of trust in the technology, perceived risks and costs associated with change, adjustments in business processes, shifts in organizational structure and power dynamics, and the discomfort associated with making challenging decisions.

An in-depth review of user resistance in Information Systems (IS) implementation provides a detailed analysis of the current literature, significantly improving our understanding of user resistance within this context. Recognizing the pivotal importance of this comprehension, the user resistance literature stands out as an essential tool for adeptly addressing the inherent hurdles of IS implementation. By synthesizing insights gleaned from the literature review with IT alignment literature, it enhances the understanding and practical application of successful IT alignment in public organizations.

2.8 Critical Review Findings

As previously discussed, a substantial body of research has predominantly focused on exploring strategic/intellectual alignment within the sphere of commercial enterprises over the past three decades (Luftman and Kempaiah, 2007, Karpovsky and Galliers, 2015, Luftman et al., 2015, Kahre et al., 2017, Luftman et al., 2017, Rusu and Jonathan, 2017a, Kappelman et al., 2021, Amarilli et al., 2023, Horovitz, 1984, Luftman, 1996, Reich and Benbasat, 1996, Luftman, 2001, Kearns and Sabherwal, 2006). Academia has dedicated significant attention to the concept of Business-IT alignment, driven by its proven impact on organizational performance, encompassing competitive advantage, increased profitability, and enhanced agility (Őri and Szabó, 2019b, Kim and Kim, 2020, Kappelman et al., 2021). Despite these efforts, aligning business and IT within firms remains a formidable challenge, spanning strategic to operational levels and involving social dimensions. The intellectual aspect focuses on aligning business and IT strategies, while the social dimension revolves around fostering shared understanding among executives and staff from both departments. It is crucial to acknowledge the operational actors who play a significant role in driving the achievement of IT alignment.

Public sector organizations possess distinct characteristics. The evaluation of IT investments, incorporating non-financial criteria and the imperative to balance social, economic, and political objectives, while considering multiple stakeholder interests, including the Thai populace, defines the unique qualities of these organizations. These factors significantly heighten the complexity of integrating information technology into administrative activities. In addition, the intricate interplay between decision-making frameworks and the diverse range of services provided by public institutions, distinct from their private counterparts, influences strategic tendencies in achieving IT alignment for the benefit of citizens and stakeholders. Consequently, a nuanced understanding of the distinct issues and considerations inherent in aligning information technology with the overall goals of the public sector becomes paramount.

Despite ongoing efforts to understand IT alignment antecedents, the resolution of this challenge continues to evolve due to technological advancements and shifts in the corporate landscape. Yet, the exploration of IT alignment in public organizations has been limited, resulting in a notable research gap (Rusu and Jonathan, 2017a, Jonathan et al., 2020b, Jonathan, 2022). Generalizing findings from the private sector to the public sector is constrained by diverse contextual factors and shifts in the alignment concept over time, emphasizing the need for comprehensive knowledge regarding IT alignment formulation in the public sector.

Research Question 1: How is IT alignment perceived and how are the challenges of IT alignment addressed in public organisations?

Next, the concept of IT misalignment refers to an unfavourable state where organizations are unable to attain or maintain alignment (Őri, 2016). It is described as the continuous efforts, involving management and information systems, to detect and test the interrelation of all components of the business-IT relationship consciously and coherently (El-Telbany and Elragal, 2014). This issue stems from ineffective communication and collaboration between IT and business stakeholders, discrepancies in IT investments, inadequate IT governance, and a lack of integration between IT capabilities and business processes. The presence of misalignment has a detrimental impact on organizational performance, hindering the achievement of intended business outcomes (Pashutan et al., 2022, Ilmudeen et al., 2019, Luftman et al., 2015, Chan et al., 2006).

Social alignment involves coordination among actors in IT alignment including management and operational level. While various studies have delved into the behaviour and practices of managers in achieving strategic alignment (Levkov et al., 2023, Jia et al., 2018, Chi et al., 2017, Wu et al., 2015b, Wagner et al., 2014, Silvius et al., 2009, Tan and Gallupe, 2006, Reich and Benbasat, 2000), there is a notable gap in empirical research that investigates practical frameworks, especially in integrating strategic plans into day-to-day activities to derive value from routine operations while simultaneously achieving strategic objectives at the operational level. The lack of conclusive insights and tactics in this area undermines the efficacy and general validity of existing studies, thereby limiting a comprehensive understanding.

Existing scholarly investigations predominantly focus on the opinions of management-level individuals, overlooking the perspectives of operational-level actors within the organizational structure. Previous research has identified several factors hindering the achievement of business-IT alignment, including limited involvement of IT executives in strategic plans, insufficient visibility of IT personnel, communication obstacles, strained inter-departmental relationships, historical factors related to IT implementation, business executives' attitudes toward IT, the presence of shared domain knowledge, and the role of leadership. These factors collectively contribute to the complexity of the alignment process, emphasizing the significance of resolving them through consensus. Moreover, there is a dearth of scholarly research specifically investigating individuals employed in the public sector at the practitioner level. This presents a significant opportunity to examine contextual factors surrounding public organizations in an Asian country, addressing a gap in the existing literature.

The social aspect of IT alignment involves a diverse range of individuals actively engaged in the alignment process, including internal and external members of the company. Various stakeholders, such as public employees, IT project designers, and influential external figures like cabinet members, ministers, department directors, and citizens, contribute to, shape, and influence the state of IT alignment. The views and behaviours of individuals inside the business play a crucial role in achieving effective alignment, emphasizing the significant impact of the social component in public sector situations.

In prior scholarly investigations of the alignment between business and information technology (IT) within organizational contexts in Thailand, the primary focus has been on the strategic alignment of IT in the banking sector (Saetang and Haider, 2013) and the hotel industry (Charoensuk et al., 2014). In contrast, there has been limited research on the alignment between business and IT in the public sector, specifically regarding the social aspect of alignment at the operational level within public sector agencies. This research aims to fill the gaps in empirical investigations concerning the social obstacles faced in achieving business-IT alignment inside governmental organizations in Thailand, leading to the formulation of the subsequent research question:

Research Question 2: **How do government employees perceive and experience the alignment of IT systems with their work processes, and what factors shape these perceptions in public organizations?**

Similarly, in recent years, the scholarly community has demonstrated a significant interest in aligning business and information technology (IT). This enthusiasm primarily arises from the recognized influence of this alignment on organizational performance, encompassing competitive advantage, profitability, and agility. Evident within the domain of Business-IT alignment are substantial scholarly investigations by Chan et al. (2006), Luftman et al. (2015), Wu et al. (2015b), Ilmudeen et al. (2019), Slim et al. (2021), Pashutan et al. (2022), Alghazi et al. (2020), Alaceva and Rusu (2015), Luftman et al. (1999b). However, a notable limitation exists concerning actionable plans or roadmaps guiding the public sector on how to achieve IT alignment, as highlighted by Ridwansyah and Rusu (2020), Schlosser et al. (2015), Jonathan et al. (2018). Achieving effective alignment between business and IT in the public sector presents inherent challenges, underscoring the importance of resolving misalignment for optimizing performance and service delivery.

By pinpointing critical issues and offering insightful guidelines on alignment practices, this review ultimately seeks to enhance the efficacy and efficiency of IT implementation within the public sector. A conspicuous void emerges concerning the exploration of misalignment factors intrinsic to the public sector, thereby limiting comprehension, and impeding the progression of organizational practices. Consequently, this study addresses this void by focusing its inquiry on research question: How can public organizations effectively ensure IT alignment and minimize IT misalignment from the user's perspective? Through this targeted investigation, the goal is to shed light on the specific challenges faced by public sector entities and offer tailored solutions to optimize IT alignment, contributing to the overall advancement of organizational practices in the public sector.

Research Question 3: How can public organisations effectively ensure IT alignment and minimize IT misalignment from the user's perspective?

In this research, it became evident that no single theoretical framework fully addresses the complexities of IT misalignment in public organizations. Therefore, I have undertaken a comprehensive literature review, integrating insights from various scholarly domains. Understanding the public management system is crucial, as it provides foundational knowledge about the structure, governance, and operational dynamics of public organizations, which directly influence the implementation and alignment of IT systems. Furthermore, the literature on red tape is particularly relevant because it addresses the bureaucratic hurdles and administrative burdens that can obstruct IT alignment and the successful deployment of technology in public organizations. Additionally, the literature on IT alignment offers essential perspectives on the challenges and nuances involved in aligning technology with organizational objectives in the public sector. Simultaneously, user resistance theory sheds light on the psychological factors affecting technology acceptance, which are pivotal for understanding stakeholder engagement and adoption processes. Recognizing these barriers is critical for developing effective strategies to navigate and mitigate them, thereby facilitating smoother IT integration.

By acknowledging the complexities inherent in public sector management, this research underscores the unique challenges in achieving IT alignment in these settings. The comprehensive approach of synthesizing multiple theoretical perspectives ensures a more nuanced and thorough understanding of the various factors influencing IT misalignment. This enriched analysis provides a robust foundation for identifying practical solutions to enhance IT alignment in public organizations. By drawing from these diverse sources, I aim

to bridge the research gap without the limitations of adhering to a single theoretical framework, thereby offering a more holistic and insightful exploration of the issue.

2.9 Chapter Summary

The chapter underscores a significant research gap in IT alignment within the public sector, particularly concerning the social dimension at the operational level within public organizations. The study aims to bridge this gap through an exhaustive investigation into the operational alignment barriers hindering business-IT alignment in Thai public organizations. The chapter revolves around three central research questions addressing alignment strategy, multifaceted factors obstructing social IT alignment at the operational level in the public sector, and strategies for preventing as well as rectifying misalignment to enhance organizational performance. The concept of IT misalignment plays a central role, highlighting a scenario where the IT function lacks synchronization with business objectives, emphasizing the crucial social dimension.

Chapter 3 Research Methodology

3.1 Introduction

The purpose of this chapter is to justify the methodological choices informing the research design. This chapter begins with the research philosophy as an overall umbrella for conducting research. The next section outlines the research design, which serves as a strategy for answering research questions. It is followed by a description of the study setting in the Thai public sector context. Subsequently, the chapter delves into data collection, data analysis. Finally, the chapter concludes with a discussion of research rigor and ethical considerations.

3.2 Research Philosophy

3.2.1 Research Paradigm

The study adopts an interpretivist paradigm to acknowledge the complexity inherent in human experiences within information system research (Orlikowski and Baroudi, 1991, Miles et al., 2020). This approach prioritizes in-depth exploration over superficial statistical analyses, uncovering profound insights into human behaviour and contextual dynamics. Interpretive studies are well-suited for information system research as they focus on how individuals attribute meaning to phenomena (Walsham, 1995). Additionally, interpretive approaches are crucial for understanding the intricacies of information system settings and the processes through which they interact with their broader context (Walsham, 1993, p.4-5).

Contrary to this interpretive perspective, critical paradigm research controls its experiences and appraises its power to adjust and legitimize methods to observe its world (Oates, 2006). The critical paradigm focuses on social reality, which is historically established, created, and recreated by people (Myers and Avison, 2002). Additionally, individuals possess the agency to bring about changes in their social and economic phenomena (Orlikowski and Baroudi, 1991, p.5). In addition, the positivist school aims to establish quantifiable evidence that can be summarized, including factors that are replicable. These characteristics of the critical and positivist paradigms render them unsuitable for studying social IT alignment in the public sector.

Research paradigm is pivotal as it shapes the researcher's comprehension of the world. Within the realm of social science research, "paradigm" refers to philosophical suppositions, essentially a set of beliefs shaping how the researcher understands the world (Lincoln et al., 2011). These paradigms are used to discuss a specialist group's beliefs and values concerning reality and knowledge (Easterby-Smith et al., 2015, Kaushik and Walsh, 2019). Research paradigms hinge on three pillars (Hesse-Biber, 2010, Guba and Lincoln, 1994). Firstly, ontological pertains to the researcher's assumptions about the nature of reality and existence. Secondly, epistemological concerns the researcher's stance on how knowledge is acquired and validated. Lastly, methodological addresses the practical approaches and techniques adopted to gather and analyse data.

The study adopts an exploratory approach due to the lack of an established theoretical framework focusing on the social dimensions of IT alignment. Methodically structured data collection and interpretation processes aim to uncover novel factors and processes relevant to alignment, enhancing understanding of contextual influences on outcomes. Interpretivism guides the study, allowing for an in-depth exploration of eSAR users' perceptions and experiences. This approach facilitates understanding of interaction dynamics and how civil servants attribute value to the information system within the performance measurement initiative. The philosophical orientation influences various research aspects, including data collection and analysis techniques, across diverse domains. Understanding one's epistemological position clarifies the researcher's role in research methods, guiding evidence collection and interpretation. It also informs the selection of research methods, enabling innovation and tailored approaches beyond past experiences.

3.2.2 Research Approach

This study employed a qualitative research methodology due to the complex and diverse nature of reality. In qualitative research, reality is often regarded as subjective and manifold among its recipients. This approach focuses on comprehending the dynamics among social actors and recognizes the nuanced and individualized aspects of reality (Creswell, 2007). This IT alignment with the interpretive paradigm emphasizes the shared belief between qualitative research and interpretivism that multiple realities exist, shaped by individuals' interpretations (Guba, 1990). Such a deliberate selection aligns with the study's objective of exploring individual perceptions and experiences concerning IT utilization within the Thai public sector.

The employment of an inductive qualitative research approach is integral to this study. Unlike the deductive approach, the inductive method involves constructing new theories from qualitative data whereas the deductive approach focus on formulating, testing or disproving theories (Creswell, 2007). Qualitative research's adaptability allows for the adjustment of research questions and data collection methods during the study. Hence, the testing of a specific theory is not mandatory within qualitative research. Therefore, employing an inductive qualitative research approach in this study is suitable.

Qualitative research presents a distinct approach from quantitative research on multiple grounds. Notably, the reporting style in qualitative research places an emphasis on providing comprehensive explanations and detailed descriptions, incorporating personal expressions over rigid quantitative labels (Creswell, 2007). Distinguishing itself from quantitative research, qualitative research assigns specific definitions to terms based on participants' interpretations, diverging from the broader definitions in quantitative research. This aligns with the study's focal point of delving deeply into participants' information within specific settings, accentuating individual subjectivity rather than prioritizing generalizability (Creswell, 2007).

Scholars have extensively debated the distinguishing characteristics of qualitative and quantitative research methodologies. Bryman (2016) characterizes quantitative research as involving the collection of numerical data, with a deductive approach to the relationship between theory and research, and a particular inclination towards a natural science perspective, notably positivism (Bryman, 2016, p.160). This methodology primarily focuses on the setup of the research and the measurement of its validity.

Corbin and Strauss (2008) emphasize the significance of qualitative research in comprehending the complexities of individuals' lives, behaviours, narratives, and interactions within specific contexts, prioritizing holistic, subjective, and phenomenological dimensions. Qualitative research embodies a holistic, subjective, and phenomenological nature, encompassing not only descriptive but also naturalistic elements, thereby standing in contrast to positivism. Employing methods such as document analysis, interviews, and observations, qualitative research aims to grasp research insights within authentic and meaningful contexts.

The choice of qualitative methods in this study is driven by several compelling factors. Qualitative research is known for its inherent flexibility, enabling the exploration of

innovative ideas and proving to be an effective approach for investigating IT misalignment (Charmaz, 2006). Moreover, the application of the qualitative case study methodology is particularly suitable for theory-building, involving a thorough analysis of existing scholarly discussions and the explicit formulation and clarification of underlying theories. Additionally, the implementation of Grounded Theory, as a qualitative approach, facilitates a comprehensive understanding of gathered data and allows for diverse perspectives to be employed in gaining a profound grasp of the subject. Just as one might switch lenses for an overview or a closer inspection, grounded theory offers various lenses for meticulous examination.

Conversely, the quantitative method utilises surveys and experiments for data collection (Myers and Avison, 2002). The primary aim of quantitative research is to test hypotheses through numerical analyses and larger sample sizes. According to Myers (1997), the aim of quantitative methods is to establish a causal relationship between cause and effect. Thus, owing to its positivist orientation, the quantitative research method does not align with the research objectives of this study and, consequently, is not included.

Guba and Lincoln (1994) and Creswell (2013) have extensively compared the distinction between qualitative and quantitative research methodologies. In term of language usage, qualitative research is inclined towards the utilization of more informal language he results of qualitative research often manifest in the form of theories and patterns, whereas quantitative research predominantly focuses on achieving generalizability in prediction, explanation, and understanding. In the context of quantitative research, researchers' involvement tends to be minimal, with most data presented in the form of numbers, statistics, tables, and discussions connected to hypotheses. On the contrary, qualitative researchers typically engage directly with the subject under investigation, conducting data analysis through narratives and observations, utilizing the data to establish broader contextual understandings.

The qualitative research approach is not without limitations. Bazeley (2013) argued that qualitative research is “a complex, changing and contested field – a site of multiple methodologies and research practices” (Punch,1998:139 cited by Bazeley, 2013: p8)”. Moreover, it can be subject to scrutiny for biases, self-selection bias, artificiality, and concerns surrounding data quality. However, in the context of this study, the qualitative research approach focuses on the firsthand experiences of users, particularly homing in on how public sector employees perceive the integration of non-financial reporting system to

streamline their administrative tasks. Chosen specifically for its capacity to address "how" or process-related inquiries, the qualitative research approach aptly aligns with the study's overarching objectives.

In conclusion, it is imperative for researchers to thoroughly examine their research philosophy and methods before undertaking a study. By establishing the research paradigm from the outset, researchers can deliberately craft the research process. The success of the research heavily relies on the meticulously defined research design, which facilitates the formulation of relevant questions and the selection of appropriate techniques to address the research inquiry effectively. The research design considers various crucial factors, including objectives, research setting, and other critical considerations.

3.3 Research Design: Case Study

3.3.1 Overview of Case Study Design

This study adopted a case study design. Case study has been commonly employed approach within the information systems research domain (Oates, 2006) and in prior IT alignment studies (e.g., Vander Elst and De Rynck, 2014b, Jonathan et al., 2020a) . Notably the literature review emphasises that case study research remains the predominant method in IT alignment studies, particularly within the public sector (Chan and Reich, 2007b, Jonathan et al., 2020c). The case study design enables an empirical exploration of a contemporary phenomenon within its real-world context. In particular, the case study design is remarkably effective when the boundaries between the phenomenon and its context are less clearly defined (Yin, 2009, p.18). This study emphasis on both the context and the phenomenon, with the intention of exploring an intriguing phenomenon and its corresponding context, while recognizing the inherent contextual dependence of the phenomenon itself.

Case studies possess crucial characteristics that make them highly relevant. Firstly, case studies excel in conducting comprehensive examinations of phenomena involving diverse stakeholders, complex processes, and multifaceted objectives (Yin, 2014). What distinguishes case studies is their unique capacity to establish operational connections over an extended period, setting them apart from mere evaluations of incidence or frequency (Yin, 2014). Secondly, case study research embodies a comprehensive methodology that spans various disciplines, including community studies, education, public health, business, public policy and administration, and social issues. Furthermore, this study leverages a diverse array of data collection techniques to gain an in-depth understanding of events and their

consequences within specific contextual confines. These inherent strengths underscore the outstanding and pertinent nature of case studies within the scope of this study.

There are two primary types of case studies. A single case study focuses on the particularity and complexity of a singular case, seeking to understand its activities within significant circumstances (Stake, 1995). In contrast, a multiple case study centres around the examination and comparison of several cases, enabling the identification of patterns, similarities, or differences (Yin, 2003). Multiple case studies involve exploring various instances to comprehend differences and similarities between cases, offering a broader perspective for addressing research questions and contributing to theoretical advancement (Baxter and Jack, 2008, Stake, 1995, Eisenhardt and Graebner, 2007). However, Dyer and Wilkins (1991) contend that an in-depth examination of a single case does not necessarily guarantee the generation of a comprehensive theory, and multiple case studies may not consistently yield the same insights

This study adopts a single case study approach for several reasons. Single case studies allow for an exploration of the phenomenon under examination (Piekkari et al., 2009) and enable an in-depth examination of the complex interplay between the technological system and intricate human factors in the study context. Moreover, the choice of a single case study is particularly suitable in the context of a public organization (Stake, 1995). Emphasizing the distinct context of Thai government departments contributes to a nuanced and comprehensive exploration of IT alignment within the public sector (Danziger and Andersen, 2002, Gustafsson, 2017). Additionally, single case studies are widely used in empirical research and significantly contribute to understanding IT alignment within the context of public organizations (Rusu and Jonathan, 2017b). This suitability arises from the ability of case studies to effectively delve into real-life events involving multiple actors, processes, and objectives.

While case studies have been criticized, with concerns raised by Yin (1984) regarding potential lack of rigor, challenges in generalization and execution, and the risk of extensive documentation bias, and Dyer and Wilkins (1991) asserting that single case studies can yield more profound theories than multiple case studies, it is crucial to consider these viewpoints. Baxter and Jack (2008) emphasized that multiple case studies can be time-intensive and financially demanding. To address these concerns, triangulation can be employed to bolster the validity of findings, as highlighted by Eisenhardt (1989), through the use of multiple data collection sources to confirm concepts and test hypotheses.

Considering these various viewpoints, the strengths inherent to the case study approach establish it as the preferred strategy for this study. The focus of the investigation lies in understanding the adoption of the IT system within Thai public departments, aiming to explore perceptions and identify factors contributing to IT misalignment. Other research strategies, such as experimental design or survey strategy, have been deliberately excluded from this study. This deliberate exclusion is based on their limitations in isolating the phenomenon from its context or restricting the focus to a predetermined questionnaire (Yin, 2014). Given the study's strong emphasis on exploring individual perceptions of information technology system adoption in the Thai public sector, the adoption of single case study design is particularly suitable. This approach allows for a comprehensive exploration that captures both the breadth and depth essential for a thorough research inquiry.

3.3.2 Research Context

Thailand presents an intriguing and advantageous locale for a study on IT implementation, and two compelling reasons underscore its suitability. Firstly, the research aligns seamlessly with the priorities of the Thai government, providing an opportunity to contribute directly to the nation's technological advancements. By delving into IT implementation within the specific context of Thailand, the study can yield insights tailored to the nation's unique socio-cultural and economic landscape. This not only enhances the relevance of the research but also facilitates the practical application of findings in the local context. Secondly, choosing Thailand offers a distinctive setting for the study as most research on IT implementation has been conducted elsewhere. Examining IT adoption and challenges in a less-explored environment like Thailand introduces a novel dimension to the academic discourse, enabling a more comprehensive understanding of the global variations in IT implementation strategies and outcomes. This distinctive focus contributes not only to academic knowledge but also offers valuable insights for practitioners and policymakers navigating the intricate terrain of technology integration in diverse settings.

Thailand emerges as an exceptionally fitting choice for a study on IT implementation for an additional, compelling reason—the researcher's affiliation with the Thai government. The researcher's role within the government ensures unparalleled access to a wealth of valuable data and insights, facilitating a thorough exploration of the intricacies surrounding IT implementation. This insider perspective not only streamlines the research process but also affords a nuanced understanding of the government's IT strategies, challenges, and

successes. The researcher's close collaboration with government agencies provides an opportunity to navigate bureaucratic intricacies, gaining insights that might be challenging for external researchers to access. This unique vantage point promises a depth of understanding that extends beyond the surface, offering a rare and valuable contribution to both academic discourse and practical implications for governmental IT initiatives in Thailand.

3.3.3 Case Background

3.3.3.1 Thailand and Thai Public Sector

This study selected the Thai public sector organization as a research context, focusing the implementation of an IT system as electronic performance monitoring system, in the performance measurement system. Thailand public sector hold unique operations as it stems from its lengthy historical background and the dynamic nature of the country's socio-political profile. Since the Revolution of 1932, Thailand has transitioned from an absolute monarchy to a constitutional monarchy, leading to changes in the government's structure, administrative system, and public services (Baker and Phongpaichit, 2022). Operating within a constitutional monarchy framework, Thailand limits the King's powers as defined by the constitution (Hewison, 2007). The government comprises three branches: legislative, executive, and judiciary (Wise, 2019). Led by the prime minister (PM), the executive branch wields substantial authority and is responsible for the appointment or removal of ministers. The cabinet, consisting of 35 ministers, oversees the management of the country's ministries and departments, playing a crucial role in policy formulation and implementation (Lee, 1999).

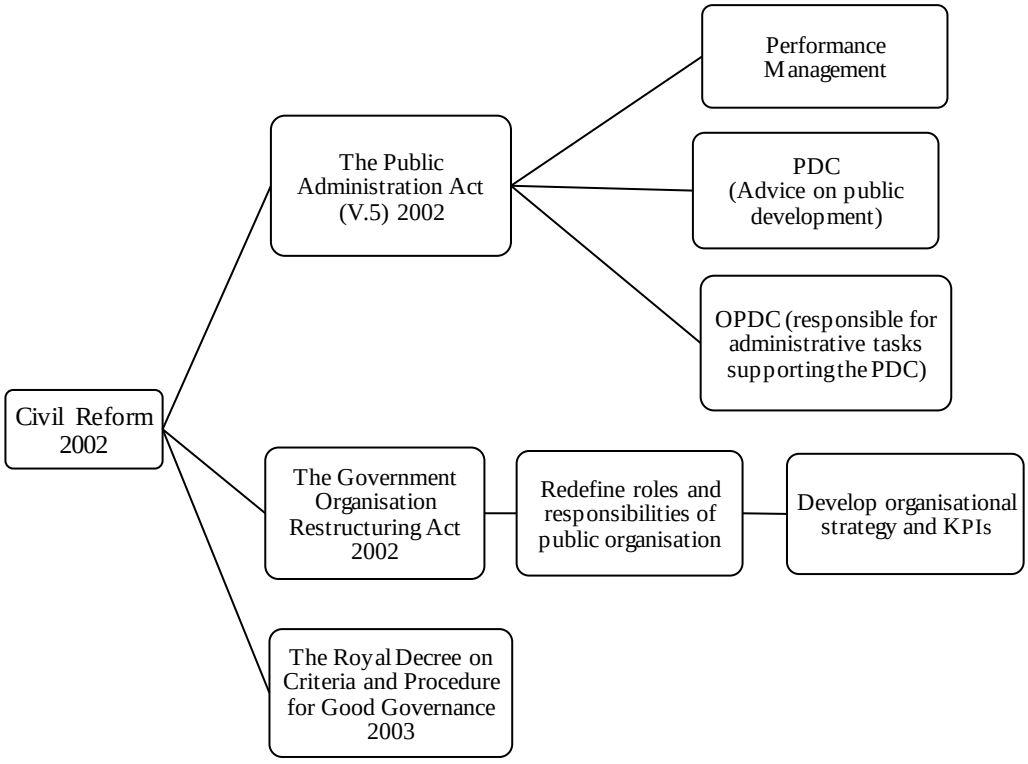
The public sector in Thailand has long been the central mechanism for serving the nation. Under the constitutional monarchy form of government, the prime minister leads the government and the cabinet, wielding power (Inpa, 2020). Thailand's public administration comprises three types: national or central, provincial, and local. At the national level, there exist 20 ministries and 153 departments, while at the provincial level, there are 77 provinces, and at the local administrative level, 878 districts with 7,255 sub-districts. Additionally, there are two special local administration units: the Bangkok Metropolitan Authority and Pattaya City (Yavaprabhas, 2018).

On October 2nd, 2002, marked a significant civil reform in Thailand. It aimed at enhancing the country's competitiveness (Sathornkich, 2010). This reform led to the implementation of two essential Acts by the Thai Parliament: The Public Administration Act (Volume 5) and

the Government Organization Restructuring Act B.E. 2545 (2002). Furthermore, the Royal Decree on Criteria and Procedures for Good Governance B.E. 2546 (2003) and the Public Sector Development Strategic Plan B.E. 2546 were introduced in response to these Acts. This significant transformation brought about considerable organizational restructuring within various government sectors, emphasizing the necessity for greater proactivity and adaptability within the public sector. The regulatory mandates compel public agencies to adhere to specific guidelines, highlighting the pivotal role of efficient public administration in elevating public well-being and achieving the sector's objectives. Given it strong emphasis on enhancing public sector services, the Thai public organisation serves as an ideal context for this research.

The result of the civil reform in 2002 has significantly brought several rigid regulations, as shown in the figure below.

Figure 3-1 The Result of Civil Service Reform



The following section explains details and function of legislations and plans in brief.

3.3.3.2 The Enactment of New Legislations and Plans

The significant civil reform in 2002 primarily centred on two key Acts ratified by the parliament: The Public Administration Act (Volume 5) and the Government Organisation Restructuring Act B.E. 2545 (2002). Both Acts were officially announced in the Royal Gazette in October with the primary objective of enhancing public sector services and providing a structured framework for organizing and managing government administration. In tandem with these Acts, a Royal Decree and a Strategic Plan were unveiled to support and reinforce their mandates. Specifically, the Public Administration Act (Volume 5) emphasizes the adoption of performance measurement principles by public agencies. These Acts also stress the importance of adhering to Good Governance (GG) practices, including ensuring accountability, fostering citizen participation, guaranteeing information transparency, and regularly monitoring and evaluating performance.

3.3.3.3 The Public Administration Act (Volume 5) B.E. 2545 (2002)

The Public Administration Act (Volume 5) B.E. 2545 aims to enhance the effectiveness of public services. It includes several sections that support this goal. Section 3/1 directs public administration to implement performance management principles (OPDC, 2004). The Act emphasizes the importance of good governance principles, focusing on information disclosure, accountability, public participation, and performance monitoring and evaluation.

Section 71/1 in the Public Administration Act (Volume 5) B.E. 2545 establishes the Public Sector Development Commission (PDC). The PDC advises on improving public administration, government organization structures, budgeting systems, and the monitoring and evaluation of public sector development and administration (OPDC, 2004). The PDC, appointed by the cabinet, includes a chairperson, a vice-chairperson selected by the prime minister, and ten commissioners from various fields of expertise (Sathornkich, 2010). Its role is to ensure that the Office of the Public Sector Development Commission (OPDC) operates in line with the Act and the cabinet's resolution (Ibid).

Section 71/10 of the Public Administration Act (Volume 5) B.E. 2545 outlines the responsibilities of the PDC, including providing advice on public development, organizational restructuring, budgeting systems, and other aspects of public administration. The commission is also responsible for monitoring and evaluating public sector development and administration, with reports submitted annually to the Cabinet, the House of Parliament, and the Senate (Sathornkich, 2010).

Additionally, Section 71/9 establishes the Office of Public Sector Development Commission (OPDC), responsible for administrative tasks supporting the PDC under Section 71/10. The OPDC conducts analysis, academic and technical research, and consultations with the PDC. It operates as a central agency under the Office of the Prime Minister, with the Secretary-General reporting directly to the Prime Minister. The OPDC plays a crucial role in promoting good governance and implementing performance management and measurement schemes for public organizations (OPDC, n.d.).

According to the Public Administration Act (Volume 5) of 2002, public agencies must establish performance evaluation procedures and criteria as specified by the PDC. This evaluation focuses on assessing agencies' performance in mission accomplishment, service quality, customer satisfaction, and value for money (Yosintra, 2016, Sathornkich, 2010). This requirement has been in place since 2004 and applies to all government organizations, with the OPDC overseeing performance evaluations to date.

3.3.3.4 The Government Organisation Restructuring Act B.E. 2545 (2002)

The restructuring of government organisational structures was instigated by the Government Organisation Restructuring Act B.E. 2545 (2002). This act aimed to redefine the roles and responsibilities of public organisations, streamline work processes, and reduce organisational size. To accomplish these objectives, government organisations were mandated to develop an organisational strategy that serves as a guiding document for strategic implementation. This strategy entails setting targets, defining outputs and outcomes, establishing Key Performance Indicators (KPIs), and work standards, which are subsequently made available to the public (OPDC, 2004b).

3.3.3.5 The Royal Decree on Principle and Procedure for Good Public Governance B.E. 2546 (2003)

The Royal Decree on Principle and Procedure for Good Public Governance B.E. 2546 (2003) serves as the foundation for establishing principles and procedures to ensure good public governance (OPDC, 2003b). The main objective of this decree is to enhance the quality of services provided to citizens and improve the overall performance of public administration across various ministries, agencies, and state institutions (OECD, 2020). Furthermore, the decree empowers the Public Sector Development Commission (PDC) to advise the Council of Ministers on matters related to the core functions of each ministry. Structurally, the decree comprises 9 chapters and 53 sections, with the first chapter centring on Good Public

Governance. Within this chapter, seven targets are outlined to guide the implementation of public administration in accordance with the principles of good governance: (1) Public welfare, (2) Efficient result of the mission of the state, (3) Effectiveness and worth of the mission of the state, (4) No unnecessary steps of work, (5) Adjusting mission for compliance with existing circumstance, (6) Providing convenience and response to the public requirement, and (7) Evaluate the performance of public administration.

The Royal Decree encompasses specific sections that pertain to the measurement of government agencies' performance. These sections, namely Section 12 and Section 45, impose obligations on government agencies to undertake the task of assessing the outcomes of their initiatives. The underlying objective of these provisions is to enhance the efficiency and effectiveness of government operations by means of enhancing performance measurement practices. This requirement, as outlined by Nilprapunt (2006)

"The government agency shall establish, under the rule, procedure and period as specified by the Office of Public Sector Development Commission (OPDC), an independent inspection committee in order to evaluate the performance of duty of the government agency related to the result of the mission, quality of service, the pleasure of customers and value for money".

Section 45 mentions the following:

"Apart from the evaluation under section 9 (3), the government agency shall establish, under the principle, procedure and period as determined by the Public Sector Development Commission, an independent evaluation committee in order to evaluate the performance of public administration of the government agency related to the result of the mission, quality of service, pleasure of public as customer, and worth of the mission".

The Royal Decree mandates that all Thai government agencies must comply with the requirement to measure the outcomes of their actions based on the budget they receive. This emphasis on performance measurement is intended to enhance governmental efficiency and effectiveness. It can be inferred that the Royal Decree on Principle and Procedure for Good Public Governance B.E. 2546 serves as the primary mechanism for developing performance measurement systems and ensuring their implementation across Thai government agencies (Sutheewasinnon et al., 2016). Consequently, government agencies are obligated, as specified by the Public Sector Development Commission (PDC), to establish an independent

inspection committee responsible for assessing their performance in relation to core function outcomes, service quality, customer satisfaction, and value for money (OPDC, 2003b,p.12).

The Royal decree serves as the principal legislation that grants authority to the Office of the Public Sector Development Commission (OPDC) as the leading government agency responsible for conducting performance evaluations of all government agencies since 2003 (OPDC, 2003a). The primary role of the OPDC is to support the Public Sector Development Commission (PDC) and formulate policies aimed at improving public sector services for citizens (OPDC, 2003a). Additionally, the OPDC is entrusted with the task of monitoring and evaluating the implementation of organisational reform plans within central agencies and departments. The agency also provides guidance to other entities to enhance their performance in alignment with the goals of bureaucratic reform. Moreover, the OPDC is charged with ensuring the effectiveness, efficiency, and value for money of various government functions (OPDC, 2003a).

The establishment of the Office of the Public Sector Development Commission (OPDC) in the early 2000s marked a significant development in Thailand's public sector landscape. Unlike other public organisations, the primary focus of OPDC is to initiate and support the reform efforts of public agencies with the aim of achieving higher levels of performance (Phusavat et al., 2009). Consequently, OPDC plays a pivotal role in establishing, monitoring, and evaluating the performance of government agencies' core functions. Within government agencies, performance measurement is a mandatory requirement under the performance agreement scheme (PA) that exists between the head of the government organisation and their superior. This PA serves as a mechanism to integrate the four-year strategic plan of the agency with its performance targets within the overall performance measurement process (Phusavat et al., 2009).

3.3.3.6 Thailand 4.0

Thailand 4.0 is the government's vision for a digital, value-based economy. This initiative aims to leverage technology and innovation across sectors like industry, agriculture, healthcare, and public services. As part of this shift, the government is embracing digitalization to streamline processes and enhance efficiency. The adoption of electronic systems, exemplified by the electronic Self-Assessment Report (eSAR) implemented by OPDC, showcases this commitment. By digitizing the SAR process, the government improves efficiency, transparency, and accessibility, supporting real-time monitoring of

organizational performance. This reflects Thailand's dedication to using technology to serve citizens better and aligns with the broader goals of Thailand 4.0. Overall, eSAR implementation demonstrates Thailand's progress towards a digitally driven future, modernizing government operations and enhancing service delivery.

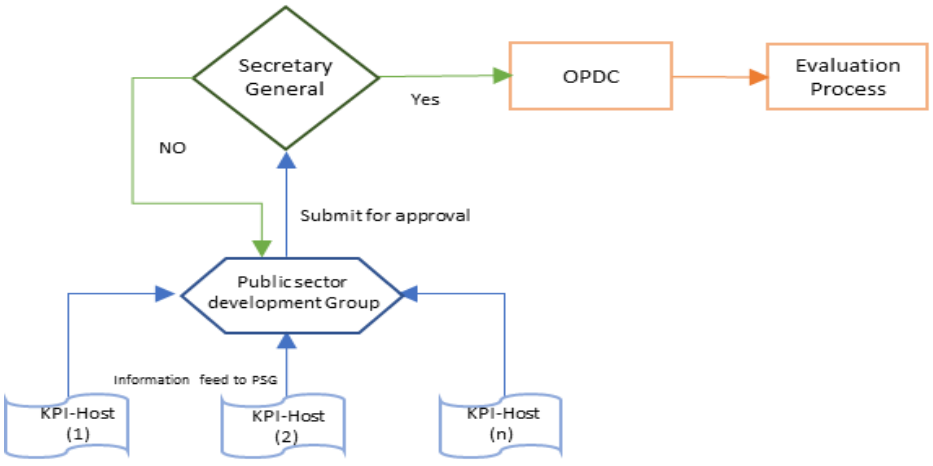
3.3.3.7 Study Setting (eSAR)

The study setting is on Thailand's government departments participating in the performance measurement scheme, with 20 ministries and 153 departments currently involved (OPDC, 2023). The context of the study, encompassing Thai public organizations, offers valuable insights into the obstacles that impede information technology alignment. While case studies offer detailed information and compelling instances, they may also entail subjectivity, restricting the generalizability of findings to a wider population.

3.3.3.7.1 The Self-Assessment Report (2002-2013): Paper-based report

The PMS process requires public organizations submit a self-assessment report to monitor their performance progress. This report serves as a crucial mechanism for organizations to evaluate their achievements. Previously, from 2002 to 2013, the report was prepared in a paper-based format, requiring departments to submit it along with necessary supporting documents, demonstrating their progress in meeting the set KPIs. Timely collection of performance information from various stakeholders within the organization was vital, with the deadline for submission set in October. Figure 4-4 visually represents the previous process involved in completing the self-assessment report.

Figure 3-2 The Self-assessment Report Flow During 2002-2013



Source: OPDC, 2011

Monitoring and self-assessment reporting occur at three intervals: the sixth, ninth, and twelfth months (OPDC, 2011). This regular monitoring enables organizations to closely track their performance and make necessary adjustments to their work plans and strategies in the face of unexpected challenges, ensuring the achievement of performance targets by the end of the year[1].

Communication among KPIs coordinators and PSDG is vital. The effective collaboration and communication foster cooperation and coordination within department. At the end of the fiscal year, the PSDG collects final information and supporting documents from the KPI-coordinators to evaluate whether the department has achieved the targets set for the KPIs. The PSDG then prepares the preliminary self-assessment report in a paper-based format, which is reviewed and approved by the secretary-general before submission to the OPDC. If the report is rejected or requires amendments, the PSDG must revise it to meet the specified requirements.

The paper-based self-assessment report posed challenges for departments. From 2002 to 2013, these challenges revolved around the timely submission and handling of a significant volume of documents. Departments were instructed to mail the reports and supporting documents to the OPDC within 30 days, with a strict deadline of 4:30 pm on October 30th. Failure to meet the deadline incurred penalties, resulting in a deduction of 0.05 points per day from the department's final performance score. This rule was applied uniformly to all departments. For example, Department A, despite achieving an initial score of 5.000, experienced a reduction in its final performance score to 4.700 (5.000 - 0.300) due to a six-day delay in submitting their self-assessment report to the OPDC.

Moreover, the preparation, collection, and storage of hard copies of paper reports and supporting documents imposed a significant burden on departments. In the initial stages of adjusting to the performance measurement scheme, departments focused on "milestone KPIs," considering them more manageable compared to output or outcome KPIs. Process KPIs were especially preferred due to their ease of establishment and acceptance among public employees. These process KPIs involved defining specific steps or procedures, such as the Project Management and Quality Assurance (PMQA) KPI, which necessitated the establishment of procedures for internal quality assurance. Consequently, numerous related documents, including announcements, declarations, manuals, and procedural guidelines, had

[1] The PDC has acknowledge that from 2019 onward, departments can submit their self-assessment report every twelve months or in October.

to be collected as evidence. The management and organization of these documents often overwhelmed public employees.

3.3.3.7.2 The electronic Self-Assessment report (eSAR)

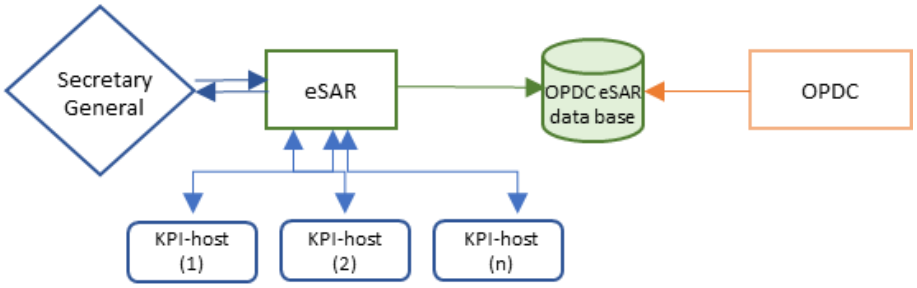
In 2013, the OPDC achieved a significant milestone with the introduction of the electronic Self-Assessment Report (eSAR, interchangeable with e-Report), a cutting-edge online non-financial reporting system designed to replace traditional paper reporting methods. This innovative platform empowers departments to submit their performance data through an online interface, requiring the electronic input of information and the uploading of supporting documents. The streamlined process extends to the department director, who can efficiently review and approve the self-assessment report within the system.

eSAR operates on a digital platform, enabling departments to track their performance progress and outcomes based on standardized criteria aligned with their organizational action plans. Its user-friendly interface ensures adaptability for organizations of all sizes and technological capabilities. Beyond convenience, the system plays a crucial role in promoting transparency and accountability, allowing agencies to showcase their dedication to improving the quality of public services. In essence, eSAR emerges as the driving force behind the promotion of good governance and the enhancement of efficiency and effectiveness within the Thai public sector.

The evolution of eSAR over time is noteworthy. The transition period, spanning from 2011 to 2014, involved gathering requirements, system design, and development. However, during the implementation phase, challenges surfaced, such as limited computer literacy among users and technical issues with the system. To address these obstacles, the OPDC took proactive measures, including comprehensive system training and the establishment of IT helpdesks to support public departments. Stringent measures were also introduced to ensure timely report submissions via the system, with penalties enforced for non-compliance, as emphasized by the OPDC in 2013 (OPDC, 2013b).

The figure below illustrates the process of electronic self-assessment report is as follow:

Figure 3-3 The Process of Electronic Self-Assessment Report



Once the department submits the electronic self-assessment report, the Office of Public Sector Development Commission (OPDC) can access the database to evaluate the department's performance. The eSAR system also features an assessment function, offering scores and permitting adjustments if necessary. The electronic nature of eSAR eliminates the need for physical transportation and commuting to department sites, resulting in significant time and resource savings.

The electronic monitoring system has been developed in correspondence with the performance framework. Consequently, any change in the measurement perspective directly influences the design of the eSAR system, necessitating adjustments to accommodate the alterations in the measurement perspective. The table below presents the evolution of the measurement perspective from 2000 to the present:

Table 3-1 Measurement Perspective Between 2002 - Present

Period	Measurement Perspective
2002-2011	Paper based monitoring and report manually.
2011-2013	Paper based report: Four perspectives namely, **performance efficiency**, **service quality**, **organisational effectiveness**, and **internal improvement**
2013-2017	Parallel reporting tool (Paper-based vs E-report) The re-structuring of four perspectives into two core dimensions: **Internal and external.**
2017-2020	e-Report Five agendas; Functional based, Agenda based, area based, Innovation based and Potential based. The outcome of organisational performance level is name as above standard, standard, and below standard.
2021 – present	e-Report Two agendas; Performance base and Potential Base. The new framework focus on working agility as well as consistency and linkage from the National Strategies.

Note: It is important to mention that in response to the Covid-19 pandemic, the performance evaluation for all public organisations in Thailand in 2020 was waived. However, organisations were still required to access the system and input information related to their performance indicators. It should be noted that although this data was collected, there was no formal evaluation process conducted for the organisations during that year.

The eSAR manual proves invaluable for users in public sector organizations. The manual offers step-by-step instructions, guiding users through the intricate processes of collecting, verifying and analysing performance data. Moreover, it illuminates the path to leveraging this idea for enhanced performance and outcomes. Crafted by OPDC, the eSAR manual is purposefully designed to cater to a diverse range of users, including administrators, public organisation users.

3.3.3.7.2.1 Organising User Account

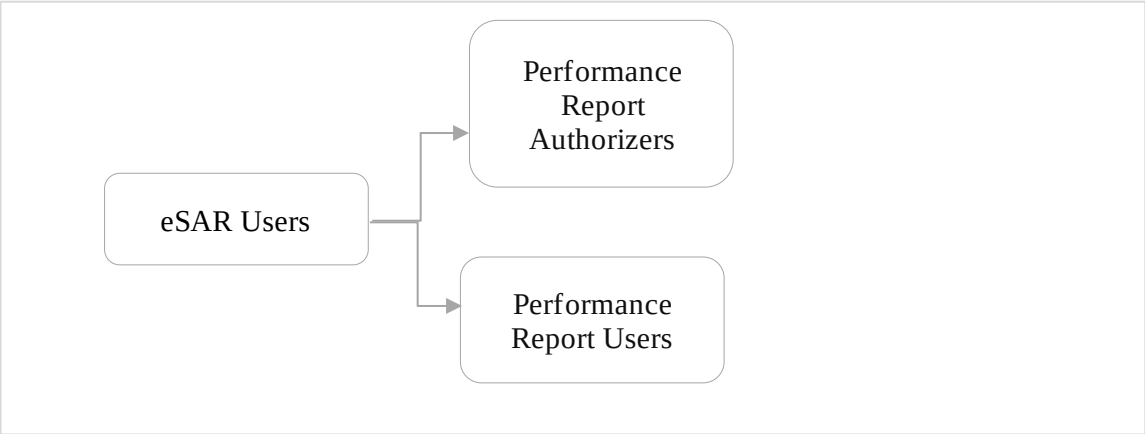
The eSAR system provides two levels of users for public organisation: performance report authorizers and performance report users. The performance report authorizer is typically the leader of an organization or an appointed member of management responsible for the PMS. The authorizer role involves reviewing, validating, verifying, and approving the performance reports submitted through the eSAR system.

On the other hand, **performance report users** are responsible for filling out the required KPI information in the eSAR system. The report user plays an active role in the performance reporting process by inputting relevant data and providing updates on their department's performance.

The primary focus of this study is on the utilization of eSAR during the performance progress reporting phase, where public organizations individually access the eSAR system to create their performance reports. Consequently, the scope of this study is limited to examining the process of generating performance reports using eSAR. The eSAR web portal serves as the platform for users to create their performance reports, accessible at https://esar.opdc.go.th/officer/auth.

The figure below presents the type of users in eSAR.

Figure 3-4 Type of Users in eSAR.



The ‘performance report users’ play a crucial role in the eSAR process as they are responsible for inputting the relevant information related to the KPIs outlined in the performance agreement. They fill out the details and upload any necessary supporting documents to substantiate their claims. Once the performance report is completed, the user submits it to the authorizer for approval.

The ‘performance report authorizer’, who is typically a member of the management team or a designated leader responsible for performance measurement within the organisation, carefully reviews the performance result of their organisation. They then have the option to either submit the report to the OPDC for evaluation or return it to the performance report user for further clarification or amendments.

3.3.3.8 The Actors

Managing performance within government agencies is a multifaceted challenge that requires consideration of various contributors. While this thesis primarily explores the perceptions held by the reporting units in public agencies as key persons responding to the system, it is crucial to offer a comprehensive overview of all the entities involved. The upcoming section delved into the roles played by different actors in this performance measurement process.

3.3.3.8.1 The Agency

The term 'agency' refers to an individual public organization responsible for specific public services. A department is an entity established by a government to deliver services or oversee specific functions on behalf of the public. These agencies operate at different levels of

government, encompassing local, regional, and national tiers. For instance, entities such as the Budget Bureau and the Office of the Prime Minister serve as examples of public agencies.

Within an agency, a specialized unit dedicated to internal organizational development was established, named The Public Sector Development Group (PSDG), comprising PSDG staffs and a PSDG supervisor. Their responsibility is to enhance public administrative development and oversee the organizational performance measurement system. Within the performance measurement framework, PSDG assumes a pivotal role by managing critical performance measurement activities, including KPI setup, performance monitoring, clarification, and validation of performance information to produce comprehensive reports and evaluations. As the primary liaison between OPDC desk officers and agencies, PSDG becomes the linchpin in the success or failure of the performance measurement system, underscoring the importance of continuous communication throughout the process.

In the performance measurement system (PMS) process, both PSDG staff and supervisors play a central role in ensuring success. Initially, they facilitate seamless coordination within the department, working closely with KPI coordinators and OPDC (as detailed in section 4.1.9.3) to formulate precise KPI descriptions and targets. Once the performance agreement is established, PSDGs, as the designated '**reporting unit,**' effectively communicate the intricacies of KPIs to the KPI coordinators, providing ongoing support and follow-up to ensure the realization of KPI targets. It can be concluded that the key actors within each public department involved in this collaborative effort include the KPI Coordinator, PSDG Staff, PSDG Supervisor, and the Director of the Department. Each of these roles contributes uniquely to the effectiveness and efficiency of the PMS process, with the overarching goal of achieving organizational success and delivering optimal public services. The collaboration and synergy among these key actors are crucial elements in fostering a robust and streamlined performance measurement framework.

The job responsibilities of the PSDGs in regard with performance measurement are show in figure 3-5:

Figure 3-5 The PSDG's Job Responsibilities with PMS.

At the end of the fiscal year, PSDG gathers necessary data and pertinent information on KPIs from KPI coordinators to create a comprehensive performance report. This report is then presented to the department director for review and approval, thus validating the performance outcomes. Subsequently, the PSDG supervisor submits the self-assessment report to OPDC for evaluation, thereby significantly impacting the overall success of the organization's Performance Measurement System (PMS).

The table below describes the role of each party within public agency:

Table 3-2 Key Actor within Public Agency

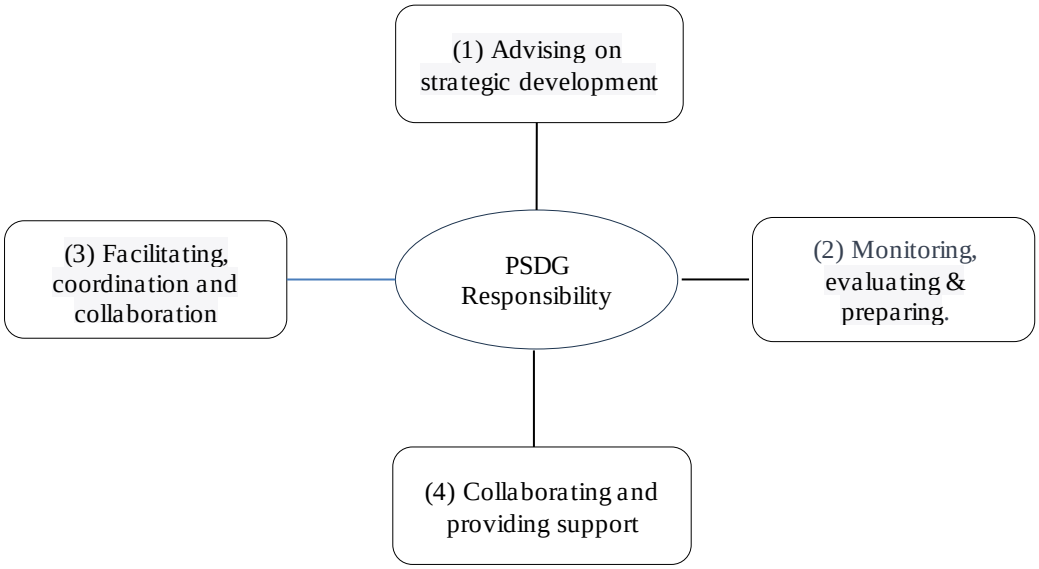
Position	Function
PSDG staff	• Responsible for overseeing the Performance Measurement System (PMS) process, including coordinating and collaborating with key roles within the agency and the commission. • Involved in Key Performance Indicator (KPI) setup, performance monitoring, verification, and validation of performance information to produce comprehensive reports and evaluations. • Corresponds with the KPI coordinator to check and confirm the accuracy and correctness of performance information. • Produces paper-based reports for department director approval and transfers performance information into e-Report, submitting it to the PSDG supervisor.
PSDG supervisor	• Supervise PSDG staff in relation to PMS. • Verify performance information and performance reports. • Approve performance report in e-Report for the commission.
Reporting Unit	• Refer to PSDG staff and the PSDG supervisor, who cooperate hand in hand to achieve the goals of the Performance Measurement System (PMS).
KPI coordinator	• Coordinate with PSDG staff to identify Key Performance Indicators (KPIs) and their description. • Provide requested performance information for the specified period, including performance outcomes and details.
Department Director	• Verify and validate performance information in the performance report, acknowledging performance improvement.

The Public Sector Development Group: PSDG

The Public Sector Development Group (PSDG), referred to as "Kor Por Ror Noi" in Thai, holds a crucial role in government organizations. As a newly established unit within each department, PSDG operates as a technical extension of the OPDC within the department itself. "Kor Por Ror" is an abbreviation of OPDC in Thai, with "noi" denoting the sub-group handling diverse development and administrative duties. PSDG is tasked not only with

enhancing administrative functions but also with overseeing critical performance measurement activities, including monitoring, evaluation, report preparation, and tasks aimed at refining the bureaucratic system. Maintaining continuous communication between OPDC and PSDG is vital throughout the performance measurement process. The figure illustrates the job description of the PSDG.

Figure 3-6 The PSDG's Job Description



Source: OPDC website

The Public Sector Development Group (PSDG) works diligently as the backbone of departmental administration. Their key responsibilities encompass: (1) Advising the Permanent Secretary on strategic development strategies for the Office of the Permanent Secretary and the Ministry, (2) Monitoring, evaluating, and preparing comprehensive reports on the department's bureaucratic system development and its alignment with the Office of the Permanent Secretary and the Ministry, (3) Facilitating coordination and collaboration in bureaucratic development with central agencies and agencies under the Office of the Permanent Secretary and the Ministry, and (4) Collaborating with and providing support to other relevant agencies as required.

PSDG holds a critical position in ensuring the success of PMS. Initially, it facilitates coordination within the department, working closely with KPI coordinator in departments and central agencies to establish clear KPI descriptions and targets. Once the performance agreement is in place, PSDG effectively communicates the details of KPIs to the KPI

coordinator and department members. Furthermore, it provides continuous support and follow-up with other KPI coordinators to ensure the achievement of KPI targets.

At the end of the fiscal year, PSDG gathers necessary data and pertinent information on KPIs to create a comprehensive performance report. This report is then presented to the department director for review and approval, thus validating the performance outcomes. Subsequently, PSDG submits the self-assessment to OPDC for evaluation, thereby significantly impacting the overall success of the organization's PMS.

3.3.3.8.2 Central Agency

The term "central agency" is applied to a public agency within government structures, and its roles are contingent on the specific ministry to which it belongs. A central agency serves as an organization engaged in policy formulation, with responsibilities encompassing coordinating activities, managing resources, and ensuring that diverse agencies conform to overarching goals and policies. For example, such an entity may be explicitly identified as a "the Budget Bureau" or "budget office," with a primary focus on matters related to a country budgeting.

In the context of the PMS, these central agencies assess the performance outcomes of the mandatory KPIs for each public department within their internal IT systems. Throughout the assessment period, OPDC solicits performance outcomes from these central agencies and utilizes them to evaluate the performance results of each department. The following table outlines the function of the central agency and the corresponding Key Performance Indicators they provide.

Table 3-3 Central Agency and Compulsory KPIs

Central Agency	Compulsory KPIs	Description
The Comptroller General's Department (CGD)	Budget disbursement	Measuring the budget spending in percentages that indicate how public agencies use their budgets in comparison to the target of 100% spending. The objective of this Key Performance Indicator (KPI) is to encourage public spending to boost the economy.
The Energy Policy and Planning office (EPPO)	Electricity Consumption	Measuring the electricity consumption of each public department is crucial as Thailand is concerned about depleting national resources. The objective of this Key Performance Indicator (KPI) is to reduce the overall electricity consumption by 10%

Central Agency	Compulsory KPIs	Description
The Office of Public Sector Development Commission (OPDC)	Project management and quality assurance (PMQA)	Measuring internal organizational improvement involves adopting Project Management and Quality Assurance (PMQA), which integrates project management principles with quality assurance practices. This integration aims to enhance the efficiency, effectiveness, and overall performance of public projects and initiatives

3.3.3.8.3 The Commission: OPDC

In the PMS context, the Office of the Public Sector Development (OPDC), which acts as the central agency for public administration development (**hereafter the commission**), provides recommendations to the Minister Cabinet in alignment with the National Government Organization Act (5th Revision) B.E. 2545 and the royal decree 2546 B.E. on good governance principles (OPDC website). Functioning as a commission, the OPDC serves as a policy formulation office overseeing and supporting public sector development by fostering internal development within public organizations.

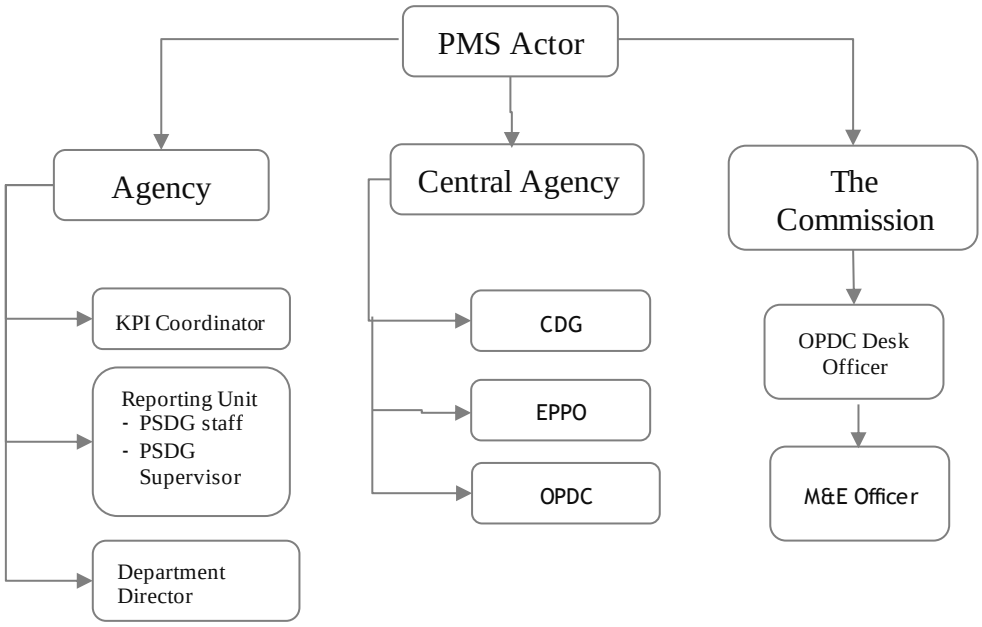
Regarding the development and improvement of public administration, the OPDC has established the Division of Public Sector Development. This division houses 'Desk Officers,' each individually assigned to specific public departments across ministries. Their primary duty is to oversee ministries, bureaus, departments, or other government agencies with a focus on the social aspect. Empowered with the authority to provide advice, recommendations, suggestions, promotion, support, and coordination for structural development and improvement of work systems, the desk officer plays a crucial role. Additionally, the desk officer is tasked with monitoring and evaluating government performance. This includes implementing strategies or measures for developing the civil service system within the operations of the ministry, bureau, department, or other government agency. As a result, the OPDC desk officer is directly accountable for the individual performance measurement system of each public department and maintains direct contact with the Public Sector Development Group (PSDG), a reporting unit established within each public organization.

In its commitment to the robust execution of the performance measurement system (PMS) across public organizations, the OPDC has established the Monitoring and Performance Evaluation unit (M&E). This dedicated unit assumes responsibility for managing the PMS, overseeing 153 public agencies and 76 provinces actively engaged in the system.

The M&E unit shoulders diverse responsibilities, extending from the meticulous oversight of participating public agencies to the formulation of comprehensive performance evaluation guidelines. This encompasses the development and refinement of guidelines that govern the evaluation of government agencies. In parallel, the unit formulates procedures designed to scrutinize the operations of government agencies, ensuring adherence to established guidelines for their holistic performance review. Moreover, the M&E unit takes an active role in providing advisory services, making recommendations, and coordinating various activities pertinent to the evaluation of government agency performance. This extends to monitoring and assessing the efficiency of the ongoing development within the public administration system. The unit's engagement also includes the conduct of audits and performance evaluations of government agencies, adding a layer of scrutiny to their operational efficiency. In sum, the multifaceted responsibilities shouldered by the M&E unit play a pivotal role in the effective implementation and continual enhancement of the PMS within the overarching framework of the OPDC.

The figure below illustrates key actors in PMS process:

Figure 3-7 Actors in PMS



3.4 Data Collection

The study primarily relies on qualitative data, with interviews serving as the cornerstone of data collection. Interviews are chosen for their ability to capture participants' perceptions and insights into rhetorical issues, which are often nuanced and difficult to glean from other sources (Holyoak and Piper, 1997). This approach allows for a detailed exploration of participants' experiences, beliefs, and perspectives related to the subject matter.

3.4.1 Sampling, Sample, and Study Participants

This study employed purposive sampling as the primary sampling approach. Widely recognized as essential in qualitative research, especially in exploratory investigations aiming to uncover novel ideas or hypotheses (Bryman, 2016), purposive sampling aligns well with the objectives of this study. This approach involves a strategic selection process to choose participants with sufficient knowledge and expertise to effectively address the research inquiries. Therefore, the researcher purposefully selected PSDG supervisors, staffs, and OPDC users to address the research questions related to the eSAR in the performance measurement system. This selection is justified based on their representativeness, as it is expected that this group provided valuable and insightful information aligning with the research questions, enabling a thorough investigation of the topic.

Sampling is essential in research. It involves selecting a subset of the population to represent the entire group, allowing for generalization of research findings (Bryman, 2016, Gray, 2014). This distinction becomes crucial in differentiating between quantitative and qualitative sampling methods, with the former aiming to generalize study findings to the entire population through random and probability sampling (Marshall, 1996). Notably, qualitative sampling adds complexity by exploring subjects that are less understood or explored (Creswell, 2007). Bryman (2016) identifies two distinct levels of sampling selection: context and participant. In this study, government departments serve as the sampled environment, and the Public Sector Development Group (PSDG) represents the participant sampling. Operating under direct supervision, the PSDG plays a pivotal role in enhancing departmental administration and improving efficiency and effectiveness in delivering public value.

Three principal techniques underpin the sample selection (Marshall, 1996, p.523). Firstly, convenience sampling is straightforward as it selects based on accessibility. However, this technique often faces criticism for yielding results with inadequate "intellectual credibility." In contrast, purposive sampling strives to select a sample that can most effectively address research questions. This technique considers factors identified in prior literature, such as variables, the researcher's experiences in a relevant field, or key attributes of participants that align with research criteria. Lastly, theoretical sampling, being theory-driven, selects samples based on interpreted themes/concepts from a preceding investigation. It is regarded as an ongoing, iterative process where data from an initial sample guide subsequent sample selection, refining current theories (Corbin and Strauss, 2008)

The optimal number of interviews in qualitative research is a critical consideration. In fact, the number hinges on the novel insights each case brings and the extent of existing knowledge (Eisenhardt, 1991). The core objective is for the researcher to comprehend and articulate the contextual scenario, thereby formulating a theory congruent with that context. Ritchie et al. (2013) contend that a small sample size suffices, given the interpretive, non-generalizing focus of qualitative research. Ideally, the largest sample size should not exceed 50 interviews, avoiding challenges in data evaluation and interpretation. In fact, the ideal number of interviews varies based on the research's nature (Baker and Edwards, 2012). Bernard (2012) recommended conducting between 30 – 60 interviews, whereas Yin (2014) suggested around eight individuals to achieve data saturation in qualitative research. Creswell (2014) proposed conducting between twenty to thirty interviews for grounded theory studies. Deciding on the sample size should factor in the research's scope, type, duration, participant availability, and population characteristic (Boddy, 2016).

Participants in this study consist of users well-versed in performance measurement systems and the reporting of self-assessment reports from public agencies. Additionally, officers from the OPDC who have been actively engaged in the implementation of performance measurement systems (PMS) and the eSAR system are included. These participants possess a minimum of two years' experience with PMS, ranging from novice users to those with over 15 years of experience, indicating a deep understanding of the system's intricacies and the underlying logic behind the eSAR system.

3.4.2 Interview Procedures

The interview is a valuable technique in qualitative research as it provides rich data on people's experiences, opinions, aspirations, and feelings (Kitchin and Tate, 2013). To simplify the interview process, the researcher developed interview guides (Corbin and Strauss, 2008), which outline the steps in conducting interviews. These guides are valuable for systematically and comprehensively exploring multiple respondents, ensuring the interview stays focused on the intended course of action with thorough preparations before each interview session.

The interview procedures unfolded in chronological order. Initially, communication with interviewees was established through messaging applications and emails to schedule appointments. Secondly, a document package containing preliminary research questions, participants' information sheets, and consent forms was distributed via email to create a connection between the researcher and interviewees. Thirdly, interviews were conducted in the Thai language to ensure participants could freely express their views and perceptions. Fourth, the interviews were recorded using the University of Glasgow's OneDrive storage to ensure information accuracy and data security. The researcher then transcribed the records verbatim and translated them into English. The resulting interview transcripts comprised the participants' perspectives on the implementation of eSAR in public organizations.

Despite employing the University of Glasgow's Zoom application for interview, significant efforts were made to create an optimal interview environment (Legard et al., 2003). This was accomplished by ensuring privacy, comfort, and a tranquil atmosphere that encouraged uninhibited articulation of viewpoints. Individual interviews, averaging approximately one hour in duration, were conducted, ranging from 75 to 90 minutes.

Participants were presented with consent forms (see appendix) to reaffirm the confidentiality of the interview process, a step reiterated at the beginning of each interview session. Prior consent to record the sessions was sought and obtained—an ostensibly repetitive yet indispensable measure in establishing trust. This practice played a pivotal role in fostering a relaxed environment that facilitated seamless communication (Legard et al., 2003) . In terms of participant privacy, the researcher ensured anonymity by using coded identifiers for the informants and their respective organizations, thereby adding an additional layer of confidentiality protection.

Despite careful preparations, participants occasionally experienced moments of unease during the interviews, leading to reserved responses (Legard et al., 2003). To address this, questions were crafted to be concise, clear, and devoid of academic jargon. Each question underwent rigorous testing to ensure participant comprehension. Starting with broad and straightforward inquiries, the interview process gradually advanced, prompting participants to explore deeper through more specific questions. The researcher avoided making assumptions, focusing on achieving a clear understanding of the respondents' viewpoints. When participants used unclear terminology, additional clarification was sought until clarity was achieved.

All interviews were audio-recorded and subsequently transcribed verbatim in Thai prior to their translation into English. The recording process allowed the researcher to concentrate solely on the information provided by the participants and nurture a personal rapport without the distraction of note-taking (Charmaz and Thornberg, 2021). Assuming the role of an attentive learner, the researcher engaged in active listening and adopted a non-judgmental stance. This approach facilitated the formulation of more profound queries. The transcriptions were subsequently shared with the interviewees for their review and feedback, ensuring an accurate portrayal of their perspectives.

During data collection, the research encountered challenges due to the Covid-19 pandemic, prompting a shift from planned face-to-face interviews to online interviews for safety reasons. This adjustment facilitated personalized interactions and deeper connections between the researcher and participants. This section explores the modified interview methodology and its benefits.

3.4.3 Interview Questions

The interview questions align with research questions. In fact, the interview structure was developed and organised to facilitate a comprehensive exploration of the research theme. The interview questions were categorized into specific topics, covering areas such as users' experiences, their role in the performance measurement scheme, factors enabling and hindering eSAR implementation, information and procedures linked to adoption, and unanticipated occurrences or hurdles encountered throughout the implementation process. It is essential to emphasize that the study's participants were Thai civil servants, for whom English is not the primary language. Consequently, the interview questions were translated into Thai to enhance comprehension and communication during the sessions. Subsequently,

the audio recordings underwent transcription into English to facilitate subsequent analysis and interpretation. (For interview questions, refer to the appendix).

3.4.4 The Pilot Interviews

Pilot studies are crucial for preparing a comprehensive study. It addressed potential practical issues in subsequent research procedures, and testing the effectiveness of questions (Majid et al., 2017). I conducted pilot interviews with five individuals from OPDC who possessed experience with the electronic Self-Assessment Report (eSAR) and performance measurement schemes. The pilot interviews served a dual purpose. Firstly, to assess the interview questions and gauge the time required for participants to respond. Secondly, to solicit feedback on the clarity and meaningfulness of the questions. Conducted via email correspondence, the pilot interviews afforded participants the opportunity for thoughtful consideration and response. Analysis of the pilot interview findings informed the refinement of the interview questions and the development of the comprehensive interview guide. The revised guide was tailored to pertinent facets of the research subject, eliminating redundant or tangential queries. Detailed notes and audio recordings were captured during the interviews, with utmost regard for participant confidentiality and anonymity. Insights gleaned from the pilot interviews guided the adaptation of the interview questions and prepared the groundwork for the subsequent data collection phase.

Throughout the pilot interviews, several noteworthy aspects emerged. Firstly, respondents exhibited enthusiasm in sharing their experiences, often dedicating substantial time to addressing specific questions. Additionally, while audio recordings were utilized, the researcher concurrently transcribed notes and the participants' responses, adhering to ethical considerations by refraining from revealing personal information or identifiable viewpoints on the questions being posed. Following the preliminary pilot interviews, the interview questions underwent revisions based on the insights garnered from these sessions. The interviews aimed to capture only the most pertinent and interconnected facets of the research inquiry, with certain repeated or tangential questions omitted and relocated to an alternate set of queries. If the schedule permitted additional time, these questions were reintroduced into the discourse for further exploration.

3.4.5 Interview Data

Interview was used as the primary means of collecting data. According to Kvale (1983, p. 174), qualitative interviews are defined as "interviews whose purpose is to gather descriptions of the life-world of the interviewee concerning the interpretation of the meaning of the described phenomena." Interviews provide profound insights into participants' perceptions and experiences due to their dynamic and flexible nature (Opdenakker, 2006, Baker and Edwards, 2012, Cederblom, 1982). This flexibility enables researchers to seek clarification and delve deeper into responses, uncovering layers that might be overlooked in less interactive methods. However, interviews introduce subjectivity, leading to interpretive bias that can influence the analysis and shape the narrative based on the researcher's perspective (Baker and Edwards, 2012, Legard et al., 2003, Majid et al., 2017). Moreover, interviews demand significant resources, necessitating skilled interviewers, transcription services, and data analysis software. They are also time-consuming in terms of conducting, transcribing, and analysing interviews.

This study employs semi-structured interviews. Semi-structure interview has been commonly employed in previous studies as a primary method for data collection and served as the main source of IT-business alignment in this study (see Wang and Rusu 2018, Alghazi et al., 2018, Ridwansyah and Rusu, 2020). Given the limited existing knowledge and the need for rich, detailed understanding of the phenomenon of interest (Edmondson and McManus, 2007b) , semi-structured interviews proved particularly fitting. They offered an efficient means to gather empirical data with an open mind, especially given the uniqueness of the phenomenon under study (Eisenhardt and Graebner, 2007). The use of interviews enables the researcher to identify key variables over the course of the study and explore points of interest and clarify and confirm meaning.

The initial selection of interview participants focused on individuals from PSDG as they are the key responsible unit within departments. All interviewees in this study were selected based on their substantial experience to address the research questions. Irrespective of their job responsibilities, they were expected to evaluate whether information technology effectively aligned with its objective of enhancing organisational performance.

However, the participant group was subsequently expanded to include officers from the OPDC and IT designers within OPDC. This expansion was motivated by several factors. Primarily, it was anticipated that the initial group might offer a limited perspective, mainly

from the user's standpoint. Furthermore, some participants within the initial group expressed concerns or faced scheduling conflicts due to COVID-19 restrictions. Additionally, there were apprehensions about participants feeling uncomfortable disclosing information, especially considering the interviewer's prior affiliation as an OPDC officer. By incorporating officers from OPDC and staff engaged in IT system design, the study aimed to achieve a more comprehensive understanding of IT alignment within government departments and capture diverse insights, thereby enriching the overall findings. The staff of OPDC and IT designers within OPDC actively participated in the eSAR system as users from OPDC. IT designers were involved during the requirement requisition phase and served as the help desk, addressing inquiries related to eSAR troubleshooting.

The interviews took place between April and October 2021, each lasting an average of 75 minutes. All interviews were recorded and transcribed in the Thai language. I personally translated the interview scripts into English, resulting in over 46 hours of interviews captured in a 250-page transcript. The translated results were shared with the interviewees for verification of accuracy and alignment with their opinions. This process served to confirm the understanding and meaning of the collected data and its analysis. It also ensured that most participants were generally satisfied with the drafts. Despite some requested minor amendments, I revised the drafts, incorporating the comments provided by the research participants.

A total of 38 informants participated in the study, comprising 14 interviewees from the PSDG supervisor, 13 from the PSDG staff, 8 from OPDC desk officers, and 3 from IT department staff. Reflecting the gender composition of government employees, most participants were female, accounting for 60.53%, while 39.47% were male. Concerning work experience related to the performance agreement, participants demonstrated a range from two to nineteen years, aligning with the introduction of the performance agreement in 2002. On average, participants had 5.9 years of work experience. When distributing participants by experience, 7.89% possessed more than ten years, 31.58% had between six and ten years, and the majority had less than five years. In terms of positions, 39.47% were PSDG staffs, 36.84% were PSDG Supervisors, and only 7.89% were IT personnel from OPDC, underscoring the focus on misalignment in IT adoption at the operational level. It is essential to acknowledge that interview appointments were subject to availability, leading to some postponements and limitations to the data collection schedule. In summary, the final participant count was 38, each contributing their knowledge, experiences, insights, and judgments regarding the utilization of information technology in government departments.

Table 3-4 The Interviewee's Profile

NO.	Ref no.	Gender	Year of experiences	Job title	Length of interview (mins)	Interview Date
1	STNC1D	F	4	PSDG Supervisor	52.42	April 2021
2	LPN2D	F	6	PSDG Supervisor	49.43	April 2021
3	OTY1P	F	2	PSDG Staff	48.28	April 2021
4	MOI3D	F	5	PSDG Supervisor	63.35	April 2021
5	SKR2P	M	7	PSDG Staff	39.26	April 2021
6	NRE6D	F	2	PSDG Supervisor	32.30	April 2021
7	OPDC1P	F	6	OPDC desk officer	43.29	April 2021
8	OPDC5D	F	2	OPDC desk officer	65.25	April 2021
9	OPDC2P	F	2	OPDC desk officer	34.28	April 2021
10	OPDC6D	F	5	OPDC desk officer	45.68	April 2021
11	SKK3P	F	5	PSDG Staff	88.22	July 2021
12	JNG4P	F	2	PSDG Staff	72.09	July 2021
13	MOR4D	M	3	PSDG Supervisor	68.29	July 2021
14	POR5P	F	3	PSDG Staff	54.05	July 2021
15	PTN5D	M	5	PSDG Supervisor	94.30	July 2021
16	VCHR10D	M	15	PSDG Supervisor	77.26	July 2021
17	SRN7D	F	19	PSDG Supervisor	150.03	July 2021
18	SPN8D	F	19	PSDG Supervisor	146.31	July 2021
19	VBORK6P	F	2	PSDG Staff	51.02	August 2021
20	PRMN7P	M	5	PSDG Staff	90.09	August 2021
21	UDOM8P	F	3	PSDG Staff	72.48	August 2021
22	KTPT9P	M	7	PSDG Staff	54.35	August 2021
23	NEPT10P	M	7	PSDG Staff	73.13	August 2021
24	PRTR10D	M	2	PSDG Supervisor	87.19	August 2021

NO.	Ref no.	Gender	Year of experiences	Job title	Length of interview (mins)	Interview Date
25	PNST11P	F	4	PSDG Staff	115.13	August 2021
26	SKOS11D	F	2	PSDG Supervisor	76.57	August 2021
27	SSOS13P	M	2	PSDG Staff	88.49	September 2021
28	SPOR12P	M	5	PSDG Staff	85.03	September 2021
29	SSOS12D	M	2	PSDG Supervisor	90.18	September 2021
30	ONSG13D	F	7	PSDG Supervisor	83.02	September 2021
31	RPM9D	F	6	PSDG Supervisor	60.01	October 2021
32	OPDC1DK	F	10	OPDC desk officer	66.49	October 2021
33	OPDC2DK	M	10	OPDC desk officer	54.54	October 2021
34	OPDC1IT	M	5	OPDC IT	68.09	October 2021
35	OPDC3DK	M	10	OPDC desk officer	57.04	October 2021
36	OPDC2IT	M	5	OPDC IT	65.08	October 2021
37	OPDC4DK	F	10	OPDC desk officer	86.26	October 2021
38	OPDC3IT	F	10	OPDC IT	75.48	October 2021

Interviewees were selected from various public departments to participate in the study, potentially mitigating interview bias. The interviewees were chosen from Thai government departments implementing the performance agreement scheme and utilizing the electronic self-assessment report system (eSAR). The participant pool comprised the following individuals:

PSDG Supervisor: the PSDG supervisor holds a managerial role, overseeing the performance measurement scheme. Their responsibilities include tasks such as providing, approving, and facilitating the submission of performance indicators by other KPI owners. Additionally, they supervise the PSDG group, provide instructions, and authorize the electronic self-assessment report within the system.

PSDG Staff: positioned at the practitioner level within the PSDG, these individuals are responsible for data collection, provision, and support for KPI coordinators in substantiating their KPI achievements. Practitioner-level teams have direct exposure to the electronic self-assessment system, engaging in data gathering and input into the system before submission to the PSDG Supervisor.

OPDC Desk Officers: despite their role in supervising public departments regarding PMS and KPIs, OPDC desk officers are also responsible for validating PMS information in the system. Their duties include reviewing the accuracy of performance reports and associated documents within the system, conducting final evaluations, and delivering results/scores for each KPI. After checking the performance report, OPDC desk officers pass it to the external auditor for the final evaluation.

IT Designers: this group is responsible for identifying essential system features and designing its user interface. They identify necessary features and devise the user interface based on the performance framework. It's important to note that eSAR requires periodic adjustments to align with evolving national strategies, as the performance measurement framework undergoes an annual review.

During the interviews, PSDG staffs and supervisors were questioned about their experiences with eSAR. Their perceptions of eSAR were explored to ascertain whether the IT system met their requisites, facilitated administrative tasks, and achieved its objectives in streamlining the performance reporting process. Interviewees were also solicited for recommendations to identify any gaps or deficiencies in the data.

For desk officers and IT designers at OPDC, the inquiries centred on whether the intended objectives of the information technology system were realized. Additionally, they were asked about the alignment between information technology adoption in government departments and user expectations. The responses yielded a deeper comprehension of whether the intended objectives were achieved based on user experiences. Despite the similarity in questions, the perspectives differed, as the organization overseeing the system possesses a broader view of information technology aspects.

The interviews were conducted in Thai to understand how participants perceive IT implementation. Conducting interviews in Thai helps gain a better understanding of participants' views on their environment. It is important for the researcher to carefully

document these insights from their original source (Legard et al., 2013). Recording the interviews is crucial for capturing subtle nuances in participants' expressions, preserving the richness of their perspectives during analysis. Recording has the advantage of allowing the researcher to focus on the interview and the informant's responses, fostering a smoother interviewer-interviewee relationship without the distraction of notetaking. This approach also enables the researcher to pay more attention to non-verbal cues and respond sensitively to the information, facilitating the development of deeper probing questions for further exploration of the issues.

Quotes in the findings chapter were translated from Thai to English. Each quote includes the interviewee's details in brackets, covering the organization's abbreviation, interview number, and the interviewee's position (PSDG Supervisor, PSDG staff, OPDC desk officer, IT designer). To maintain anonymity and confidentiality, interviewees' identities were not revealed through names or specific details. The figure below illustrates how interviewee details are presented with each quote:

"……." (Abbreviation of organisation, interview number, position)

"……." (STNC1D)

3.4.6 Limitations of interviews

While interviews stand out as a valuable method for collecting data in organizational research, it comes with inherent limitations that researchers need to be mindful of. The limitations in this interview study can be categorized as follows:

Firstly, the researcher's affiliation with the OPDC, which could potentially influence respondents' answers, thereby shaping their responses. Informants may feel compelled to withhold opinions or express hesitancy due to concerns about how their responses might impact their organizations. Additionally, respondents may be inclined to tread cautiously to align their answers with the researcher's interests, considering the researcher's past role as an officer of the OPDC, responsible for overseeing the performance measurement scheme, including the eSAR system. During the initial stages of the interview, one informant raised a question regarding the possibility of providing an honest answer. In response, I emphasized

to all participants that their opinions are highly valued and encouraged to be freely expressed without any restrictions or biases.

Secondly, it is important to note that the findings derived from interviews may lack generalizability. These findings are based on the perspectives of a relatively small sample and may not fully represent the entire organization. Therefore, making broad conclusions about organizational practices solely based on interview data might not accurately reflect the diverse range of experiences within the organization. To address this limitation, I supplement the interview data with other sources of information, such as archival records, performance manual. By triangulating data from multiple sources, as discussed in section 3.5.5, it can enhance the credibility and generalizability of the study findings.

Finally, it is essential to recognize the significant investment of resources and time required for conducting interviews. To address this, I carefully scheduled the dates and interviews to allow sufficient time for each step of the process. This approach is designed to ensure that the interviews, transcription, and data analysis produce thorough and effective results. Additionally, it is important to acknowledge that the mobility and rotation of civil servants may lead to some PSDG staffs being new to the system, as noted by a few participants before the interviews began. However, despite these challenges, capturing the perception of system users from all operational perspectives remains invaluable.

In conclusion, while interviews offer valuable insights, the researcher acknowledge of potential biases, limited generalizability, and the resource-intensive nature of this data collection method in organizational research.

3.4.7 The Reflection on insider-outsider Role of the Researcher

As a former insider of the OPDC with over 15 years of experience working with the performance measurement scheme, I possess intimate knowledge of the organization's inner workings, processes, and culture. This insider perspective is advantageous as it enables me to access privileged information, discern nuances that an outsider might overlook, and navigate organizational dynamics more effectively. For example, I was involved in the eSAR development from 2014-2019, which allows me to gain a deeper understanding of the circumstances and challenges faced by public employees during the eSAR implementation. Furthermore, my insider status may afford me credibility and trust among colleagues and users from various public agencies. This credibility facilitates data collection and has the

potential to enhance the relevance and applicability of my research findings to the organization.

However, being an insider also comes with its challenges. My affiliation with the OPDC may introduce biases or preconceptions that could influence the interpretation of data or findings. It may be challenging to maintain objectivity and critically assess organizational practices or issues that I was once a part of. Additionally, there may be constraints on my ability to freely explore certain topics or critique existing practices, particularly if they reflect negatively on the organization or its members.

Conversely, my outsider perspective, gained from stepping back from my previous role in the OPDC, offers a fresh lens through which to examine IT alignment in the organization. This perspective allows me to bring an external, more impartial viewpoint to my research, which can help uncover blind spots or assumptions that insiders might overlook. My researcher status enables me to ask probing questions, challenge prevailing narratives, and introduce innovative ideas or approaches that insiders may be less inclined to consider.

Balancing these insider and outsider perspectives is key to conducting rigorous and impactful research. Leveraging my role as a former employee while remaining mindful of potential biases can help me produce nuanced and insightful analyses. Similarly, drawing on my outsider perspective to question assumptions, explore new avenues of inquiry, and maintain critical distance can enhance the depth and breadth of research findings. In conclusion, the dual insider-outsider role as a previous OPDC officer enriches this study by providing unique insights, facilitating access to valuable resources, and fostering a more comprehensive understanding of the organization and its dynamics. Navigating this role with reflexivity and awareness of its implications will enable me to conduct research that is both rigorous and relevant to the context of the OPDC.

3.5 Data analysis

3.5.1 Grounded Theory Methodology (GTM)

This study employed the grounded theory methodology (GTM) to fill the identified gap in research. GTM was used for the purpose of generating misalignment model that comprehensively explain the phenomenon under IT alignment and examine the factors that hinder strategic alignment in public organisation (Birks and Mills, 2015). GTM is widely recognized and preferred in Information Systems (IS) research due to its capacity to analyse

the complex relationship between technological shifts and socio-technical behaviour in emerging research domains (Wiesche et al., 2017).

This study used grounded theory methodology (GTM) for three reasons. Firstly, the literature review revealed that no single theoretical lens could adequately address the research gap regarding IT misalignment in public organizations because the area of research is relatively new and underexplored. Instead of adhering to a specific theoretical framework, GTM allows for the development of a nuanced understanding of IT misalignment issues. This methodology enriches the study by incorporating varied perspectives, ultimately contributing to a more robust and comprehensive analysis. Secondly, GTM is well-suited for probing underexplored domains, as it enables the generation of fresh insights and novel viewpoints. This study seeks to extend beyond the conventional discourse on strategic alignment, which has predominantly focused on theoretical models within the private sector in western contexts (Levkov et al., 2023, Jonathan et al., 2020a, Luftman et al., 2017). This research expanded understanding of social IT alignment by examining less-studied elements that hinder it in public organisation. GTM is ideal for this inquiry since it often uncovers new theoretical components and insights that existing models miss.

Lastly, GTM proves valuable in Information Sciences for understanding complex phenomena (Wiesche et al., 2017). Originally designed for social studies, GTM offers a robust framework for comprehending social IT alignment in public enterprises, facilitating the examination of complex interactions. Given the scarcity of research on social dimensions in IT alignment barriers, GTM serves as a fitting approach for investigating these aspects in Thailand's public sector organizations. This study employs GTM to address the research gap and enhance our comprehension of business-IT alignment in the social dimension within bureaucratic public sector settings.

Grounded theory (GT) has three methodological genres (Birks and Mills, 2015, Charmaz, 2006). The first category is termed traditional or classic GT. Glaser emphasized the importance of traditional GT, with its primary objective being the construction of a conceptual theory explaining a specific and relevant complex behavioural pattern (Glaser, 2002). The classic GT methodology is well-known for its "constant comparative" technique, systematically comparing data to identify similarities and grouping them into distinct "codes." This process also involves "emergence," where properties arising from data collection and analysis contribute new insights to the theory's formulation (Charmaz, 2008). According to Glaser (2004), this emergence occurs without preconceived notions and is

achieved through unstructured coding. Glaser argued that this emergence happens without the influence of pre-existing ideas and is accomplished through the application of unstructured coding.

The second genre, evolved GT, extends from symbolic interactionism, and incorporates insights from Strauss, Corbin, and Clarke. Straussian grounded theory offers detailed guidelines for theory elucidation, using a systematic framework for three levels of coding (Strauss and Corbin, 1990). This method acknowledges the challenge of establishing absolute reality and emphasizes the significance of subject foundation before exploration. Consequently, researchers can focus on their practical expertise (Deering and Williams, 2020) , fostering a thoughtful and informed approach to theory development that enhances understanding of the research context.

Lastly, constructivist grounded theory was established by Charmaz. Its methodology centres on active participant-driven meaning construction in the research context, facilitated through collaborative engagement with the researcher (Charmaz, 2006). While there are commonalities among GT genres, variations arise from the researcher's philosophy, engagement with literature, and coding approach. A detailed comparison of coding terms across genres is provided in table 3-3. Charmaz (2008) highlights the emphasis on individual meaning attribution in this methodology. Unlike classic and Straussian GT, which discover theory in data, this approach empowers researchers to independently generate theory from data (Deering and Williams, 2020). The constructionist approach also recognizes shared meaning co-creation between researchers and participants.

Table 3-5 Comparison of Coding Terminology in GT

Grounded Theory genre	Coding terminology		
	Initial	**Intermediate**	**Advanced**
Traditional (Glaser, 1978)	Open coding	Selective coding	Theoretical coding
Evolved (Strauss, 1987)	Open coding	Axial coding	Selective coding
Constructivist	Initial coding	Focused coding	Theoretical coding

Source: Adapted from Birk and Mills (Birks and Mills, 2015)

The traditional grounded theory (GT) approach is well-suited for this study. It proves valuable in the context of the public sector in Thailand, where IT misalignment research is limited (Creswell and Poth, 2016). GT involves constructing a conceptual framework solely from data without predefined hypotheses (Glaser and Holton, 2004). Its flexibility is especially advantageous in navigating the complexities of the public sector, including the formalized set of role expectations that outline tasks and responsibilities (Scott, 1987), contributing to a thorough exploration of the subject matter. With limited existing research, the absence of preconceived ideas allows for the emergence of analytic, substantive theories, fostering a more organic and insightful understanding of the intricate dynamics at play. Therefore, GT is well-suited for this context.

3.5.2 Coding Process

The study employed three coding stages: open coding, selective coding, and theoretical coding (Glaser, 2002). The study initiates with purposive sampling, followed by concurrent data collection and analysis. These stages involve diverse coding phases, accompanied by constant comparative analysis, theoretical sampling, and memoing. The utilization of theoretical sampling continues until theoretical saturation is achieved. These methods and procedures establish an unfolding and iterative system of actions and interactions inherent in grounded theory (GT). Subsequent sections discussed of the grounded theory methods employed in this study.

3.5.2.1 Open Coding

I began the coding process with a line-by-line approach after transcribing the interviews. Initially, I carefully went through the transcripts, labelling relevant sentences to create individual codes. These individual codes were then grouped under emerging concepts, building a conceptual understanding of the context. As the coding process advanced, I identified key points and assigned an open code to each. These emerged codes were compared with previous ones in the same and earlier transcripts, enhancing conceptual specification coverage (Glaser and Holton, 2004). The open coding process persisted until concepts representing patterns across a substantial number of open codes emerged. A concept, defined as a basic social process closely linked to other concepts, highlighted the participant's major concern (Martin and Turner, 1986). Through comparing, categorizing, and naming the open codes based on their similarities and differences, I identified the overarching concepts.

3.5.2.2 Selective Coding

In the selective coding phase, I filtered concepts from open coding to separate, unify, and regulate, ultimately forming a more robust conceptual framework. Thirty-one concepts identified during open coding were categorized into 12 factors under four stages. The selective coding process confirmed theoretical saturation, with no additional elements emerging after 33 interviews. Conducting an additional set of five interviews to reassure theoretical saturation validated the effectiveness of the selective coding methodology, enhancing the researcher's understanding of the subject matter. This approach introduced novel features that merit thorough exploration in the current literature.

3.5.2.3 Theoretical Coding

The theoretical coding stage is a critical process for connecting categories into a unified and coherent theory. I reviewed open codes, elements, and factors, grouping them into categories. These factors contribute to social IT misalignment. The theoretical codes provide guidance on how categories intertwine, thereby forming hypotheses that gradually merge into a unified theory. By identifying and elaborating on the connections between categories linked to the core category, the process of theoretical coding is significantly enhanced. Examples and additional details are documented to further clarify these connections, ensuring the formation of a robust and comprehensive theory.

The table below shows an example of data structure derived from the coding process.

Table 3-6 Coding Derived from the Analysis

Quote	Open code	Selective Coding	Aggregate theoretical coding
• *I have requested information from the KPI host to be submitted to the PSDG one week after the end of the fiscal year on September 30th. We collected and prepared paper reports along with supporting documents to submit to our organisation's director. At the same time, we entered that information into our personal computer. Once the director approved the report, we transferred the information from the personal computer into the electronic system." (SSOS13P)* • *"I find the process to be unclear in terms of our expected deliverables. Despite having several years of experience with this process, the criteria and measurement framework change annually. The high level of uncertainty greatly hinders our progress." (POR5P)*	• Several departments involved in process. • Unclear performance measurement procedure due to changes in framework • Reiterative process	PMS Project uncertainty	**Performance Measurement System**

Quote	Open code	Selective Coding	Aggregate theoretical coding
• *"Why not transfer the usage of electronic data from the Office of Energy directly to the performance system? Why do we have to manually input it? Why does the system allow us to input information that hinders us from achieving our targets." (RPM9D)* • *"OPDC informed us that the results for the compulsory KPIs will be taken from the KPI hosts. I don't understand why I still have to fill in the information myself." (LPN2D)* • *I have checked the results for the budget spending KPI and transferred the information into eSAR. I believe it would save me more time if I did not have to input the information myself. It would also be more reliable if every department followed the same process, which would make more sense to us. (OPDC2P)*	• why we need to fetch data from KPI host? • Why we need to fill in information? • System allows departments to make excuse	System Disintegration	**E-Reporting**
• *"The problem does not lie in the system itself but rather in the lack of information sharing between different public organisations. People within each organisation are not effectively disclosing the information they have in their respective systems. However, the IT system can be further developed to address this issue." (OPDC1DK, OPDC2DK)* • *As a consequence, I have to prepare multiple copies of documents that contain the same information I have already input into the system. I fail to understand why the office of (xxx) does not grant committee access to the system. It is burdensome and inefficient to repeatedly perform the same tasks while others can simply access the central repository." (OPDC2IT)*	• Burden between public department in holding information. • Limitation in information sharing between departments	Opacity	**Public Management System**
• *"The only way to make public agencies adopt the IT systems of central agencies is by making them feel that it makes sense. They will only take action if they believe it's logical and beneficial. I still don't see any merging or collaboration of Key Performance Indicators (KPIs) among the three central agencies." (RPM9D)* • *The Thai bureaucracy also relies on imagination. We often use common sense in policy development and our work." (RPM9D)*	• *System is useful but it doesn't make sense in using the system.* • *Ivory tower.* • *Prejudge if the system is useful/ useless system.*	System Unreliability	**e-Report**

3.5.3 Constant Comparative

Constant comparative analysis is crucial in grounded theory methodology (GTM). In GTM, I collected and analysed data simultaneously, keeping them interactive (Suddaby, 2006, p.636). Throughout coding, I use constant comparison to conceptualize and form emergent theories, guiding my decisions on what data to collect next (Glaser, 2002). Furthermore, constant comparative analysis involves comparing data and codes within and across groups, shaping larger themes. This process extends to other themes and examples. As the study progresses, I evolve the analysis by comparing newly emerging codes and categories.

Ongoing comparisons integrate inductive and deductive reasoning, strengthening the research with both new and old data. This systematic comparison of newly collected data with information from various analysis stages enhances data analysis, fortifying the research process's robustness.

3.5.4 Memoing

I use memos to record explored ideas, keeping them separate from coding what is explicitly present (Heath and Cowley, 2004). Memos are essential in my research process as it is a continual and vital practice in grounded theory methodology, helping document evolving concepts and establish connections as my research unfolds. Alongside coding, these memos provide crucial insights and significantly contribute to developing substantive and theoretical codes and categories. According to Birks and Mills (2022), memoing is a foundational component in grounded theory research, emphasizing its importance. Memos remain a valuable resource throughout my entire research journey, enhancing my understanding of the topic. I found that memoing positively influences idea generation and fosters an open attitude during data analysis, facilitating the identification of novel patterns and relationship.

I maintain theoretical sensitivity throughout the research, adeptly identifying and extracting crucial elements from evidence and transcriptions to facilitate theory construction. In both data collection and analysis, I consistently maintain an unbiased perspective, with a focus on identifying and explaining crucial theoretical aspects, as emphasized by Chun Tie et al. (2019). As the process evolves, I carefully distil pivotal constituents from the data, systematically identifying pertinent concepts and their interconnected terminologies that collectively contribute to a profound comprehension of the phenomenon.

3.5.5 Rigour in Research.

Ensuring rigor is a crucial aspect of qualitative research quality. The assessment of qualitative research quality in this study revolves around four criteria: credibility, transferability, dependability, and confirmability (Lincoln and Guba, 1986, Bell et al., 2022).

Credibility is crucial for the study. A high level of credibility in the findings was achieved by ensuring methodological suitability in the study (Edmondson and McManus, 2007a). I followed a systematic procedure to design and implement case studies, articulating why I

selected a case study as appropriate and why it was chosen in preference to other methodologies. I also provided an explanation of how the sample was chosen.

I conducted a pilot study using the Thai version of interview questions with five OPDC participants to ensure credibility. The credibility was further reinforced through triangulation with other informants. Moreover, the review and validation of evidence included sharing the interview protocol and findings with each key research informant in relation to their responses (Bell et al., 2022). Participants generally expressed satisfaction with the drafts and offered minor amendments. I incorporated these revisions, taking participants' feedback into account. Such reviews were instrumental in preventing researcher bias and potential misinterpretations, ensuring alignment between the study's findings and the perspectives and experiences of the informants (ibid).

Transferability involves providing comprehensive information. The consideration of transferability focused on how successful techniques uncovered in the study might be applied or adjusted in another organization. Despite limitations in generalizability, case studies are evaluated based on transferability and comparability rather than generalizability (Chreim et al., 2007). To enhance the transferability of findings, I selected a public sector organization involved in a performance measurement system. The system has been widely accepted in public organisations. Once direct replication occurs, results might be accepted (Yin, 2009). I ensured transferability by creating a thick description (Bell et al., 2022). I provided full a description of the research question, design, context, findings, and resulting interpretations in the research report. This allows another researcher to assess the potential transferability of findings to another context and design a similar research project for use in a different, yet suitable, research setting (Saunders et al., 2019)

Dependability involves ensuring transparency in the data collection process and presenting a clear analysis of research findings (Gibbert and Ruigrok, 2010). I have documented and clarified the research design, selection of research strategy and methods, and data collection and analysis processes. The research report included the interview guide and questions (see Appendix), explained the selection of participants along with information on their characteristics, and established a database of interview transcripts.

In presenting research findings and the data analysis process, I documented the coding schemes and each step of the process (see section 3.5.2) and explained the analytical techniques. The research data were systematically presented through tables, aiming to

provide a chain of evidence and ensure reader comprehension of how conclusions were reached (Miles and Huberman, 1994). The research report aimed to illustrate how the evidence led to the study findings, encouraging the discovery of new concept development and theoretical discovery (Birks et al., 2019, Wiesche et al., 2017, Corley and Gioia, 2011), moving beyond mere conceptual ordering of data to theorizing (Yin, 2009).

Confirmability is a crucial standard for maintaining rigor in qualitative research. It relates to the degree to which the conclusions of a study are securely based on the data, free from undue influence from the researcher's biases, viewpoints, or preferences. Despite the challenge of achieving complete objectivity in business research (Bryman, 2016), I endeavoured to maximize objectivity by adhering to good practices and appropriate operational procedures. Efforts were made to minimize the impact of my personal values on the research process and resulting findings. To enhance confirmability, openness to diverse views and new emerging concepts and themes was maintained (Sinkovics et al., 2008). Rather than using the data to validate preconceptions, I remained open to the possibility of unexpected findings, refraining from choosing the 'optimal' explanation among competing interpretations in the data analysis and theoretical development process.

3.6 Research Ethics

This study applied research ethics to enhance credibility, acknowledging its indisputable importance (Hesse-Biber, 2016,p. 98). Obtaining ethical approval instils confidence in participants about the researcher's adherence to norms, improving recruitment success. Moreover, an ethical review ensures participant protection, shields researchers from potential allegations, and preserves the integrity of the research community (Easterby-Smith et al., 2015, p. 122). Ethical considerations were consistently addressed throughout the study, with the following section offering a detailed analysis within the framework of pragmatic factors.

3.6.1 Approval for Ethical Review

Ethical approval was obtained from the College of Social Sciences Research Ethics Committee before commencing the interview process. This critical step ensured unwavering adherence to ethical procedures and regulations throughout the research endeavour. Acquiring ethics approval involved a thorough assessment of the research design, methods, and research instruments, including the interview guide, permission form, and participants' information sheets. These materials underwent comprehensive scrutiny to confirm

compliance with the ethical review system outlined by the University of Glasgow. By obtaining ethics permission and strictly adhering to ethical norms, this study unequivocally emphasized the utmost importance of protecting participants' rights and well-being while maintaining the integrity of the research process. Additional information regarding the ethical approval obtained for this study can be found in the appendix.

3.6.2 Informed Consent Form

Participants were provided with detailed information regarding the research objectives and the potential advantages of participating in data collection. The consent form aims to ensure transparency and uphold ethical standards during the research process. For instance, participants are emphasized that they can withdraw themselves from the study at any point without facing any negative consequences.

Before their involvement, the researcher emailed the participants an information sheet, informed consent form, and a draft of interview questions via electronic mail, providing interviewees with a comprehensive understanding of the interview's scope. These documents were written in Thai to ensure that participants could easily comprehend them during the interview process. After reviewing the form, participants completed the required information and signed the consent form, which was written in Thai. All documents related to the investigation were securely saved on the cloud server of the University of Glasgow. Furthermore, as the scheduled interview appointments approached, efforts were made to establish personal contact to ensure effective logistical coordination.

To ensure the integrity of the collected data, a synopsis of the interview transcript results was disseminated to each participant through electronic mail. The participants were given clear instructions regarding their right to address any potential misinterpretations or overlooked details in the transcripts. As stated in the email communication, individuals were actively prompted to provide comments and feedback within a designated period. After a thorough review and receiving the participants' agreement, the interview data were considered fully final and prepared for analysis. The study's steadfast dedication to ethical research standards is shown by its systematic and transparent approach, empowering participants to authenticate their contributions (please refer to the appendix for the participant informed consent document).

3.7 Chapter Summary

In this chapter, each methodological choice was thoroughly discussed and justified to ensure a proper fit for the study. The adoption of a case study research design was deemed appropriate, allowing for an in-depth exploration of IT alignment mechanisms within Thai government organizations. The study employed a qualitative methodology, focusing on a single case study in the context of a Thai public sector organization, specifically concentrating on the electronic self-assessment report system within the performance measurement system (PMS). The primary data collection method was semi-structured interviews, and the key research informants were selected using purposive sampling. The analysis was conducted using a grounded theory approach. Additionally, the chapter highlighted the fulfilment of quality criteria in qualitative research, including credibility, transferability, dependability, and confirmability. The subsequent chapter delved into the presentation of findings derived from the data collection process.

Chapter 4 Study Findings

4.0 Introduction

This chapter presents findings derived from qualitative analysis, which are crucial for discerning the factors impacting IT alignment and developing a model to elucidate this phenomenon. The chapter is structured into three parts, each building upon the previous to provide a comprehensive understanding. Part I focuses on user perceptions of e-Report. In part II, the attention shifts toward challenges encountered during the implementation of an electronic reporting system. The key findings in this section shed light on factors that have the potential to cause IT misalignment, thereby contributing to a deeper understanding of the overarching issue. Part III further deepens the understanding of the problem by delving into the process of misalignment. Additionally, it endeavours to propose an action plan aimed at minimizing IT misalignment, thereby providing a practical approach towards addressing the identified challenges.

4.1 Part I: User Perceptions of e-Report

As the sections above illustrate, the journey towards e-Report has involved multiple twists and turns, and the process is still evolving. Users' perceptions reflect the experience of the journey and the changing context. The sections below present substantive findings that capture the experience, attitudes, and perceptions of reporting performance with e-Report from the perspective of its users within the reporting units. The section opens with perceptions of the journey and then moves into positive and not-so-positive experiences. The last section explores the understanding of the concept of IT misalignment.

4.1.1 Parting with Paper Report: Dance of Paperwork

The background details presented above have illuminated multiple reasons for the move from paper reporting to e-Reporting. Findings from interviews provide a user perspective on this journey. From 2002 to 2013, reporting of performance by public agencies unfolds with the paper report at its core (OPDC, 2003a). A paper report has disadvantages as it bears the weight of organisational progress, all in a simple paper-based format. Imagine public agencies diligently crafting their entries, documenting achievements and milestones, and supporting these with the necessary paperwork.

The task of reporting is complicated. Public agencies submit their paper files, akin to presenting a report card, adorned with essential supporting documents. For example, to claim achievements for the compulsory KPI, 'Project Management and Quality Assurance (PMQA),' agencies must provide several documents as listed in the evaluation criteria for PMQA. Achieving the PMQA KPI involves presenting a checklist of documents to ensure agencies have diligently followed each assessment criteria. This checklist includes, but is not limited to, documents supporting defined (1) quality objectives, (2) the development of a quality management plan, (3) identification of quality metrics, establishment of quality standards, (4) determination of quality control activities, (5) planning quality assurance activities, (6) measures adopted to arrange risk management and prevention, and (7) communication and documentation. Each document requires detailed narratives and descriptions explaining how agencies implement and work toward achieving project management and quality assurance.

Transported back in time, I find myself vividly recalling a particular moment during my tenure at the commission. It was the close of the fiscal year, a crisp November setting. As the public agencies diligently submitted their performance reports and accompanying documents to the commission, my attention was drawn to a sight that etched itself into my memory. Amidst the organized chaos, numerous boxes adorned our workspace, each containing a trove of supporting documents, specifically those linked to PMQA's KPI. The contents unfolded a narrative of commitment and diligence – project announcements, carefully detailed work-process manuals outlining the intricacies of agencies' service processes, visual snapshots immortalizing real events, and thorough records chronicling the careful planning and execution of events aimed at enriching the knowledge of organisation’s staff. These boxes, almost like time capsules, stood as a testament to the agency's unwavering dedication. They were a tangible manifestation of how the public agencies navigated the intricate dance of paperwork, manually aggregating performance information from various units within their organization to measure their performance against predetermined KPI criteria. The PMQA -KPI process, as revealed through these vignettes of paperwork, emerged as a complex ballet of dedication and meticulous effort.

In addition, a minimum of three copies of the documents needs to be reproduced—for the commission, the relevant central agencies, and for the agencies themselves to keep as a record. Furthermore, the physical paper report must reach the commission's premises by the end of the office hours on September 30th. Picture the reporting unit diligently transcribing these piles of information onto the summary paper report. This paper report becomes a

narrative of progress, albeit not without its peculiarities. The following quotations highlight the practice of reporting process.

"In the past, we had to rely on postal services to send performance reports to the [Commission], which consumed valuable time and incurred postage costs. I vividly recall a specific instance in 2005 when we had to reserve a van to transport report paper and KPI supporting documents to the Commission's premises, ensuring that there would be someone to receive the documents upon our arrival (KTPT9P)."

"During the paper-based report period, I distinctly remember my supervisor told me to create at least three copies—one for our department, one for the [Commission], and an additional one to have on hand during budget defending for the next fiscal year (NEPT10P).

The journey of report production is fraught with challenges. Public agencies grapple with the urgency of creating reports amid the dual pressures of timely submission and managing a substantial volume of documents. The deadline, coinciding with the end of September, marks the culmination of the fiscal year—a hectic time for public departments as they strive to clear budgets and finalize projects. Civil servants, immersed in various administrative tasks and obligations due by year-end, find paper-based report production particularly demanding. Physically submitting the paper-based report to the commission's premises becomes a daunting task amid the multitude of responsibilities and tight timelines.

"There was a time when we were busy because it was the end of the fiscal year, and we needed the department director to approve the performance report. The paper-based report required the signature of the director to sign off. However, he was not in office due to cabinet immediate' s order, so I had to drive far away just to get his signature." (SKR2P)

"I did not understand why the [Commission] retains the paper-based version. Dealing with supporting documents was time-consuming, and I was not convinced that the [Commission] could find performance information without our assistance in indicating. In our organization, we also developed several IT systems incorporated with administrative tasks, which are useful for data storage, information reproduction, and a search engine. (VCHR10D)

Reporting is challenging not only for the agencies but also for all actors within agencies who must carefully navigate through each document with a keen eye for accuracy. A revealing quotation from a member of the reporting unit sets the stage, highlighting the intricate process of reviewing each page when KPI coordinator submit reports. This meticulous scrutiny underscores the importance of precision and reliability in the reporting process:

"During the process of creating performance report in paper based, I had to review each page when KPI coordinator submitted documents to me. I would take notes in an Excel file, manually going through the documents. If they submitted incorrect documents, they would have to resubmit them." (POR5P)

The findings reveal that the paper-based report transcends being a mere compilation of performance records; it functions as the visage or image of the organization, reflecting its reputation. Precision is paramount in every entry, a consideration not overlooked by the agencies. In acknowledgment of these pivotal responsibilities, the reporting unit initiates a meticulous review process, ensuring that each report is impeccably prepared for presentation to the discerning eyes of the commission.

The inefficiencies inherent in the process of generating a paper report are vividly illustrated by these quotes. As highlighted by the interviewees, these challenges encompass time delays, manual processes, reliance on multiple hard copies of supporting documents, potential submission errors, and approval bottlenecks. Recognizing these challenges, especially considering the introduction of Thailand 4.0, the commission proposes the transition to an electronic report as a viable solution. This presents the opportunity for a more streamlined and efficient approach to address the issues identified in the paper report.

4.1.2 The e-Report

In 2013, the commission found itself at a crossroads, acknowledging the pressing need and challenges posed by the paper Report. Time-consuming processes, escalating costs, and the ever-looming threat of technological disruptions prompted the recognition that change was imperative. In response, the commission unveiled a solution: an electronic reporting tool (e-Report). This technological innovation was not just about minor upgrade to the process. The change came with a core vision to champion good governance, elevate transparency, uplift the quality of public services, and improve organisational effectiveness and performance (OPDC, 2013a, OPDC, 2017, OPDC, 2020, OPDC, 2022). The e-Report introduced a new

approach to evaluate the performance of government departments. The hope was that it would help to make reporting process more effective leading ultimately to the enhancement in performance of governmental units.

The journey from the traditional paper-based report to the innovative e-Report unfolded over a three-year span, from 2011 to 2014. This transformative experience involved the intricate process of platform development and the subsequent system launch, etched vividly in the researcher' memory. The e-Report development's first year involved gathering detailed system requirements from the commission's staff in the responsible division. The staff members dedicated individuals provided essential insights into basic and advanced features necessary for user functionality. Although technical requirements during system acquisition were solely received from commission staff due to their lack of IT programming expertise, they were adept at identifying both general and specific features crucial for the system.

The transition period from paper report to e-Report occurred smoothly. Demonstrating an understanding of change management principles, the commission adopted a dual-reporting approach. This approach allowed simultaneous performance reporting through both the traditional paper-based report and the new e-Report system. This strategy aimed to facilitate a smooth transition, particularly for individuals from older generations who might encounter challenges with new technology. Consequently, during this transitional phase, e-Report and paper-based reporting coexisted. Agencies were required to report through both channels, and any omissions incurred penalties, resulting in reduced performance scores. To facilitate this transition, extensive communication efforts were undertaken to introduce agencies to the new IT system, complemented by training sessions to familiarize them with its functionalities.

The official launch of the e-Report system occurred in 2014 (OPDC, 2013b) when the commission formally announced to agencies that the paper-based report was no longer required, urging them to submit and upload documents exclusively through the e-Report system. However, due to the risk-averse nature of civil servants, many agencies continued with both channels, fearing the unintended consequences of being unable to submit the report, potentially resulting in deductions from their performance scores.

The implementation of the e-Report changed how agencies went about performance reporting. On the upside, e-Report alleviated the burden in terms of both time and resources. For example, the change streamlined the often-challenging process of report production,

including tasks such as data collection, data analysis, and the creation of multiple copies of supporting documents. Public agencies could now monitor and report their performance progress over time through this innovative online platform. The advantages of e-Report lay in its flexibility: (1) the reporting unit (KPI coordinator) could input performance information electronically, uploading supporting documents with ease; (2) the agencies, as well as the reporting unit group, were no longer constrained by the need to produce bulky paper reports and supporting documents; (3) e-Report simplified the reporting format, transforming the once demanding task into a more streamlined and efficient process; (4) e-Report can be submitted electronically with an authorizer account.

Implementation challenges arose in two main areas. Users confronted issues related to computer literacy, and the system faced technical glitches. The transition to the e-Reporting system within the PMS marked a significant shift for users unfamiliar with digital platforms. Initial stages of the e-Report system rollout witnessed resistance and hesitancy among users grappling with the nuances of the new technology. Addressing computer literacy issues became imperative, leading to additional efforts in user training and support to bridge the digital divide. Furthermore, technical glitches and software-related challenges temporarily disrupted the smooth flow of the reporting process, necessitating prompt intervention and troubleshooting to ensure system reliability and effectiveness. These challenges in the initial phases highlighted the importance of ongoing training, technical support, and system optimization to enhance user proficiency and address potential technical issues. Despite these challenges, the gradual adaptation to the e-reporting system ultimately paved the way for improved efficiency, accuracy, and streamlined reporting within the broader context of the PMS.

The following quote describes the practice where users and their supervisors review performance outcomes on a paper report:

"Once I input the performance data into the system, I have to print out the performance report for the director's approval. The department director lacks the time to review it online, and the font size on the online platform is too small for them to read effectively." (SKK3P)

"One problematic issue is that users don't appreciate the electronic system they have. They see it as a burden and attempt to avoid using it. One of my colleagues consistently sticks to her traditional way of working. She mentions that information technology is

complicated, and she prefers her own methods. I think we should introduce regulations regarding IT adoption so that people can adhere to them" (SSOS13P)

The following quote is from a supervisor with 15 years of experience in PMS within the reporting unit, indicating that the traditional method is his preferred reporting approach.

"I am used to the traditional method of verifying information, which I find more convenient as I can make instant corrections with a pen in my hand. Furthermore, I believe that practitioners can learn from the corrections I make on paper-based reports." (VCHR10D)

In response to challenges encountered during the implementation, the commission acknowledged the crucial necessity for user support in navigating the new e-Reporting system. In addressing this need, the commission organized extensive system training sessions with the specific goal of enhancing computer literacy among users in the reporting unit. These training programs were meticulously designed to provide users with the requisite skills to efficiently input, review, and manage performance data within the electronic platform. Moreover, foreseeing potential challenges during the initial phases of implementation, the commission took proactive measures by establishing IT helpdesks. These dedicated support channels served as essential resources where users could seek assistance for technical issues, address concerns related to the system's functionalities, and receive guidance on troubleshooting. The commission's commitment to tackling challenges through training initiatives and dedicated IT support underscores their proactive approach in facilitating a seamless transition to the e-reporting system within the PMS framework.

The following excerpt identified measure the commission act:

"[The e-Report] reduces uploading and processing time, enhancing convenience and efficiency. Users can conveniently access and view performance data. [e-Report system] accept various font types and file uploads, ensuring easy accessibility. [The commission] also provides training to enable the quick-learning new generation to utilize the system effortlessly" (ONSG13D)

"Operating with e-Report is easy. [The commission] provides clear explanations, and with the training and direct experience I have, I can confidently navigate and utilize the system." (JNG4P)

Carrots and sticks incentivized compliance with the new system, and stringent measures ensured timely report submission. Late submissions led to deductions from the final performance score (OPDC, 2013b). The e-Report system surpassed expectations by guiding necessary information uploads, establishing reporting criteria, and facilitating evaluation by external auditors. However, implementation revealed inconsistencies in reporting formats and diminished data quality, creating a gap between the commission's expectations and actual outcomes. This discrepancy stems from variations in agencies' interpretation and application of standardized reporting formats, hindering consistent and comprehensive evaluations. Addressing these challenges is crucial to aligning e-Report's intended purpose with practical realities.

4.1.3 User's Perception

System users and users' perceptions are key components of the successful implementation of any information system (Lestari, 2021, Yeo, 2016), including systems that support decision-making in government organizations (Abusamhadana and Elias, 2018, Alcivar et al., 2017). The findings below begin with general perceptions of what works and what has been a challenge in performance e-Reporting.

4.1.3.1 Satisfaction

Satisfaction is a suitable starting point for the findings. The data uncovered encouraging news for both agencies and the commission—specifically, a discernible level of satisfaction among users regarding various aspects of the e-Report system. Three key advantages emerge: a simplified process, system convenience, and reduced resource requirements.

Simplified process: respondents reflected on their experience with e-Report and conveyed their appreciation for the positive changes it introduced to their work. Simplification refers to streamlining a series of steps, communication, or systems to make the process more straightforward, accessible, efficient, and user-friendly. For example, a supervisory respondent in a Labour Ministry expressed satisfaction, emphasizing that the simplification of e-Report is one of its key advantages.

"The e-Report has removed the burdensome paper report process. Previously, if we had to return the performance summary to the KPI coordinator to confirm the information by verifying data. The period for returning and receiving posed a hurdle. A simple click to return the report to the KPI coordinator in e-Report makes the process easier. The pop-up

message alerts the KPI coordinator to verify information for accuracy. This aspect of the e-Report system is what impresses me the most." (MOR4D)

As illustrated in the above excerpt, system efficiency is a key satisfaction achieved by eliminating unnecessary and reduce waiting period for processing. Efficiency is often associated with the optimization of processes, systems, or activities to achieve the best possible results with the least amount of waste or unnecessary effort. Efficiency manifests in various forms, such as time efficiency, resource efficiency, or operational efficiency. Automation seamlessly accompanies this efficiency, facilitated by a simple click. The supervisor 'MOR4D' expressed appreciation for system efficiency because it reduces the waiting period associated with the back-and-forth process between KPI coordinators and the reporting unit. This reduction in turnaround time is a significant improvement that enhances the overall effectiveness of the system.

Another aspect of simplicity is the system's straightforwardness, enabling a prompt e-Reporting process to improve operational efficiency. For instance, an officer at the commission expressed that the e-Report provides a user-friendly interface seamlessly aligned with the process. e-Report system feature meets user expectation. The following quotation explains:

"The [commission] designed the [e-Report] interface to seamlessly align with my thought process. Throughout the reporting period, I discovered it is easier for me to input only numeric data instead of providing a narrative explanation of performance outcomes. The KPI descriptions, pre-filled by the commission into the system, highlight how promptly the system can respond to agencies. The pre-filled information helps avoid misunderstandings and mistakes regarding the required information in the system." (OPDC3DK)

As the quote illustrates, time and operational efficiency were observed during e-Reporting. The respondent highlighted that the e-Report user interface is user-friendly, presenting performance outcomes with numerical data that significantly streamlines the reporting unit's tasks, making them easier and more efficient. The focus on inputting only numeric data serves to minimize the time users spend on the system, contributing to a more efficient and time-saving user experience. In addition, the pre-filled performance data in the system avoids inaccuracies in performance details, thereby improving operational efficiency.

In conclusion, the simplicity of the e-Report system, with the ability to return the report to the KPI coordinator with a single click, not only saves time but also conserves resources. The pre-filled information in the system illustrates the reduced communication period between the reporting unit and the KPI coordinator, leading to a substantial decrease in the overall processing time for reports. The advent of e-Report has brought about a significant improvement in the reporting process, making it notably easier for users.

Moving to system convenience, the informants elucidated their experience and gratitude with the e-Report system for the beneficial transformation it brought to their PMS responsibilities. Convenience refers to system features that are efficient, reducing the effort required by convenience can be users to achieve their goals. System in the form of user interface (UI) design, accessibility, automation, as well as user support and training. Several respondents highlighted e-Report system convenience in quotations below, emphasizing its beneficial features.

System Automation

An important aspect of e-Report convenience is system automation. The e-Report automation performs with minimal human intervention. The goal of automation is to streamline operations and reduce the need for manual labour. System automation features enhance convenience by reducing manual tasks, saving time and effort for users. The following excerpt explained the advantages and improvements brought about by the e-Report.

"Certainly, the [e-Report] proves to be incredibly helpful as it eliminates the need for printing physical evidence and formatting paper layouts. Instead, we simply input the data into the required fields, which is highly convenient. Additionally, the [e-Report] automatically calculates the performance score." (OPDC2P)

"The [e-Report] has significantly improved the ease of my life with regards to performance reporting. With each year's updated version, I find myself spending less time filling out information in the system" (LPN2D)

"I agree that submitting reports electronically is more convenient. I've heard that in the past, the process of producing paper reports was time-consuming and resource intensive. It required several staff members to organize, print out, and format the report. In addition, the report had to be submitted on time. Therefore, I consider myself fortunate that the [e-Report] was already in place. The efficiency and ease of the [e-Report] system not

only save my time but also allow me to have more time to check its accuracy, as the system generates the report" (PRMN7P)

Participants in the quotations highlight the positive impact and efficiency of the e-Report system during performance reporting. They appreciate its convenience in eliminating the need for physical evidence and manually formatting, emphasize the ease of data input, and note the system's automatic performance score calculation. The quotations emphasize timesaving.

In addition to system advantages, the supervisor respondents expressed their appreciation for the significant assistance provided by the e-Report.

"I'm surprised by how much [the e-Report] has aided me in my work. Everything can be completed instantly within a single page. Despite not being an IT person, I still feel comfortable and at ease when using the e-Report." (ONSG13D)

The quotation above highlighted the convenience of the system. Despite varying levels of technological expertise, both supervisor and staff expressed their gratitude for the e-Report system, significantly enhancing their work in generating performance reports. Notably, the most appreciated features include the ability to format layout and summarize reports on a single page. Furthermore, the system automates report formatting and performance score calculation, eliminating the manual tasks associated with these processes. Respondents' express relief that the days of grappling with paper reports are now a thing of the past. The introduction of the e-Report is seen as a breath of fresh air, liberating them from the hassles of the traditional paper-based system.

User Interface (UI)

Another aspect of system convenience is the user interface (UI). UI refers to the point of interaction between a user and a computer system or software application. UI encompasses key elements such as input controls, visual indicators, and information elements, allowing users to interact with and control the software or system. Therefore, effective user interface design creates an intuitive, user-friendly experience, minimizing user errors and enhancing overall usability. For instance, two supervisor respondents exemplify their view of the e-Report interface, which reduces processing time and enhances e-Report system capacities in relation to data storage. The following excerpt expresses satisfaction with the user interface.

"The [e-Report] offers increased convenience in collecting and processing information. There is no need to gather and recreate documents, and editing becomes much easier. Furthermore, the adoption of the [e-Report] reduces paper waste. Overall, it brings enhanced convenience and ease of use" (VCHR10D)

"The initial version of [e-Report] faced several issues, such as data storage capacity and the user interface. [The commission] has worked to eliminate these issues, and I can see the improvements in the new version of e-Reporting, which is even more convenient for users. The system allows users to upload large files in no time, and data can be stored for easy retrieval". (STNC1D)

The above quotations shed light on the satisfaction of the staff and supervisors in the reporting unit concerning the user interface (UI). The input controls, allowing users to input data, including performance information, and supporting documents, have empowered staff and supervisors to organize, edit, and transfer files among team members. This has enhanced the functionality of input controls and refined how data is displayed. Additionally, it facilitates the use of alerts to convey information effectively to users. Supervisor 'VCHR10D' highlighted that the e-Report's capability to store various document types enables convenient access and streamlined information retrieval. Moreover, Supervisor 'STNC1D' reported that each upgraded version of e-Report not only enhances data storage capacity but also simplifies information retrieval, alleviating the burden of locating specific data.

In addition to system convenience, user support refers to services, resources, and assistance provided to agencies to help them effectively use and navigate the e-Report. The commission ensures user satisfaction by providing supporting systems to enhance the optimal use of the IT system. The following quotation explains how agencies appreciate e-Report for providing user support in producing performance reports.

"I have never encountered anything that has upset me regarding e-Report. Whenever I faced a problem, I found the commission's supporting systems, such as the Line official, to be very responsive in assisting agencies seeking help. This has contributed to the smooth functioning of e-Report. I am impressed by the commission's efficient management of the system. Thus far, I have not been disappointed. The system has been excellently developed." (JNG4P)

"[The e-Report] system reduces uploading and processing time, enhancing convenience and efficiency. Users can conveniently access and view performance data. [e-Report] accepts various font types and file uploads, ensuring easy accessibility. [The commission] also provides training to enable the quick-learning new generation to utilize the system effortlessly" (ONSG13D)

"It is beneficial as it allows us to utilize the database for various purposes, especially during crises such as the pandemic. All data is stored on the platform, enabling us to work from home with support" (SKOS11D)

The above quotes illuminate the participants' perceptions that the e-Report is a helpful and convenient tool, providing user support through a helpdesk. Staff member 'JNG4P' expressed that the channel through which agencies can contact the commission for e-Reporting support has enabled them to conveniently reach out to the commission. The helpdesk has assisted them throughout their journey with e-Report. Additionally, a supervisor reported that e-Reporting training has enabled their staff members to familiarize themselves with the system. Therefore, during the reporting period, their staff can work efficiently. Moreover, the e-Report allows agencies to work without geographical boundaries. The e-Report system, with its real-time enhanced data upload capacity, has proven invaluable. It enables users to work seamlessly from any location, particularly during times of pandemic crises. The system's convenience strongly supports the usage of e-Report, effectively addressing user requirements. This emphasizes the critical role of features and its accessibility in the e-Report system.

The last source of satisfaction is derived from **reduced resource requirements**. Respondents reflect on their positive experiences with the e-Report, which assists in their PMS process. 'Reduced resource requirements' refer to the optimization or minimization of resources, including time, manpower, and materials, needed to perform a specific task, operation, or process. Optimization often involves streamlined processes or strategies to achieve the same or better results with fewer resources. In this study, streamlining resource consumption entails improving resource optimization, simplifying workflows, and reducing costs. Resources considered include office appliances, materials, and manpower. For instance, the following quotes elucidate the sentiments of informants who have experienced the transition from paper-based reporting to the e-Report system. Users reflect on the challenges they faced with manual reporting and express how the introduction of the e-Report has significantly transformed and streamlined their resource consumption.

"The end of the fiscal year is the busiest moment for the public agency. We need to prepare several reports, e.g., performance report for the commission, budget spending summary for central agencies, as well as provide information for the next fiscal year. The paper report was a nightmare as we need to work against the clock, since late submissions cause a reduction in performance scores. The e-Report has saved my life, as we can work anytime, and a lesser amount of time is required to complete the report (MOI3D)

"It was struggling time as we usually have two staff members working with PMS. It was stressful when we had to prepare paper reports, and our workload was already overwhelming. The e-Report makes it easier with electronic reports, where we do not need more staff to help with sorting documents." (SKR2P)

"*The steps in e-Reporting are very simple with a single-click to fill in performance outcomes and a single click to submit. It is a very straightforward system that requires fewer steps to operate. For instance, I fill in performance information and then click submit. It is very convenient for me. Unlike other IT systems, it takes several interfaces until I can fill in performance data and submit. Besides, e-Report is helpful in organizing documents. I remember my room being filled with piles of paper stacks in every corner as the KPI coordinator submitted them along with the performance outcomes. I believe the cost of those office appliances, such as A4 paper and ink for printing/copying, would be a lot. Printing and tearing were common practices at that time because when information was wrongly input, those papers would be wasted. The e-Report is genuinely helpful; everything can be stored electronically, and the formatted template makes processing reports easier.". (OPDC1DK)*

An aspect of streamlined resource consumption is resource optimization, which refers to ensuring resources (e.g., time, materials, and manpower) are allocated in the most optimal way to achieve maximum output. During the interview, respondent's supervisor 'MOI3D' expressed that the last week of September, as the fiscal year-end, was the busiest time. Every unit within agencies tried to complete their tasks. With only two staff members in the reporting unit, the supervisor mentioned that it is challenging to cope with the workload against time constraints with limited manpower. However, he noted that e-Report helped the unit organize the performance report more efficiently with only two staff members by arranging the report format, organizing files, duplicating reports, and submitting them to the department director for approval. The automated reporting process of the e-Report system

optimizes the utilization of human capital, thereby minimizing the need for additional staffing and reducing associated costs.

Despite the transformative impact of the e-Report system in substantially reducing manpower, office appliances were also dramatically reduced. The respondent 'OPDC1DK' highlighted memories of a room filled up with several boxes of supporting PMQA documents. A waste of money in office appliances is not an issue after the introduction of e-Report. Every activity can be performed on the IT system. Furthermore, these quotes underscore how the e-Report system conveniently enhances the reporting process, as illustrated by the ease of electronic submission, simplified data storage, and streamlined report processing. The e-Report system not only modernizes reporting practices but also strategically aligns with organizational goals by fostering resource efficiency and improving overall efficiency in the PMS process.

In conclusion, simplified processes, system convenience, and reduced resource requirements have emerged during the interviews, showcasing how the e-Report system has satisfied its users. These functions and aspects of the e-Report have facilitated their work, signifying a transition from basic paper reporting to a streamlined report production process.

4.1.3.2 Dissatisfaction

Although there are some positive aspects, dissatisfaction stemming from certain drawbacks associated with e-Reporting becomes evident. It is important to note that I am not a neutral party; I am affiliated with the commission, a fact acknowledged by the participants. Therefore, I am aware of the challenges inherent in the information provided and its potential dual impact on respondents, both positive and negative. The data revealed three key themes: redundant reporting processes, a lack of informative feedback, and challenges related to authentication and authorization. However, the subsequent section focuses on elucidating the negative aspects of e-Reporting.

Redundant Reporting Process refers to the existence of unnecessary or repetitive steps, tasks, or actions within the e-Reporting procedures. In this context, redundancy implies that certain elements in the reporting process are duplicated, serving similar functions, leading to inefficiency, increased workload, and the potential for errors. Redundant reporting processes can take the form of duplicated data entry, overlapping procedures, or parallel approval chains. The first insight concerns efficiency claims. Respondents question the e-Reporting process, which may lead to dissatisfaction, as highlighted by supervisor informant PTN5D.

"The process can be time-consuming and redundant. However, when asked if it is necessary, my answer is yes; we are obligated to perform these tasks. We must input information, cut, and paste, and despite having already summarized the content in the report, we are still required to do so again within the electronic system. Undoubtedly, it's a waste of time." (PTN5D)

"The e-Reporting system involves redundant tasks, such as copying and pasting the same information into various fields. Before inputting data into the e-Report system, I must first submit a paper summary for department director approval. Without approval, I risk unintended consequences when transferring information into the system. This repetition within the electronic system is undeniably unnecessary and time-consuming" (STNC1D)

"I had hoped that the e-Report would significantly streamline the reporting process, but the practices in my office have remained unchanged. I still need to follow the established procedure of paper-based reporting, coordinating with the KPI coordinator, retrieving information, analysing, and interpreting data. The need for narrative skills persists, allowing me to articulate performance progress, especially when it falls short. Therefore, I don't find the e-Report helpful." (OPDC5D)

"My initial expectation was that the e-Report would eliminate the need for coordination with the KPI coordinator or even my department director. However, the director still insists on a paper report for sign-off. Instead of replacing the paper report process, the e-Report has added to it by requiring the transfer of data into the electronic system." (KTPT9P)

The Redundant Reporting Process involves duplicating data entry, requiring the same information to be entered multiple times in various formats, leading to increased chances of errors and inefficiency. In this study, supervisor respondents (PTN5D, STNC1D) described the need to enter the same information during processes, starting from receiving data from KPI coordinators until submitting it to department directors. While submitting a paper report to the department director is a requirement, the implementation of e-Report allows electronic submission. However, OPDC5D expressed frustration, stating that despite the introduction of the electronic system, she must still follow the established procedure of creating a paper-based report. Overlapping procedures are considered redundant reporting processes, covering similar aspects of the paper-based report and resulting in unnecessary complexity. For instance, staff member KTPT9P mentioned hoping for e-Report to eradicate the paper

report process. The director's insistence on signing off on a paper-based report indicates dissatisfaction with duplicating data in different reporting channels.

The above excerpts highlight user dissatisfaction with the e-Reporting process, stemming from its close resemblance to traditional paper-based reporting procedures. Despite the apparent transition from paper to an electronic format, participants perceive the e-Reporting process as redundant. The informant emphasized that, despite summarizing content in the paper report, there exists an obligation to use the e-Report, involving repetitive steps like cutting and pasting. The e-Report mandates agencies to transfer performance information into the IT system, maintaining a sense of an unchanged process from the traditional paper report. This repetition and lack of change contribute to user dissatisfaction.

Transitioning to the aspect of inadequate feedback. After report submitted has been submitted to the commission, public agencies are expecting constructive feedback. However, Respondents hinted at inadequate feedback from the commission regarding their performance outcomes. Inadequate feedback in IT refers to a situation where the information provided in the context of IT are insufficient or none, lacking in detail, or not sufficiently helpful for the agencies to take it further. The key characteristics of inadequate feedback can be in form of insufficiency, vagueness, absence of actionable insights, or limited scope. The following quotation from supervisor in public agencies explaining that the e-Report falls short in offering comprehensive feedback on organizational performance. Addressing inadequate feedback is crucial for maintaining user satisfaction, improving system performance, and ensuring the effective use of IT resources.

"We've been submitting six-month reports without receiving any feedback from [the commission]. There have been claims that their staff doesn't pay adequate attention to the performance reports. As a result, we've resorted to reporting only for the 12th month. This lack of feedback and attention discourages me from making a nice and completed report as it receives no feedback." (SRN7D, PTN5D)

"In the e-Report, we can generate reports and obtain performance scores. However, what is lacking is an understanding of our weak points and the specific areas that require improvement. We are unable to determine why we are falling short in achieving our targets. The e-Report fails to provide a comprehensive reflection of our organisation. Addressing this challenge is essential, in my opinion." (STNC1D)

An aspect of inadequate feedback is the absence of actionable insights that may not offer practical recommendations or solutions for agencies to address identified performance improvement issues. Supervisor 'STNC1D' expressed that agencies need to understand their shortcomings, particularly in aspects of how they can improve their performance to achieve KPI targets. He also identified that the e-Report falls short in offering a comprehensive overview of their agencies. Additionally, both supervisors 'SRN7D' and 'PTN5D' revealed that the decision to report only for the 12th month highlighted the commission's insufficient time to review reports and provide useful advice, reinforcing dissatisfaction with the system. The importance of feedback is emphasized in providing insights into strengths and weaknesses, allowing agencies to identify areas for improvement. Positive feedback serves as a motivational boost, and negative feedback is crucial because it highlights areas that need attention, correction, or development. Without feedback, public agencies may lack direction or a clear understanding of their performance, leading to uncertainty and hindering improvement.

In addition, the provided quotation highlights the e-Report's limitations in evaluating organizational performance. Despite its ability to generate electronic reports and retrieve performance scores, the system falls short in identifying weaknesses and offering specific areas for improvement. Respondents expressed frustration over the challenge of understanding why targets are not being met and expected constructive advice on how to improve. Therefore, the e-Report is criticized for its failure to provide a comprehensive reflection of the organization. The informant stresses the importance of addressing this limitation, highlighting the need for a more nuanced and insightful performance assessment tool.

In conclusion the above quotations suggest that the absence of constructive feedback on agency performance discourages public agencies from fully utilizing the e-Report. Moreover, the absence of feedback means agencies may not realize their performance shortcomings without a proper warning and monitoring system, as revealed in the interview.

The last dissatisfaction stems from **authentication and authorisation challenges**. In this context, these challenges related to securely managing and providing access credentials to users within agencies. The problem may arise in form of password management, password distribution, security concerns, or access control. These challenges can arise from the operational aspect of the e-Report and impact agencies' efficiency and effectiveness during the e-Reporting process. For instance, one of the supervisor respondents explained that

during the e-Report, several challenges arise from the issue of managing username and passwords. Additionally, supervisor *'PRTR10D'* revealed the difficulties in time which the commission distribute login name and access code as well as the inconvenience extends to the limited time available to access the e-Report system.

" We often forget our usernames and passwords, making it difficult to recall which ones we have used. The multitude of IT systems developed by various central agencies to facilitate their functions adds to the confusion, with systems such as the Budget Bureau IT system and the EPPO IT system. Consequently, to avoid this issue, I find myself resorting to using the same username and password for every system." (VCHR10D)

"The difficulty with an electronic system is associated with the username and password. To use the system, we must wait for [the commission] to distribute the usernames and passwords, which often causes delays. Although the commission attempts to send them in time, aligning with the timeframe for agencies to access, this delay generates negative feelings. This additional step makes accessing the system more cumbersome and challenging." (PRTR10D)

"I was expecting that [the commission] would allow enough time for us to access the e-Report system. However, we can only access the system for 15 days annually after the September 30th. [The commission] excuses this by stating the need to close the system for evaluation. It would be preferable if we could have access to [the e-Report] system from the beginning of the year." (JNG4P)

"[The e-Report] system is only for performance report generation. I cannot access the KPIs, or the information required in the e-Report system until the performance reporting period. Despite the significant financial investment and maintenance, the limited window of usability discourages our attention to the system". (NRE6D)

An aspect of the authentication and authorisation challenges is password management and security concerns. Password management is an issue that agencies deal with the complexities of creating, storing, and remembering secure passwords, as well as handling password resets and recovery. V*CHR10D* highlighted the common issue of users frequently forgetting their usernames and passwords, indicating a lack of regular system use. When users infrequently access the e-Report system, the lack of routine use and reinforcement of login information may lead to forgotten credentials. This issue is like an aspect of access control which

imposes a limited window for users to submit performance reports. Access control, in this context, restricts user login to specific times of the year. The combined challenges of access control and password management create a discouraging environment for users, hindering the effective utilization of the e-Report system.

Furthermore, respondent 'VCHR10D' expressed security concerns and password management as critical challenges associated with authentication and authorization. The respondent outlined their approach to address the issue of forgotten passwords by implementing a uniform username and password across all IT systems within the organization. However, this strategy introduces security risks due to the potential use of weak passwords, which could lead to unauthorized access. Additionally, their method of dealing with password management involves navigating the complexities of creating, storing, and recalling secure passwords, as well as managing password resets and recovery processes.

It can be concluded that the factors contributing to dissatisfaction with the e-Report system stem from issues related to the e-Reporting process. The redundancy process, inadequate feedback, and authentication and authorization challenges significantly impact user satisfaction. These inherent authorization challenges result in ineffective user engagement with the e-Report system, thereby undermining the perceived advantages associated with the substantial investment made in its implementation.

4.1.3.3 Challenges of the e-Report

The implementation of the e-Report system has brought about transformative changes in the reporting landscape, yet it has not been without its challenges. As users engage with the e-Report, distinct hurdles emerge that warrant careful examination. The finding discovered three key aspects and each contributing to the complexities encountered by users: feedback mechanisms, incomprehension of system intricacies, and functionality concerns.

Feedback Mechanism

One notable challenge revolves around the feedback mechanisms embedded in the e-Report system. Users have expressed a sense of inadequacy in the feedback received from the commission regarding their performance outcomes. Inadequacy in the context of feedback refers to the state of being insufficient, lacking completeness. For instance, the respondent identified that the e-Report does not provide enough information, clarity, and constructive guidance for the agencies to understand their strengths and weaknesses of their performance.

"The introduction of [e-Report] was aimed at reducing the workload of [the commission]. However, since its implementation, we've been submitting six-month reports without receiving any feedback from [the commission]. There has been rumour that [the commission's] staff does not pay adequate attention to the performance reports. As a result, we've resorted to reporting only for the 12th month. This lack of feedback and attention highlights the absence of a proper warning and monitoring system." (SRN7D)

"I don't believe that [the e-Report] alone can improve organisational performance. From my perspective, [the e-Report] functions as a system that supports the collection of information for public agencies. However, I don't see a direct cause-and-effect relationship between [the e-Report] and organisational performance. One limitation of [the e-Report] is that it operates as a one-way communication platform, solely receiving information from the public agencies without providing any performance feedback." (OPDC2P)

The above excerpts reveal a deficiency in the feedback mechanism, hindering the ability to gauge the effectiveness of agencies' reporting efforts and making it challenging to identify areas for improvement. Both respondents, SRN7D and OPDC2P, express concerns related to feedback and communication within the e-Report system. SRN7D emphasizes the lack of feedback as a hindrance to effective monitoring and warns about it, while OPDC2P questions the system's direct impact on organizational performance due to its one-way communication nature. These perspectives underscore the need for improvements in the e-Report system to enhance its functionality and effectiveness in supporting organizational performance. As mentioned by respondents, the e-Report system has failed to address key areas or provide suggestions for improvement, making it less effective in facilitating growth or positive change.

System Incomprehension

Another significant challenge stems from the incomprehension of the intricacies of the e-Report system. System incomprehension refers to a lack of understanding or difficulty in grasping the functioning, structure, or features of a system. Informants have expressed that they are having trouble comprehending how the e-Report works, leading to confusion, inefficiencies, and challenges in utilizing the system effectively. For instance, Supervisor "PRTR10D" described the issue of missing information required for input into the e-Report system.

"I believe it is crucial for [the commission] to provide clear and precise explanations of the information they are seeking on each page, particularly when it comes to defining and understanding the meaning of each field. Certain fields require descriptive Key Performance Indicators (KPIs), and practitioners should be able to articulate them effectively to ensure auditors can comprehend them appropriately." (PRTR10D)

"I believe the challenge lies in ensuring user comfort while using the system. It is important for [the commission] to clearly communicate that failure to timely fill out the required information in the designated fields may result in a deduction of the performance score for the public organisation." (STNC1D)

An aspect of system incomprehension could be derived from inadequate user training. Insufficient training for the agencies can result in a lack of understanding of the e-Report system. Staff and supervisor in reporting unit may struggle to grasp the functionalities and optimal use of the e-Report without proper training. Users, at times, find it challenging to grasp the full capabilities and features of the platform. This lack of comprehension not only impedes the seamless utilization of the system but also contributes to inefficiencies in reporting processes. The ensuing discussion dissects instances where users encounter difficulties in navigating the system, highlighting the need for enhanced user education and intuitive system design.

Functionality Concerns

The third challenge faced with e-Report pertains to functionality concerns. Functionality concerns refer to issues related to the features, capabilities, or operation of the system. In the context of IT, it could involve challenges or deficiencies in the way a specific function operates within the system. For instance, supervisor 'PRTR10D' has reported concerns about features of the e-Report that do not meet user requirements, including issues with the structure of the IT system regarding the login feature.

"I wish we could attach more files in the system. In my opinion, many of the developed systems fail to adequately meet users' needs. One of the challenges, or perhaps limitations, lies in the file capacity for entering information. Additionally, users require the skill of providing concise and effective explanations in short sentences." (PRTR10D)

"The difficulty with an electronic system is associated with the username and password. To use the system, organisations must wait for the central agency to distribute the usernames and passwords. This additional step makes accessing the system more cumbersome and challenging." (PRTR10D)

The introduction of the e-Report system has resulted in significant alterations to the reporting environment, although it has not been without its set of challenges. As users interact with the e-Report, specific obstacles become apparent, requiring thorough scrutiny. Considering the problem of e-Report implementation, the next section presents systematic challenges in IT alignment in public organizations.

4.2 Part II: IT Alignment: Systematic Challenges

A benefit of an IT system rest in part on its alignment with an organisation (Lestari, 2021, Alcivar et al., 2017, Jonathan et al., 2022, Guillemette and Paré, 2012). Yet, alignment is difficult to achieve and IT projects frequently fail to deliver the envisaged benefits (Kwanroengjai et al., 2014). IT misalignment refers to occurs when an organisation's IT infrastructure does not synchronize with its goals, strategies, and objectives (Őri and Szabó, 2019a). In the public sector, misalignment often arises from inadequate planning, ineffective communication, and resistance to change (Őri and Szabó, 2019a, Ridwansyah and Rusu, 2020). The consequences include unfulfilled expectations, inefficient resource utilization, and a misalignment between organisational requirements and IT system capabilities (Alaceva and Rusu, 2015, Ridwansyah and Rusu, 2020). This misalignment, in turn, can lead to a decline in public trust, decreased efficiency in service delivery, and diminished user engagement (Őri and Szabó, 2019a, Jobarteh et al., 2020).

Data pertaining to dissatisfaction begins to illuminate misalignment. The following section attempts to uncover the factors that hinder the achievement of the e-Report in Thai public organizations.

4.2.1 e-Report

The e-Report, as a critical artifact in organizational IT infrastructure, plays a pivotal role in shaping overall information technology alignment. However, issues such as unreliability, system invalidity, and functionality gaps have emerged as significant challenges, contributing to IT misalignment. Unreliability refers to the inconsistency and unpredictability in the performance of the e-Report, impacting its dependability for users.

System invalidity raises concerns about the accuracy and credibility of the data processed within the system. Additionally, functionality gaps highlight disparities between user expectations and the actual capabilities of the e-Report. These combined challenges underscore the need to address and rectify issues within the e-Report to ensure a more coherent and aligned IT framework within the organization.

4.2.1.1 System Unreliability

During the interview, informants explained that while working with e-Report, they manually prepared a paper report in parallel as a backup to prevent report unreliability. The concept of system reliability can be broadly interpreted as an assessment of how well a system aligns with the expectations of its users (Randell et al., 1978). In this study, system unreliability refers to the lack of consistency, dependability, or trustworthiness in the e-Report system. The unreliability of e-Report can result in inaccurate and inconsistent performance outcomes. This unreliability may arise from human errors, network issues, or capacity limitations, leading to various forms of manifestation, such as frequent failures and inaccurate outcomes. For instance, a staff respondent at a government agency emphasized the actual practice of verifying performance outcomes by printing the report for accuracy.

"Before submitting the performance report to the director, I need to print out the report and carefully review it to ensure the accuracy of the performance results. It is not only the final performance score that I check, but also each individual Key Performance Indicator (KPI) to verify its alignment with the information submitted by the KPI coordinators." (SKK3P)

"I don't trust the system, which is why I feel the need to print out the report in case of system failures. Additionally, within a Thai bureaucratic system, physical objects play a significant role. The department director prefers to have physical touched, felt the texture of the paper report. As a result, we need to print out report from the e-Report system as a back up to ensure what it is submitted was meant to submit." (PRTR10D)

The quote underscores that system unreliability may arise from human errors, network issues, or capacity limitations. This unreliability becomes apparent in the additional work processes needed to ensure performance report accuracy due to the system's frequent failures and tendency to produce inaccurate outcomes. These issues include misconfigurations, accidental data deletion, and improper resource use by administrators and staff. The respondent emphasizes the importance of documenting behaviour to ensure report reliability,

advocating tasks such as printing hard copies to guarantee accurate information and adherence to standards. Similarly, OPDC2DK stresses manual checks, advocating multiple reviews for accuracy and occasional manual calculations. These activities underscore system unreliability, reflecting a lack of user trust in providing accurate information. Participants also emphasize the importance of reviewing printed performance reports and verifying final scores and KPIs for alignment, revealing user concerns about system reliability. The subsequent quotation highlights user concerns during the reporting period, suggesting errors may occur when multiple agencies access the system simultaneously.

"I carefully examine the e-Report to ensure accuracy before submitting it to the system. I need to review the report several times to ensure accuracy because the system can be malfunction, have errors, and may not save data properly particularly during heavy information traffic" (SSOS12D)

An aspect of system unreliability can stem from capacity limitations. Capacity limitation refers to the maximum amount of data or traffic that the e-Report system can accommodate. It is a restriction on the amount of data or activities that can be managed, processed, or supported within a reporting period's timeframe. For instance, a supervisor SSOS12D addressed the broader challenge faced by users—a lack of confidence in the e-Report's accuracy, particularly during periods of high demand or congestion at the end of deadlines. In response to these challenges, users resort to supplementary measures such as manual computations and hardcopy reports to establish tangible substantiation. These measures act as safeguards in the face of potential disputes with the commission, ensuring the accuracy and reliability of the e-Report. The congestion, particularly end of reporting period, is attributed to heavy traffic on the system, leading to potential system malfunctions, errors, and difficulties in saving data properly, thereby representing the belief that the system could be unreliable.

In addition to tasks like printing out a hard copy of the report and verifying its accuracy, which signify a belief in the system's potential unreliability, the following excerpts convey the sentiments of participants who questioned whether the e-Report was disconnected from the practicalities and realities of everyday life, thereby contributing to system unreliability.

"I believe only 5-10% of the civil servant population knows what the e-Report is, as these individuals are closely connected to the executive level. Currently, the e-Report

remains a system in an ivory tower, executed by reporting unit within agency to gather information and then submit it to [the commission]." (PTN5D)

"The Thai bureaucracy also relies on fantasy. We often use our own concept and instinct in strategic operation and policy development to drive the mission and project." (RPM9D)

In the provided excerpt, the informant conveyed that the e-Report was perceived as a tool designed for management levels, seemingly detached from everyday realities. The metaphor 'ivory tower' and 'fantasy' suggests that the system is isolated from practical and real-world considerations, implying a sense of aloofness and separation from day-to-day operational challenges and needs. This portrayal in the context of discussing system reliability emphasizes that the e-Report system is excluded from practicalities, potentially making it less reliable in addressing real-world issues.

Moreover, the quotation explains the level of exclusivity, where only the upper echelons of the organizational hierarchy have access to specific information or decision-making processes. The question of whether the e-Report generates accurate performance scores and authentically represents performance outcomes poses a significant hurdle to the success of system implementation. Therefore, the perception of 'system unreliability' in this context is associated with a lack of trustworthiness, distinct from the trust between the IT system and its users. These uncertainties have the potential to impede IT alignment.

4.2.1.2 System Invalidity

The following quotation captures participants' perspectives on the performance outcome and the public organization's image. Informants expressed concerns about a potential mismatch between what an organization achieves and the public perception of those achievements. These expressions raise concerns about the issue of system invalidity. In qualitative research, validity refers to the accuracy and trustworthiness of findings—the extent to which a test, measurement, or research study accurately assesses its intended purpose (Lincoln and Guba, 1986, Maxwell, 1992, Whittemore et al., 2001). The notion of validation in computer literature refer as "the determination of correctness of the final program or software produced from a development project with respect to the user needs and requirement" (Adrion et al., 1982). In this context, information system invalidity indicates a deviation from expected or desired outcomes. The following quotation, expressed by a staff member from the commission, highlights the disparity between outcome expectations and what is

intended to be represented. When people's beliefs about an organization do not align with its real performance, it can lead to confusion and prompt a closer examination of operational processes due to system invalidity.

"We believe that Hospital (X) has been doing an excellent job in providing the best services to patients. However, when I presented the performance score to the performance committee, they questioned how it could be that Hospital (X) did not perform well. This contradiction between the performance score and the public's perception necessitates a reassessment of the scoring methodology. We want to ensure that the information we present to the public aligns with their expectations and avoids generating any negative sentiment." (OPDC2DK)

An aspect of system invalidity suggests that the e-Report system may fail to exhibit validity when its outcomes deviate from specifications, leading to a distorted image, errors, or misperceptions of the agencies. The quotations emphasize the informant's genuine concern about aligning actual performance outcomes with the public's perceptions of the organization. Respondents are concerned that the published performance outcomes should align with the organization's intended image. They express that failure to do so could potentially undermine the effectiveness of the e-Report system. In this context, the analysis could be interpreted as 'system invalidity,' indicating that the outcomes from e-Report might not align with public perception. The disparity between what the e-Report system delivers, and the actual perception perceived by informants has the potential to create confusion and disagreement, hindering societal cohesion, especially in the context of IT alignment.

4.2.1.3 Functionality Gap

The quoted statements convey respondents' concerns about the functionality of the IT system. The shortfall in delivering the functions expected of an information system result in what is termed a "functionality gap." This gap represents the difference between the anticipated or desired functions of the e-Report system and its actual capabilities or features. It signifies that certain functionalities expected in the e-Report system are not present. This functionality gap can emerge due to various reasons, including missing functionality, incomplete features, a mismatch with requirements, or an inadequate user interface. To illustrate, staff members from the commission office expressed their expectation that the e-Report should provide an option during KPI setup. The subsequent quotations underscored this gap in functionality.

"During the KPI setup, it could be even better if the e-Report system could categorize a group of similar KPIs. This way, I can select KPIs that fit with organizational objectives and find substitutes easily when other KPIs cannot be set.". (OPDC2P)

"The e-Report should provide historical performance data for the KPIs we've measured before. I can't access the data because the former staff member has left the agency, and I don't know where she stored the information." (OTY1P)

"The e-Report is merely a reporting system, with no warning or monitoring functions. It only benefits the commission, which keeps all performance information to themselves." (SRN7D)

The paragraph highlights the identification of deficient features in the e-Report system. Respondents pointed out specific functional gaps, particularly the absence of a set of KPIs aligned with organizational strategies. Through data analysis, it became evident that interviewees were dissatisfied, anticipating insightful feedback and alignment with organizational strategies, expectations unmet by the e-Report system. Furthermore, the supervisor emphasized the critical absence of the warning system or performance feedback, exacerbating the functionality gap. Consequently, the system's limitations in feedback and KPI categorization have disappointed both staff and supervisors who view these features as indispensable. Beneath the surface, informants expressed disappointment because they initially expected the e-Report to replace all manual processes and simplify data collection and analysis. Users envisioned the system providing insightful feedback, improving performance outcomes, and presenting relevant KPIs aligned with organizational strategies. The realization that the e-Report does not meet these expectations has led to frustration among users, hindering its smooth acceptance and integration into their workflows. This discrepancy between user expectations and the system's actual capabilities is termed the 'functionality gap', potentially hindering productive discussions and consensus.

4.2.2 e-Reporting

Electronic reporting, e-Reporting, is the process of creating, submitting, and managing reports using digital platforms and technologies. In the realm of performance reporting, it involves the electronic generation and submission of reports, replacing traditional paper-based methods. While e-Reporting enhances efficiency and accuracy, challenges may arise during the process, causing from the system disintegration and communication breakdowns.

Issues such as component malfunction or miscommunication among users can impede the smooth operation of e-Reporting systems and affect the effectiveness of performance reporting. The following section delves into these challenges in more detail.

4.2.2.1 System Disintegration

During the performance report creation process, various steps, including collecting performance information and analysing results, must be undertaken. The informants questioned the process of reporting of compulsory KPIs in the e-Report, stating it is redundant because the actual performance outcome is justified by central agencies (refer to section 4.1.7.3 for strategic KPI and compulsory KPI). These steps could be considered redundant, stemming from system disintegration. System disintegration refers to the fragmentation of a cohesive IT system, where components or subsystems lose their ability to function as a unified whole (Grassia et al., 2021). It describes a state in which the elements of a system lose coherence, coordination, or functionality, leading to a decline in overall efficiency or performance. Factors such as component failure, lack of maintenance, or inadequate design can contribute to system disintegration. While the term "system disintegration" may not be standard, the concept aligns with broader issues of system integrity, reliability, and proper maintenance in the IT field. The following quotations express discontent in the performance reporting process, where agencies need to complete compulsory KPI performance outcomes.

"Why not transfer the usage of electronic data from the central agencies directly to the e-Report system? Why do we have to manually input it? Why does the system allow us to input information whereas the outcome is taken from central agencies." (RPM9D)

"[The Commission] informed us that the results for the compulsory KPIs will be taken from central agencies. I don't understand why I still have to fill in the information myself. For example, the budget spending from the Budget Bureau can be checked directly. It feels like a waste of time to have to manually input it." (LPN2D)

" I have checked the results for the budget spending KPI and transferred the information into the e-Report. I believe it would save me more time if I did not have to input the information myself. It would also be more reliable if every department followed the same process, which would make more sense to us. Additionally, the final judgment will be made by the central agency based on the KPIs, so I don't think we need to fetch the information ourselves." (OPDC2P)

The issue of poor integration practices has led to process redundancies in e-reporting, stemming from insufficient planning in system integration. This lack of coordination between organisations results in disjointed subsystems that users find challenging to seamlessly work together. Furthermore, the absence of standardization in e-Report systems creates inconsistent protocols across various IT systems, impeding interoperability and contributing to the overall disintegration of the system. Quoted by two supervisor respondents, these statements raise questions about the necessity of inputting performance results for compulsory KPIs when they lack ownership of the information. The compulsory KPI outcomes are owned by other central agencies, leading to reluctance in dedicating time to data entry for outcomes they do not control. This frustration arises from the anticipation of system automation, where agencies expect direct sourcing of performance data from central agencies to enhance information reliability. Therefore, there is a need for integration between the commission and central agencies, enabling direct derivation of performance information into the e-Reporting system.

4.2.2.2 Communication Ambiguity

Informants expressed concerns about the information input during the reporting process in the e-Report system, emphasizing a lack of clarity regarding which information should be deemed crucial. These issues centre around communication challenges between the commission and agencies concerning information input, described as communication ambiguity. The concept of ambiguity has been discussed using different terms such as indirectness, vagueness, disqualification, and unclarity (Eisenberg, 1984). The distinctions between these terms have been unclear, mainly because of an inconsistent understanding of meaning. Therefore, communication ambiguity is the condition in which the conveyed message lacks clarity, allowing for multiple interpretations or lacking precise meaning. It arises when the provided information is vague or open to various understandings, making it challenging for agencies to discern the intended meaning. In this context, communication ambiguity can result from unclear language, ambiguous terms, or insufficient description of KPI context, potentially leading to confusion or misinterpretation by public agencies when providing the correct performance information.

The following quotations reveal respondent's concern regarding the required information and supporting documents for uploading into the e-Report system. Additionally, reporting units might input what they believe is relevant to their KPIs. However, entering misinformation into the system may lead to underperformance.

"I think one of the key issues we face is the lack of clear communication between what [the Commission] wants and what information to input. There is often a disconnect in terms of understanding the specific information and supporting documents that need to be filled into the system. Users might input data that they deem relevant to their KPIs, but it may not align with the actual measurement criteria. This can result in departments underperforming and facing reputational damage." (OPDC2DK)

"Providing a clear and understandable template would significantly reduce user confusion. With a well-designed template, users can easily comprehend the required information to be filled in." (OPDC3DK)

"Clear explanations for each field are crucial to guide users in inputting information. This ensures that the entered data is useful and follows the organisation's standardized format. For example, in the case of on-the-job training, clarity is needed regarding whether the output refers to the number of employees trained or the frequency of training sessions. Establishing clear guidelines helps avoid ambiguity and maintains consistency in data interpretation." (OPDC3DK)

The quoted paragraphs underscore the critical importance of clear and consistent information input into the e-Report system for accurate performance assessment. Informants emphasized the need for clear standards and templates for KPI input to prevent mistakes and ensure precise reporting. Despite the commission's efforts to include KPI descriptions and provide system training to users in the early period, a persistent "communication ambiguity" remained, leading to errors in inputting performance results. The concept of "ambiguity" is introduced to highlight the inadequacy of effective communication within and among public organizations, hindering organizational goal achievement. Effective communication is crucial in the public sector for information exchange, decision-making, collaboration, trust, and credibility (Semenets-Orlova et al., 2019). The analysis identifies ambiguity regarding required information and supporting documents for the e-Report system. Reporting units' input what they believe is relevant to their KPIs, risking misinformation and potential underperformance.

In the provided quotation, Supervisor OPDC2DK highlights a key issue: a lack of clear communication between the commission's expectations and the information to input. There is a disconnect in understanding the specific information and supporting documents required, leading to potential misalignment with measurement criteria. This misalignment can result

in departments underperforming and facing reputational damage. Another supervisor, OPDC3D, suggests that providing clear and understandable templates can reduce user confusion, ensuring users comprehend the required information. Clear explanations for each field are deemed crucial to guide users, avoiding ambiguity and maintaining consistency in data interpretation. The quoted informants collectively emphasize the necessity for effective communication, clear standards, and templates to prevent errors and enhance accurate reporting in the e-Report system.

4.2.3 Performance Measurement System (PMS) Project

In this section, the analysis uncovered the challenges posed by the implementation of newly developed performance measurement systems. As organizations transition to electronic reporting methods, a significant shift occurs in how performance is measured and reported. This shift represents not only a technological change but also introduces complexities within the broader realm of public management. The introduction of this new e-Reporting regime brings to the forefront a host of challenges, encompassing issues related to data accuracy, system comprehension, and the overall effectiveness of performance evaluation processes. This section aims to dissect these challenges, providing insights into the intricate dynamics that arise with the integration of the new e-Reporting regime in the context of public management.

The issue of PMS Project misalignment encompasses uncertainties, disutility, and invalidity within the organizational framework. PMS uncertainty refers to the lack of clarity and predictability in the system, making it challenging to ascertain performance expectations and outcomes. Disutility arises when there is a lack of coherence and consistency in the PMS project, hindering seamless integration and progression. Invalidity pertains to the unreliability and inaccuracy of the data and measures employed in the performance measurement t system. Together, these elements contribute to a broader challenge of misalignment in the PMS project, impacting the organization's ability to effectively evaluate and enhance performance.

4.2.3.1 **Project Uncertainty**

Everything related to e-Report and e-Reporting is part of a larger performance measurement framework. Interviewers expressed concerns about the uncertainty of criteria to identify KPIs, a crucial process of the PMS project. Due to the evolving context of public affairs and pressing government issues, it impacts the performance framework, resulting in uncertainty

in the PMS process and KPIs identification. Project uncertainty plays a significant role in influencing the success of a project (Mitish et al., 2021). This uncertainty arises from a lack of information, which hampers public department's ability to proactively plan and make informed decisions before project execution (Galbraith, 1974). An uncertain KPI refers to a lack of predictability, stability, or clarity in KPI and its measurement or interpretation. For instance, the staff respondent 'POR5P' found that the unable to identify KPI slow down the PMS process which affect organisational performance.

"I find the process to be unclear in terms of our expected deliverables. Despite having several years of experience with this process, the criteria and measurement PMS framework change annually. The high level of uncertainty greatly hinders our progress." (POR5P)

"It is difficult to organize meetings when we are uncertain about what KPIs to measure for the year. The frequent meetings with relevant KPI coordinators to establish KPIs, targets, and measurement criteria burden everyone." (PRMN7P)

"Starting from the fiscal year, we become swamped with the task of identifying KPIs and determining responsibility for their performance. Many subgroups are hesitant to shoulder this responsibility, citing their existing workloads. I believe part of this hesitation arises from the extensive process of creating performance reports and gathering information from other hosts." (SKOS11D)

The interview data suggested that uncertain KPIs are due to frequent changes in performance criteria and the measurement framework. Factors contributing to this uncertainty include fluctuating external conditions, incomplete data, or inadequately defined metrics. The uncertain KPIs lead to difficulties for agencies in organizing internal meetings to conduct the PMS process with relevant parties within the organization. Respondents mentioned that their workload in PMS creates hesitation in moving the work forward.

In this context, uncertain KPIs represent process inconstancy, indicating variabilities, unpredictability, or inconsistency within the PMS procedures. Addressing process inconstancy is crucial for organizations striving for efficiency, quality, and reliability. In this study, process inconstancy signifies a lack of clarity in the PMS process, involving aspects like the performance framework, KPI targets, and evaluation criteria. Public agencies, for example, grapple with confusion as their initial process starts with the measurement

framework. While there is uncertainty, public agencies cannot begin their KPI and target initiatives. Consequently, process inconstancy acts as a hindrance in the PMS process, disrupting the e-Report's production, limiting understanding, and impeding the clarity of the relationship between inputs and results. This inconstancy may arise from technological difficulties or a lack of comprehension regarding procedures (Simonin, 1999). Notably, most filed projects in the company lacked the right requirements at the project's inception (Alaceva and Rusu, 2015). This lack of clarity may stem from the business not having the right requirements initially or not thoroughly expressing the expected functionalities, leading IT to implement projects incorrectly (Ridwansyah and Rusu, 2020).

4.2.3.2 **Project Disutility**

Several respondents voiced concerns about the system's limited utility for public agencies. Disutility refers to the negative aspects associated with the e-Report implementation. Disutility in IT implies that the technology implementation is causing difficulties, dissatisfaction, or operational inefficiencies rather than providing the intended benefit. Disutility in e-Report may include user resistance, poor user experiences, integration challenges, cost overruns. For example, the supervisor 'PTN5D' highlighted user experiences regarding the budget invested in system development and maintenance. The following excerpts explained.

"We have not made significant improvements or advancements in the electronic system to make it useful for other organisations. By 'other organizations,' we refer to entities outside of our own organization, including government agencies, nonprofit organizations, private sector partners, research institutions, and community organizations. There has been a lack of scrutiny regarding the budget we invest and the actual benefits we receive in return. I think investment in IT system should be benefit to other organisation as well as to collaborate with public agencies" (PTN5D)

Integration challenges, as perceived in this context, refer to difficulties in seamlessly integrating the new IT system (e-Report) with existing technologies. The primary issue is that these challenges impede interoperability, making it difficult to share information with other agencies that may need the same data. Users consider the investment not worthwhile because the e-Report system does not facilitate information sharing with other organizations, limiting its utility beyond performance information gathering. The inability to share information with other agencies diminishes the overall value and justification for the

investment in the eyes of users. Supervisor respondent PTN5D expressed a prevailing sentiment that the investment in e-Report lacks justification, deeming it unworthy. He believed that investments in information technology should extend beyond the commission itself. In the government sector, public agencies should benefit from the IT system, with information stored in the system accessible regardless of the organization owner. Other government organizations requiring the same information should be able to access and retrieve it. This excerpt highlights the view of system disutility, as the e-Report cannot be accessed by other organizations for purposes other than as a performance information-gathering tool.

The following excerpts hinted that staff was resistance to the implementation of e-Report as they are content with the paper-based report.

"I prefer my traditional way of producing performance reports because I am accustomed to the paper system. I can easily control the process, and everything is recorded on paper." (VBORK6P)

In addition, the staff 'SPOR12P' described their view over the value perception of IT investment in public agencies.

"There is an attempt to evaluate the worthiness of projects, especially those funded by the government, by attempting to define Key Performance Indicators (KPIs). The worthiness of a project, particularly those funded by the government, is a critical consideration. I think public agencies do not really care whether the investment in IT project worth investing in tern of outcome." (SPOR12P)

The above quotation suggests that there is a current initiative to evaluate the worthiness of various projects, especially those financed by the government. The key insight emerges as the informant expresses a belief that public agencies might not be particularly concerned about whether investments in IT projects, specifically the e-Report in this case, are worthwhile in terms of the outcomes they generate. This idea suggests a potential disconnect between the invested resources and the perceived benefits derived from those investments. Therefore, the anticipated positive outcomes are not realized, potentially resulting in dissatisfaction, leading to the concept of disutility in the context of IT implementation. The perceived discrepancies between the invested resources in IT projects and the realised benefits of the e-Report represents the concept of disutility in evaluating the success and

impact of IT projects. The disutility perceptions in e-Report are the subjective assessment of negative aspects that associated with the use of e-Report of the PMS process.

4.2.3.3 **Project Invalidity**

The following quotation expresses participants' concerns regarding the potential disconnection between the system mechanic and the accurate representation of true performance outcome. The doubtful in disconnection can stem from the performance measurement system invalidity. PMS invalidity refers to the condition where a PMS failed to measure accurately or reliably what it is intended to measure. It indicates deficiencies or shortcomings in the design implementation, or execution of the PMS system what is meant to assess performance of public organisation. The PMS invalidity can manifest in term of inaccurate metrics, tried assessment, and inadequate measurement tools. For instance, the following excerpts also outlined agencies concerns regarding the public dissemination of performance results. The highlights included their apprehensions about the true representation of performance result link with the actual performance of public organisation.

"The system mechanics do not accurately represent the true performance outcomes. I wonder how the KPI can measure our organisational performance. There are only 5-7 KPIs to measure while we have several strategic and project plans to achieve" (SPOR12P).

"If the management or chief executive can accept the performance reality, the results of performance evaluations should be made public. The outcomes of performance evaluations should be implemented in a reward or punishment system. However, due to our bureaucratic system's hidden agenda, we are unable to disclose every fact. (SPOR12P)

The provided excerpts illuminate the problem of PMS invalidity, particularly emphasizing issues related to inaccurate metrics and biased assessments. SPOR12P, a staff respondent, explicitly noted that those KPIs and targets within the PMS fail to accurately portray the true organizational performance. The metrics utilized in the PMS system are not aligned with performance objectives, rendering them incapable of genuinely reflecting the outcomes of agency operations. Additionally, the measurement tools, including the performance framework employed to assess organizational performance across various agencies, may prove unsuitable when applied to the specific context of individual agencies.

To illustrate, SPOR12P underscored a discrepancy between the PMS and the actual performance of the organization. For instance, public organization manages several projects based on the budget received. The multifaceted and diverse nature of departments, such as the Social Welfare department, necessitates a more comprehensive approach to evaluate effectiveness. However, the PMS only incorporates a limited set of KPIs to gauge organizational performance. Relying solely on this restricted collection of KPIs fails to effectively encompass the wide array of tasks and obligations undertaken. Consequently, SPOR12P deemed the PMS inadequate in representing organizational performance.

Furthermore, informants expressed concerns about potential negative repercussions on the department's reputation arising from the public disclosure of performance outcomes. They believed that the organization's performance could not be made public due to a hidden government agenda. These statements underscored a substantial gap between how the PMS is perceived and the actual performance of the organization. Negative or bias opinions toward the performance assessment method have the potential to undermine not only its credibility but also that of the associated IT system. The data analysis revealed that respondents hold a perspective of 'PMS invalidity,' implying a misunderstanding of PMS objectives and particulars, resulting in a detrimental impact on IT alignment within performance measurement schemes.

4.2.4 Public Management System

The data analysis uncovered the challenges inherent in public administration—a management and organizational system characterized by hierarchical structures, formal rules, and procedures (Weber, 1978). This public management system is commonly found in government institutions and large organizations. The issue of public management systems that lead to IT misalignment has gained prominence, encompassing concerns such as process redundancy, opacity, authoritative commands, and overload. The following section explains these challenges in more detail.

4.2.4.1 Process Redundancy

The quotations shed light on the actual workflow within the reporting unit when collaborating with the KPI coordinator to generate performance reports. Specifically, the account from staff member SSOS13P underscores a noteworthy practice. In her routine, she first received performance information from the KPI coordinator and recorded on her personal devices. However, a subsequent step requires her to duplicate this effort by

manually transferring the same data to the e-Report system. This dual handling of data accentuates a pronounced issue of process redundancy. Process redundancy, in this context, refers to the unnecessary repetition of steps or activities within the e-Reporting process. It manifests as the inclusion of duplicate or overlapping tasks, steps, or components in the overall system or workflow. To put it simply, the e-Reporting process involves not only transferring information from paper to a personal computer but also necessitates a second transfer to the e-Report system. The presence of process redundancy may stem from various factors such as risk mitigation, reliability, performance improvement, fault tolerance, or load balancing. The following quotations portrays the activities which respondents take action.

"I have requested information from the KPI coordinator to be submitted to our reporting unit after the end of the September 30th so that I could collected and prepared paper reports along with supporting documents to submit to department director. At the same time, I entered that performance data from paper to my personal computer. Once the director approved the report, I transferred the information from my personal computer into the e-Report." (SSOS13P)

"Some IT systems are merely duplicating manual processes, as the data gathering process remains the same, with the only benefit being cost savings on office supplies such as paper." (RPM9D)

"In actuality, we request the KPI coordinators to submit their performance results to us so that we can manually enter them into the system ourselves. This is done to ensure that we have a clear understanding of the performance results and can provide accurate answers to our management team." (SSOS13P)

While exploring the theme of process redundancy, covering reliability, performance enhancement, and risk mitigation, Supervisor RPM9D revealed that the e-Reporting system deliberately replicates manual processes. Steps like inputting data and calculating performance results are duplicated in various formats due to agencies' concerns about the risk and reliability of performance results presented in the e-Report system. This redundancy serves as a deliberate strategy to fortify system reliability and mitigate the risk of failures.

The above quote emphasizes the repetitive nature of processes within the reporting unit. The integration of an IT system did not eliminate manual tasks as anticipated. Participants expected the new technology to replace formal communication channels and the paper-based

pre-approval process for performance reports. However, the implementation of the e-Report fell short of replacing existing protocols. Informants viewed it merely as electronic data storage, not recognizing its potential to substitute for bureaucratic activities. For instance, despite the system allowing direct input of performance outcomes, staff independently retrieved and analysed data before entering it. Ideally, empowering the KPI coordinator to input data directly could streamline the process. However, agency intervention in recurring processes is required to ensure the e-Report's seamless and accurate functioning.

The quotations suggest that the e-Report might emulate the manual procedure of a paper report, reflecting process redundancy in the public management system. This redundancy acts as a hindrance to new management practices, with the reporting unit rigidly adhering to formal procedural guidelines to avoid unintended consequences.

4.2.4.2 Opacity

The interview data concerns the ability of the e-Report to share information between the commission, central agencies, and public agencies. The lack of information sharing could be considered as system opacity. In the context of information technology (IT), "opacity" typically refers to a lack of transparency or visibility into the inner workings of a system, software, or process. The e-Report is considered opaque, meaning that its internal operations are not easily accessible to users, leading to limited information sharing among agencies. This lack of transparency limits users' access to information, making it difficult for agencies to diagnose issues, troubleshoot problems, and utilize existing information in the system effectively. For instance, a supervisor raised concerns about the information kept in the e-Report only, making it difficult for agencies and other central agencies to access the system and make use of the pre-recorded data in the system.

"The problem does not lie in the system itself but rather in the lack of information sharing protocol between different public organisations. People within each organisation are not effectively disclosing the information they have in their respective systems. However, the IT system can be further developed to address this issue." (OPDC1DK, OPDC2DK)

"For instance, even though I entered the performance progress into the e-Report, which is also related to KPIs in the National Strategic Project Plan hosted by another central agency, this performance progress information was confined to the e-Report system only. Despite it being the same KPI, other central agencies cannot retrieve performance information from the e-Report system. As a result, I have to prepare additional copies of

documents containing the same information I have already input into the e-Report system. I fail to understand why the commission does not grant access to the system. It is burdensome and inefficient to repeatedly perform the same tasks while others can simply access the central repository." (OPDC2IT)

System opacity, characterized by restricted information access, poses challenges to collaboration and disrupts information flow within public organizations. Respondents questioned the information sharing among central agencies that may require the same set of performance data. The process of preparing multiple copies for central agencies promptly raises questions about the efficiency of the e-Report in distributing information among central agencies. This difficulty in information sharing underscores the deeply ingrained organizational culture of public entities where public organizations often view information as power (Titi Amayah, 2013, Seba et al., 2012, Ridwansyah and Rusu, 2020). The failure of bureaucrats to share information aligns with hierarchical structures and rule enforcement (Weber, 1978), impeding smooth information flow between departments. This inefficiency stems from the bureaucratic nature of public organizations, adhering to system opacity based on administrative expertise, preventing departments from sharing information.

The inaccessibility of e-Report information for other central agencies and agencies leads to challenges. Informants assert that information technology implementation should enhance information system accessibility. The expectation was for the IT system to serve as a primary repository for any agencies to acquire and use performance data. However, the e-Report lacks the capability to function as a comprehensive data hub; it operates independently. Limited information sharing partly results from functional silos within public agencies (Neill and Jiang, 2017), as they tend to view their information as proprietary, discouraging exchange. This behaviour is linked to risk-averse tendencies in the public sector, with professionals committed to adhering to Public Acts, Organizational Acts, and Ministerial laws. Disseminating information without explicit department director' approval is considered a breach, potentially leading to concerns about outcomes, departmental reputation, or inappropriate information use. 'System Opacity' emerges as a factor hindering IT alignment, impacting the widespread distribution of performance data. The lack of transparency with limited information sharing in e-Reports contributes to IT misalignment.

4.2.4.3 Authoritative Command

Participants highlighted the significance of receiving clear command from the country's management level to facilitate the integration of IT systems. They advocated for guidance from higher management tiers, such as the department director or official cabinet decisions. Stressing the importance of public agencies having a duty and responsibility underscored by authoritative command. In this context, an authoritative command signifies a clear and officially issued command, order, or instruction from a source with recognized authority or legitimacy. Such IT directives carry significant weight and are expected to be followed or implemented without question. Typically, these directives originate from a figure or entity empowered to make decisions or set policies in a specific domain. Key characteristics of an authoritative command encompass clear authority, official communication, binding nature, and consequential impact.

The lack of a clear and compelling command or order from a recognized authority leads to inconveniences in IT alignment, indicating the absence of an authoritative command. This, in turn, may contribute to hesitancy or reluctance in adopting IT solutions. For example, respondents emphasize the connection between the adoption of IT in public agencies and command from high-level management.

"I have personally witnessed the Electronic Correspondence System developed by the Ministry (Y), which has faced criticism for being deemed useless and impractical. Public organisations tend to prioritize IT adoption when they are compelled to use such systems by higher management levels, such as the parliament or through command from the prime minister." (RPM9D)

"I have observed that in many instances, central agencies ensure compliance from other departments by raising issues during cabinet meetings. Once a resolution is reached, all other departments are obligated to follow the orders. Therefore, if departments are given a directive order, they will have no choice but to follow and adopt the issue without objections." (SSOS12D)

The above quotation represents the concept of clear authority, termed as a governing body with legitimate authority making decisions within a specific context. Participants emphasized the necessity of receiving orders from high-level management command to address issues seriously, which may take the form of a cabinet resolution. A clear command leaves no room for public agencies to make excuses for non-compliance. This evidence

underscores the crucial role of legally binding directives or enforceable legislative measures in driving the integration of information technology within public organizations. In the absence of such authoritative orders, there is a risk that other departments might overlook or underestimate the importance of actions directed by the cabinet. This analysis is labelled as authoritative command from top management, involving adequate measures to ensure compliance with IT alignment rules and guidelines. The absence of command orders can hinder constructive discourse and cooperation, both crucial for fostering IT alignment. Without robust enforcement mechanisms, individuals or departments within public sector organizations may choose to circumvent efforts related to IT alignment due to factors such as resistance to change, inadequate skills, or limited resources. This phenomenon can lead to significant misalignment between information technology (IT) and business objectives, resulting in inefficiencies and missed opportunities for progress and innovation.

4.2.4.4 Overload

The final concern related to IT alignment in public organizations revolves around overload. Overload in public organizations signifies a state of being overwhelmed, burdened, or surpassing normal capacity. This can take different forms, including information overload, system overload, and work overload. The data analysis reveals that government agencies consistently grapple with a significant demand on their resources, dealing with numerous urgent matters that require immediate attention. Staff respondent NEPT10P highlighted the challenges of managing several issues that demand immediate attention. The following excerpts provide a more detailed explanation.

"I distinctly remember receiving a cabinet resolution that mandated public agencies to align with the country's strategies. The order specifically required us to adopt and utilize the government electronic mail system. However, just a few months later, while we were still in the process of adjusting to the new email portal, we received another order to prioritize our main cybersecurity measures. This new order contradicted the previous order, leaving us with the challenge of handling multiple urgent issues simultaneously." (NEPT10P)

"We are part of the central agencies and have been instructed to update and adhere to the instructions provided by the IT system's host. However, this task proves challenging due to our limited human resources, which hinders our ability to act swiftly." (STNC1D)

As an aspect of overload, it can manifest in the form of work overload when employees are assigned more tasks than they can reasonably handle, leading to stress and diminished productivity (Karr-Wisniewski and Lu, 2010). Additionally, system overload refers to a situation where the organization's systems are burdened or pushed beyond their capacity, impacting efficiency. Respondents highlighted challenges stemming from several legal obligations that might hinder the efficient implementation of IT systems in public agencies. The substantial workload on resources and the management of urgent matters hinders IT alignment, straining resources and complicating the fulfilment of command and the intricate balancing act departments must perform. An informant (NEPT10P) emphasized the complexities faced by agencies, dealing with conflicting command such as prioritizing cybersecurity measures alongside a mandate for adopting the government electronic mail system. Another supervisor respondent, STNC1D, from a central agency noted difficulty in complying with assignments due to limited human resources, underscoring practical challenges in managing conflicting obligations within public organizations. The workload creates "turbulence" and acts as a hindrance in IT alignment.

Consequently, managing and fulfilling previous command becomes challenging due to the overwhelming strain on resources. This workload poses a challenge for public agencies as they navigate various tasks, risking the oversight of prior orders. Informants described a tendency to prioritize new orders over the previous ones, inadvertently neglecting or delaying tasks assigned to them previously.

In summary, several aspects in public management system hinder IT alignment. Process redundancy involves the presence of duplicative and inefficient workflows, impeding the seamless integration of information technology. Opacity contributes to a lack of transparency and accessibility within the system, hindering the smooth flow of information. Unclear or absent authoritative commands pose a risk to cohesive IT adoption and implementation. Furthermore, overload, marked by overwhelming demands on resources, adds complexity to aligning IT processes with organizational goals.

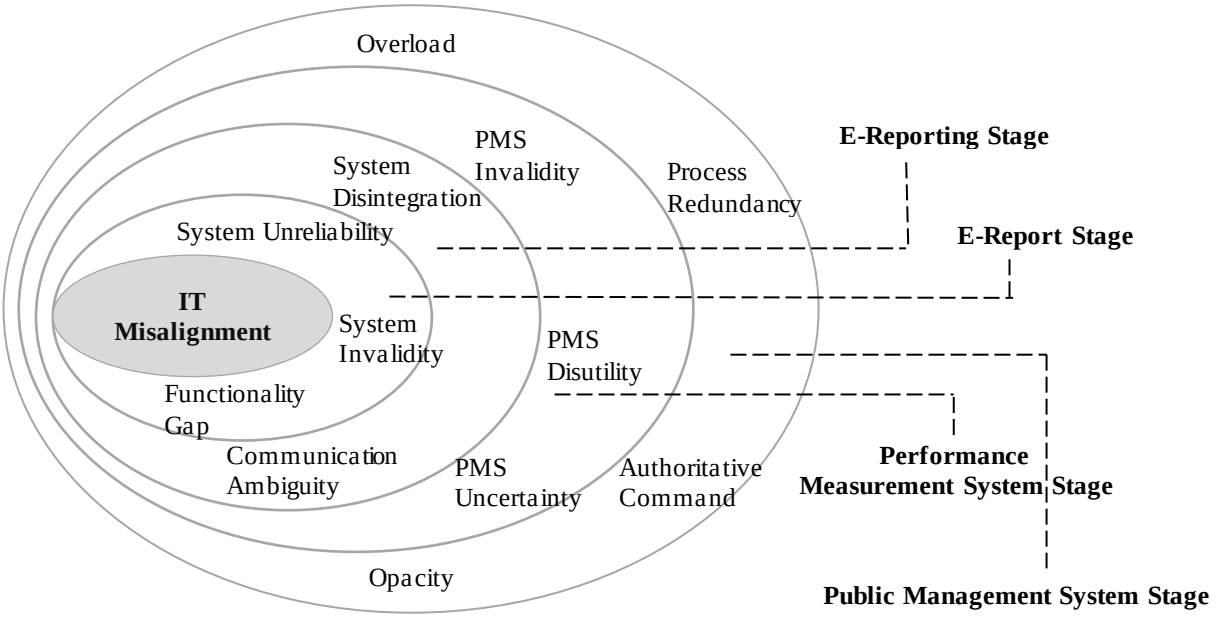
4.2.5 Misalignment Model Summary

The data analysis reveals that IT misalignment can occur in four different stages during the launch of the e-Report system in Thailand. First, discrepancies arise in the e-Report stage, where mismatches between system design, user experience, and user expectations pose challenges in system utilization. Second, participants in e-Reporting often perceive the

process as unnecessary, introducing hurdles within the system. Moving on to the performance measurement system project stage, it becomes imperative for the commission to enhance the clarity of project aims and objectives. Without this improvement, cognitive biases may arise, diminishing the likelihood of achieving seamless alignment between information technology and organizational goals. Lastly, the public management system stage assumes a pivotal role in supporting the processes and activities of public employees and agencies, ensuring adherence to bureaucratic practices. Addressing challenges at each stage is essential for fostering effective IT alignment throughout the e-Report system implementation in Thailand.

The following figure depicts the summary of Misalignment Stages

Figure 4-1 Misalignment Stages



4.2.6 Summary of Challenges.

The data analysis has revealed 12 factors contributing to IT misalignment within public sector organizations. This misalignment is evident in the challenges associated with correspondence between the e-Report and e-Reporting, as well as discrepancies between the strategies, goals, and practices of the commission in the performance measurement system (PMS) process compared to those of the agencies and the group within the public administrative system. The data indicating dissatisfaction begins to shed light on the nature of this misalignment.

4.3 Part II: Understanding the Problem

It is imperative to thoroughly comprehend the challenges and intricacies associated with IT alignment to enhance organizational efficiency and effectiveness. This section is dedicated to scrutinizing the complexities of the problem, closely examining how misalignment can manifest across the four crucial stages: e-Report, e-Reporting, performance measurement system (PMS), and public management system. By carefully unravelling the complexities inherent in these stages, the goal of this section is to gain a comprehensive understanding of the impediments to seamless IT integration. This exploration would empower public agencies to identify and implement targeted solutions, fostering a more cohesive and aligned organizational landscape.

4.3.1 Comprehensive view of Misalignment Stages

IT misalignment, in this context, refers to a situation where different components or elements within a system are not properly synchronized or coordinated. It signifies a lack of harmony or congruence between various aspects that should ideally work together seamlessly. The data analysis discovered that the misalignment process occurs due to several factors during four stages of IT alignment: e-Report, e-Reporting, performance measurement system, and public management system. The following section explains these stages in more detail.

e-Report

E-report refers to an electronic report generated and presented in a digital format, typically operating with computer systems and digital technologies. The introduction of e-Report represents a new approach to evaluating the performance of government departments. In this context, e-Report represents the performance outcome submitted by agencies to the commission. However, 'e-Report' can also refer to the computer system itself, encompassing system features such as design, functionality, and operation, which produce the performance report as an outcome.

In the e-Report stage, potential factors that could lead to IT misalignment are system unreliability, system invalidity, and functionality gap. These factors work hand in hand because of system design. If the e-Report system is unreliable, it is more likely to produce invalid outputs. Users may experience instances where the system fails to consistently generate accurate reports, leading to doubts about the validity of the information. Furthermore, a functionality gap can significantly contribute to system unreliability. When essential features are lacking or technical issues arise, users may face disruptions in the

reporting process, ultimately diminishing the system's reliability. Additionally, if the system lacks essential features or experiences technical issues, users may encounter disruptions in the reporting process, further reducing the system's reliability. In conclusion, each factor plays a crucial role in contributing to IT misalignment. The results from one factor can influence other factors in a cyclic manner.

e-Reporting

e-Reporting encompasses the process of creating, submitting, and disseminating reports in a digital format. This involves generating, collecting, and communicating information through electronic means, typically utilizing computer systems, software applications, and digital technologies. The objective of e-Report is to replace traditional paper-based reporting methods with more efficient and streamlined electronic processes. In the context of this study, e-Reporting represents the activities undertaken by the agencies staff and supervisors in the reporting unit. These activities include collecting performance information, communicating with the KPI coordinator, and generating self-assessment reports for submission to the commission.

There are two factors during the e-Reporting stage. One the one hand, system disintegration can directly impact communication. When different components of the e-Reporting system are not well-integrated, the flow of information between staff and organizations requiring performance information may be disrupted. This can result in delays, data inconsistencies, or incomplete information being communicated to relevant parties. One the other hand, communication ambiguity can exacerbate system disintegration. Unclear or ambiguous communication may lead to misunderstandings about the functionality and requirements of the e-Reporting system, contributing to disjointed efforts and reduced integration. Additionally, ambiguous communication, coupled with system disintegration, may lead to inconsistencies in the data reported. Different public agencies requiring the same performance data may interpret or input data in varied ways, contributing to inaccuracies and discrepancies. It can be concluded that the lack of coordination between system components and unclear communication can result in operational inefficiencies, as public agencies may struggle to understand their roles, leading to duplicated efforts, delays, or errors in the e-Reporting process.

Performance Measurement System (PMS)

A performance measurement system (PMS), serving as an IT project, holds a crucial position as a systematic process supported by a set of tools. It is utilized by organizations to methodically assess and measure their performance across a spectrum of areas. The primary objective of integrating IT into the performance measurement system is to ensure continuous monitoring, tracking, and evaluation of the efficiency and effectiveness of processes and projects within public organizations in Thailand. This systematic approach enables a comprehensive understanding of the organization's performance across different aspects, thereby fostering informed decision-making and strategic enhancements. The PMS functions as a valuable tool for aligning organizational goals, improving overall effectiveness, and facilitating ongoing improvements.

However, misalignment in this stage can occur, as PMS uncertainty can contribute to disutility. When users are uncertain about how to effectively navigate, understand, or utilize the performance measurement system, it can create a perception of system inefficiency and difficulty, resulting in disutility. Users experiencing disutility may be more prone to questioning the validity of the system. If they find the IT system burdensome or challenging to use, they may also cast doubt on the accuracy and relevance of the performance metrics it produces. Additionally, uncertainty about the system's processes may lead to concerns about the validity of the performance measurements. Users who are unsure about the criteria used or the methodology employed may question the reliability and accuracy of the data generated.

The combination of PMS uncertainty, disutility, and perceptions of invalidity can lead to overall dissatisfaction among users of the performance measurement system. This dissatisfaction may manifest as reluctance to actively engage with the system or scepticism about the usefulness of the performance data. As a result of these challenges, the interplay of uncertainty, disutility, and perceptions of invalidity may result in resistance to the adoption and full utilization of the Performance measurement system. Users may prefer alternative methods or resist incorporating performance metrics into decision-making processes.

Public Management System

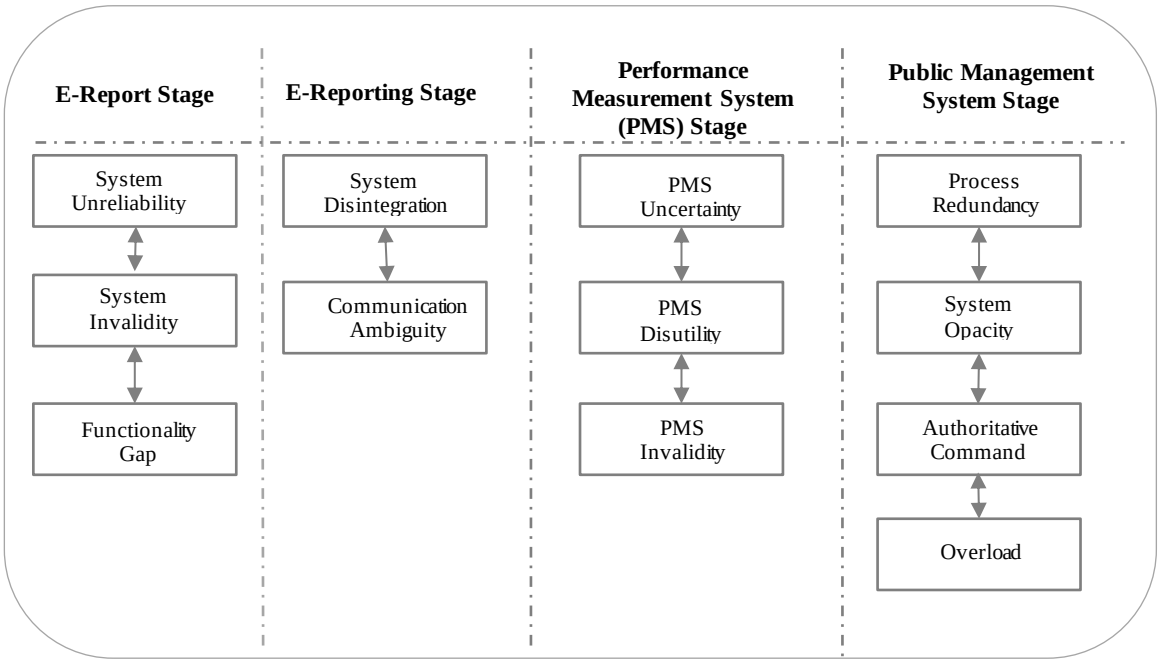
In the context of public sector organizations, the public management system refers to a structured framework and set of processes governing how governmental bodies and agencies manage and carry out administrative functions. This encompasses the entire organizational structure, procedural framework, policies, and mechanisms that collectively enable the efficient functioning of government entities to serve the public interest. The Thai public sector organization adheres to this comprehensive system, ensuring that administrative tasks are systematically executed, policies are implemented, and organizational structures are designed to fulfil the public service mission effectively. Bureaucratic administration is essentially the backbone that supports and streamlines the operations of government bodies, fostering transparency, accountability, and responsiveness to the needs of the public.

Process redundancy within the bureaucratic administration may contribute to opacity. Duplicated processes can create confusion about the actual workflow and decision points, leading to a lack of clarity and transparency. Limited transparency (opacity) can pose challenges in understanding and following authoritative commands. If the inner workings of the system are not clearly communicated or visible, it may result in difficulties for individuals and departments in adhering to official commands. Additionally, overload may exacerbate process redundancy by introducing additional tasks or demands on the administrative system. When overloaded, administrators might resort to duplicating certain processes to manage the increased workload, inadvertently contributing to redundancy. Moreover, authoritative commands play a crucial role in managing overload. The combined effects of these factors lead to operational inefficiencies within the public administration system and hinder the system's effectiveness. Overload impacts the quality of decision-making, slows down processes, and creates challenges in meeting organizational goals.

In conclusion, it is important to note that the process of misalignment is susceptible to occurring at any stage during IT implementation. These 12 factors are interrelated, as one can influence the other, potentially leading to IT implementation failure. It is noteworthy that the scope of factors contributing to misalignment is not limited to these 12; additional elements in future studies may also play a role.

The following diagram illustrate IT misalignment in four stages.

Figure 4-2 Stages of IT Misalignment



4.3.2 Enhancing Factors

Data analysis has revealed enhancing factors, a critical process that can unlock valuable insights and drive meaningful improvements. This introduction sets the stage for exploring a broad range of recommended factors derived from data analysis. These identified factors specifically target areas for improvement and are later integrated with additional insights during the analysis, forming the basis for policy and process recommendations when the government introduces an IT system. This exploration serves as a vital bridge between theoretical knowledge and managerial management, contributing to informed decision-making, and ultimately paving the way for innovation and continuous improvement.

4.3.2.1 Responsive System

The PSDG supervisors actively contributed their perspectives on the IT system's responsiveness within the e-Reporting process. Their expectations were set on the system delivering quick responses comparable to real-time interactions. The scope of responsive systems extends beyond real-time to encompass event-based and time-dependent functionalities. Real-time constraints can be either hard or soft, with the former leading to system failure if computations are not completed by the deadline, while the latter tolerates

lateness, resulting in decreased service quality (Berry et al., 2008). In this study, real-time interaction signifies immediate and minimal-delay exchanges, a critical aspect in the e-Report system, where timely responses are paramount. For instance, the supervisors' reference to an IT- financial application 'pao tang' further highlights their anticipation for the IT system to demonstrate a similar level of responsiveness during the e-Reporting process.

"People prefer IT systems that offer real-time responses. As someone working in human resources training, I face challenges in maintaining a comprehensive database of my staff's training. I believe that IT could bridge this gap by providing a reliable data repository." (RPM9D)

"I think the IT system should be like the 'pao tang' application, which provides real-time transactions. It promptly responds, making it convenient for people to assess and plan for their activities. Similarly, the e-Report is merely a text box for receiving information, which public agencies cannot foresee." (SSOS12D)

The above excerpts underscore the imperative to enhance the e-Report system for swift responsiveness during the e-Reporting process. This online system serves as a vital communication tool between public agencies and the commission, fostering correspondence throughout the e-Reporting process. The prompt response capability allows agencies to instantly receive and respond to information, fostering dynamic and responsive interactions across various contexts. Consequently, real-time responsiveness emerges as a critical IT feature, contributing to system reliability, validity, and overall functionality improvement.

4.3.2.2 Prompt Action

During the interview, informants provided an example of the expected function in IT development. Respondents provided an example of delay in their organizational website update necessitated a prompt response. Shi et al. (2021) presented that prompt response/action and a proactive approach are essential to ensure tasks or decisions are executed without unnecessary delay. In this context, prompt action involves acting quickly and efficiently to address issues, implement solutions, or seize opportunities. For instance, the implementation of IT should be prompt action, as it is expected that IT implementation should respond quickly to capture real-time situations. The following excerpts shed light on this issue:

"The world is changing rapidly. You don't have to aim for perfection; it's better to try and learn from mistakes. You shouldn't stick to outdated ways of thinking." (ONSG13D)

"In my organisation, we recently updated our website without waiting for extensive outlines and drafts. I believe it's more advantageous to respond promptly and adapt to real-time situations rather than striving for perfection, which can cause unnecessary delays." (RPM9D)

The quoted statements above emphasize the crucial role of IT in navigating a swiftly changing world. ONSG13D encourages a focus on learning from mistakes rather than pursuing perfection, while RPM9D highlights the benefits of taking prompt action. Participants stress the importance of swift responses to real-time situations when organizations update their websites, favouring this approach over lengthy planning to avoid unnecessary delays. Collectively, participants concur on the significance of prompt action over perfection. This consensus underscores the need for IT systems to demonstrate rapid responsiveness, facilitating effective decision-making and efficient implementation. The prompt response would highly enable IT alignment in public organizations.

4.3.2.3 Intelligent AI-Driven IT

The analysis reveals that informant expected that IT system should be AI-driven IT. Intelligent AI-driven IT refers to information technology systems that incorporate artificial intelligence (AI) capabilities to enhance their intelligence, learning, and decision-making processes (Saha et al., 2023). Informants expressed their viewed that the current IT system mostly as basic data storage for information. The following quotation express informant's expectation of IT to analyse and identified potential organisational improvements.

"What we truly need is intelligent AI that can analyse and project performance trends. Since the system only accepts PDF files, it becomes impossible to analyse the data for potential improvements." (OPDC4DK)

"I am hopeful for an IT system that effectively addresses our needs by analysing trends and providing practical solutions to improve our performance. It would be ideal if the system incorporates standardized international Key Performance Indicators (KPIs) relevant to our organisation." (OPDC1DK)

The insights from informants highlight a notable emphasis on enhancing AI-driven IT capabilities, specifically in analytics. They advocate for an IT system beyond basic data storage, desiring intelligent AI features for analysing performance trends and providing practical organizational solutions. In addition, a challenge arises with the widespread use of the PDF format, causing difficulties in manual data conversion. To overcome this, there's a recommendation for a dynamic file format widely adopted within the organization to streamline data input. The findings stress the critical need for an intelligent AI-driven IT system with enhanced analytics, dynamic file formats, and collaborative initiatives among agencies to optimize functionality and address evolving trend.

4.3.2.4 Visionary Leader

The data analysis underscores a crucial qualification for the department director, as highlighted by the supervisor respondents. Beyond possessing a digital mindset and IT knowledge, the department director and management team are implied to embody visionary leadership. A visionary leader is someone capable of envisioning and articulating a compelling future for an organization or community. In the realm of IT, these leaders exhibit a forward-thinking perspective that extends beyond current circumstances, inspiring and motivating others through clear and compelling visions of the future. Key characteristics include foresight, inspiration, innovation, strategic thinking, and empowerment. For instance, the following quotation emphasizes the essential qualification for managers to understand how IT can aid in data analysis to ensure effective development and decision-making in this data-driven era.

"One essential qualification for managers is understanding how IT can assist in data analysis. If managers lack knowledge of IT's capabilities, the requirements they provide to developers may not be clear enough for the development of an effective IT system." (RPM9D)

"In this data-driven era, executives need to approach reports from a management perspective, recognizing the importance of leveraging data for decision-making and organisational success." (RPM9D)

"The central agencies recognize the significance of the digital mindset in civil servants. Alongside the mindset, individuals should also possess the necessary skill set and tool set. It's important to note that when providing training, the focus is typically on imparting skills rather than developing the required mindset." (RPM9D)

Visionary leadership encompasses foresight, the ability to anticipate future events and trends based on a deep understanding of performance data and current circumstances. It involves foreseeing potential outcomes, challenges, and opportunities to make informed decisions and take proactive measures. In this study, informants expect their managers and directors to possess foresight to leverage performance data effectively. Recognizing the value of data for decision-making is crucial for organizational success. Managers should envision potential scenarios, navigate uncertainties, and plan for long-term success based on available information. This skill is essential in strategic decision-making, particularly in public agencies, to drive economic growth and national development.

4.3.3 Policy Recommendation

The intricate challenges posed by IT misalignment in performance measurement systems and bureaucratic administrative management necessitate a comprehensive set of tailored policy recommendations. These recommendations, focusing on standardized procedures, transparency, and strategic approaches, play a pivotal role in addressing each stage of the IT misalignment process. Through data analysis, critical challenges leading to IT misalignment are identified, shedding light on factors that contribute to IT alignment within public agencies. The subsequent section introduces policy recommendations aimed at addressing misalignment issues and offers process recommendations for public organizations embarking on the implementation of new IT systems. The implementation of these recommendations stands to benefit both the commission and other central agencies in the future.

It is worth noting that, overall, the commission holds the key responsibility for rectifying the IT misalignment issue, as it is the main organization responsible for adopting the IT system to enhance the capacity of the performance measurement project. However, with careful consideration, specific stages can be detailed to specify who should take ownership in improving IT alignment. The specific author and key ownership are highlighted at the end of each stage.

4.3.3.1 E-report

The e-Report, a critical artifact in organizational IT infrastructure, plays a pivotal role in shaping overall information technology alignment. The challenges in aligning the e-Report system with public sector agencies stem from the system development not meeting user requirements, raising doubts about the system's reliability from the user's perspective.

Several topics and activities related to e-Report enhancement have been recommended. These suggestions aim to enable the commission, as the key agency responsible for the e-Report project, to adopt a holistic approach, ensuring the system's effectiveness and user satisfaction.

Table 4-1 Recommendation for e-Report Stage

Factors	Topic	Activities
e-Report Unreliability	User training Program and Education	Implement comprehensive user training programs to educate users on the functionalities, data validation processes, and benefits of the e-Report system. Increase user awareness to build trust in the system's reliability and improve understanding of its capabilities.
	Transparency measure	Enhance transparency in system operations by providing clear documentation on data validation procedures, security measures, and system functionalities. Communicate any updates or changes to users, demonstrating a commitment to openness and reliability
	User Involvement in system Design	Involve end-users in the design and improvement processes of the e-Report system. Gather feedback on their expectations and preferences to align system functionalities with user needs, fostering a sense of ownership and satisfaction.
	User Feedback mechanism	Establish an efficient user feedback mechanism where users can report concerns, suggestions, or issues related to system reliability and functionality. Actively respond to user feedback and demonstrate that their input is valued in enhancing the system
System Invalidity	Regular System Audits	Conduct regular audits of the e-Report system to identify and rectify any instances of system invalidity. Audits should encompass data integrity checks, security assessments, and performance evaluations to ensure the system meets established standards
	Quality Assurance Processes	Institute robust quality assurance processes to systematically review and validate the accuracy of data within the e-Report system. Implement automated checks, validation algorithms, and regular assessments to minimize instances of system invalidity.

Factors	Topic	Activities
	Continuous Improvement Culture	Foster a culture of continuous improvement within the organization. Regularly assess and enhance the e-Report system based on user feedback, technological advancements, and evolving organizational requirements to meet user expectations
	Continuous Improvement Culture	Share performance metrics and reports that highlight the reliability and effectiveness of the e-Report system. Provide users with visibility into system uptime, data accuracy, and successful validations to instil confidence in its capabilities
Functionality Gap	User Friendly Interface	Enhance the user interface to make it more intuitive and aligned with user expectations. Conduct usability testing to identify areas for improvement, ensuring that users can easily navigate the system and find the functionalities they need.
	Regular Communication	Establish regular communication channels to update users on system enhancements, improvements, and any steps taken to address their concerns. Clear communication builds trust and keeps users informed about the organization's commitment to system reliability
	Collaboration with IT professionals	Engage IT professionals to conduct thorough assessments of the e-Report system, addressing any technical issues that may contribute to distrust or functionality gaps. Collaboration with experts ensures a holistic approach to system improvement

The authorship of e-Report stage is the IT system developer. As the key contact and system requirement to enhance the capability of the e-Report system. By embracing these comprehensive recommendations, the commission can proactively address potential challenges associated with the e-Report system, creating an environment that is reliable, efficient, and user-friendly for data management and reporting.

4.3.3.2 E-reporting

e-Reporting involves the process of creating, submitting, and managing reports using digital platforms and technologies. To navigate the challenges inherent in the e-Reporting stage, the commission is encouraged to adopt a strategic approach aimed at optimizing the system's

functionality and mitigating potential pitfalls. First and foremost, the commission should prioritize the implementation of comprehensive training programs relating to the process of generating report. These initiatives would empower staff with the requisite skills and knowledge, ensuring proficient and error-free use of the e-Reporting system. Simultaneously, the development of a user-friendly interface is crucial. A well-designed interface not only facilitate seamless user interactions but also enhance the overall user experience, reducing the learning curve for users.

Table 4-2 Recommendation for e-Reporting Stage

Factors	Topic	Activities
System Disintegration	Establish Clear Data Standard	Define and communicate standardized data entry formats and requirements across public agencies. This clarity will minimize redundancy and ensure uniformity in the information entered the e-Reporting system
	Collaborative System Design	Collaboratively design the e-Reporting system with input from multiple public agencies. Involve representatives from each agency in the system design process to ensure that it meets the diverse needs of different departments and minimizes redundancy.
	Shared Data Dictionaries	Develop and maintain shared data dictionaries that outline the definitions and requirements for key data elements used in e-Reporting. Shared dictionaries promote a common understanding and reduce ambiguity, fostering a more integrated reporting environment
	Centralised Data Entry Guidelines	Centralize the creation of data entry guidelines to avoid discrepancies. Provide agencies with a single source of truth for guidelines, ensuring that everyone follows the same standards and minimizing redundancy in data entry efforts
	Use of Data Validation Rules	Implement data validation rules within the e-Reporting system to automatically identify and prevent duplicate or conflicting entries. This will act as a safeguard against redundancy and improve data accuracy
Communication Ambiguity	Inter-Agency Coordination Committee	Form an inter-agency coordination committee responsible for overseeing e-Reporting processes. This committee can facilitate communication, resolve ambiguities, and establish consistent practices to streamline data entry and reporting across agencies

Factors	Topic	Activities
	Training on System Usage	Conduct comprehensive training sessions for agency staff on how to use the e-Reporting system effectively. Ensure that users understand what information to input and how to avoid redundancy, addressing any communication ambiguities that may arise from a lack of clarity
	Regular Communication Channels	Establish regular communication channels, such as forums or workshops, where representatives from different agencies can discuss and resolve any uncertainties regarding e-Reporting. This ongoing dialogue will foster collaboration and clarity.
	Standardise reporting templates	Develop standardized reporting templates that align with the e-Reporting system. These templates should guide agencies on what information to input, promoting consistency and reducing ambiguity in reporting practices.
	Centralised Helpdesk Support	Establish a centralized helpdesk or support system where agencies can seek guidance on data entry or reporting issues. Having a dedicated support channel enhances communication and ensures that agencies receive timely assistance.
	Regular Review and Feedback Sessions	Conduct regular review sessions to evaluate the effectiveness of the e-Reporting system and gather feedback from agencies. Use these sessions to address any recurring issues, refine processes, and improve communication between agencies

The responsibility for the e-Report stage lies primarily with a specific unit within the commission overseeing the PMS (refer to section 4.1.9.3) tasked with PMS implementation. This unit plays a crucial role in designing the PMS project, especially in the reporting phase involving communication between agencies. Moreover, it aims to enhance collaboration with central agencies to integrate IT systems across public departments.

4.3.3.3 Performance Measurement System Project Stage

In this study, the performance measurement system (PMS) project holds a pivotal role in IT alignment. In the execution of PMS project, it is imperative for the commission to foster collaboration and underscore the importance of adopting the project for assessing public sector organizations performance. Promoting critical characteristics through publications would improve collaboration and foster a positive PMS image among public agencies.

Therefore, optimizing the effectiveness of the performance measurement system and proactively addressing potential challenges become essential tasks for the commission. Faced with uncertainties, disutility, and inherent invalidity in the PMS, the commission should employ a focused and strategic approach to enhance the system's efficacy and mitigate potential issues.

The primary challenges in the PMS stage stem from scepticism among public agencies regarding the PMS project. It is crucial to establish a positive perception of the PMS project and encourage collaboration among agencies to emphasize its benefits. The table below introduces measures to address incidents that result in IT misalignment in the PMS project stage.

Table 4-3 Recommendation for Performance Measurement System Stage

Factors	Topic	Activities
PMS Uncertainty	Define Clear Performance Metrics	Clearly define and communicate performance metrics to eliminate uncertainty. Ensure that all stakeholders have a shared understanding of the key performance indicators (KPIs) and metrics being measured. This clarity reduces uncertainty in the measurement process
	Stakeholder Engagement and Alignment	Engage stakeholders in the development and refinement of performance metrics. Collaboratively establish goals and expectations to align the PMS with organizational objectives. Involving stakeholders fosters a sense of ownership and reduces disutility by ensuring that the PMS meets their needs
PMS Disutility	Regular training program	Conduct regular training programs for individuals involved in the performance measurement process. Provide guidance on how to collect, analyse, and report performance data accurately. Training enhances skills and minimizes uncertainties associated with the PMS.
	Periodic system Audits	Conduct periodic audits of the PMS to assess its effectiveness, identify uncertainties, and validate the reliability of measurements. Regular audits contribute to the refinement of the system and enhance its overall utility.
	Feedback Loops and Improvement Cycles	Establish feedback loops where stakeholders can provide input on the PMS. Use this feedback to continually refine and improve the system, ensuring that it remains relevant, reliable, and aligned with organizational goals

Factors	Topic	Activities
PMS Uncertainty and Disutility	Communication of Measurement Processes	Improve communication about the PMS project, including data collection methods, analysis techniques, and reporting procedures. Transparency in these processes reduces uncertainty and disutility while enhancing the validity of performance measurement outcomes.
	Benchmarking and Best Practices	Incorporate benchmarking and best practices into the performance measurement process. Comparing performance against best practices provides context, reducing uncertainty and contributing to the utility of the PMS.
	Clearly defined Performance Target	Set clear and realistic performance targets to avoid ambiguity and uncertainty. Well-defined targets provide a benchmark for measurement, reducing the disutility associated with unclear expectations.
	Independent Validation of Data	Consider involving independent parties or external auditors to validate performance data. This external validation adds credibility to the PMS, addressing concerns about potential invalidity.
	Continuous Alignment with Organizational goals	Regularly reassess and realign the PMS with evolving organizational goals and strategies. Ensure that the metrics used remain relevant and contribute meaningfully to organizational success, reducing uncertainty and disutility.
PMS Invalidity	Performance Measurement Culture	Foster a culture of performance measurement within the organization. Encourage a mindset that values the importance of measurement for improvement rather than a punitive approach. A positive culture minimizes disutility and enhances the overall effectiveness of the PMS

The primary ownership in the PMS stage lies with the department overseeing the PMS project and the management level in the commission. Promoting the adoption of PMS necessitates collaboration among management levels to convey positive aspects of PMS to counterparts in various public agencies. The commission's management level aims to improve the positive image of the PMS project by fostering collaboration with management levels from different agencies. Coordinating and discussing the benefits of the evaluation system among executives would facilitate the work of practitioners at the operational level. This responsibility falls under the purview of the commission's management level.

4.3.3.4 Public Management System

Most factors tied to this stage revolve around the characteristics deeply embedded in public management system. To improve IT alignment within the bureaucratic administration in Thai public organisation, the commission should contemplate adopting a set of strategic recommendations designed to address specific challenges and enhance overall alignment.

The main concern pertains to the bureaucratic nature of public organizations, characterized by a vertical structure. Taking proactive measures to foster horizontal collaboration throughout the organization is vital for enhancing IT alignment. Furthermore, the multitude of laws and regulations adhered to by each public agency may present significant obstacles. However, modifying these laws is a time-consuming process, requiring thorough consideration of various factors, including stakeholders, benefits, and drawbacks. Altering or amending laws entails a lengthy and intricate procedure. Therefore, a prudent approach would be to carefully consider the following options as a promising starting point.

Table 4-4 Recommendation for Public Management System Stage

Factors	Topic	Activities
Process Redundancy	Policy for streamlining Processes	Implement policies aimed at streamlining bureaucratic processes to minimize process redundancy. Encourage the adoption of lean and efficient workflows, eliminating unnecessary steps and promoting a more agile approach to public sector management
Opacity	Enhanced Transparency Policies	Enact policies to enhance transparency within bureaucratic processes, addressing issues of opacity. Establish guidelines for clear communication, data sharing, and accessibility, ensuring that information is readily available and visible to relevant stakeholders
	Guidelines for Performance measurement	Establish clear guidelines for performance measurement within the new public sector management framework. Define key performance indicators (KPIs) that align with organizational goals, emphasizing the importance of data-driven decision-making and minimizing opacity.
	Inter-Agency Collaboration Policies	Encourage inter-agency collaboration through policies that promote information sharing and joint initiatives.

Factors	Topic	Activities
Opacity (Cont.)		Breaking down silos and fostering collaboration reduces redundancy, enhances transparency, and aligns efforts across different sectors
	Policies for Reducing Information Silos	Develop policies that actively discourage the creation of information silos. Emphasize the importance of cross-departmental collaboration and data sharing to eliminate barriers that contribute to process redundancy and opacity
Authoritative Command	Inclusive Decision-making Policies	Develop policies that encourage inclusive decision-making processes to counteract Authoritative Commands. Foster a culture that values input from various levels of the organization, promoting collaboration and reducing reliance on top-down command.
Overload	Policy on Overload Management	Introduce policies focused on managing workload and preventing overload. Implement strategies such as workload assessments, resource allocation reviews, and employee support programs to ensure that tasks are distributed effectively, and employee well-being is prioritized
	Flexible work Policies	Introduce flexible work policies to address overload concerns. Explore options such as telecommuting, flexible work hours, and task prioritization to create a more adaptive and manageable work environment
Process Redundancy/ Opacity	Training and Capacity Building Policies	Develop policies focused on training and capacity building to enhance the digital skills of employees. Ensure that staff members are equipped with the necessary skills to navigate and leverage IT systems effectively, reducing the impact of opacity and process redundancy.
Opacity/Authoritative Commands	Performance Review and accountability Policies	Implement policies that establish a transparent performance review and accountability framework. Clearly define expectations, set measurable goals, and incorporate feedback mechanisms to ensure that Authoritative Commands are aligned with organizational objectives.
Overall enhancement	Technology integration Policies	Formulate policies that promote the integration of technology into bureaucratic processes. Encourage the adoption of digital tools and IT systems to streamline operations, enhance communication, and reduce the reliance on manual and redundant tasks

Factors	Topic	Activities
	Continuous Improvement Mandates	Enforce a continuous improvement mandate within the public sector. Establish a culture that values innovation, regularly reviews processes, and adapts to changing circumstances to minimize the impact of bureaucratic characteristics on IT alignment

The primary responsibility in the bureaucratic administration stage rests with the country's management level. Many challenges stem from the inherent characteristics of the public sector bureaucratic system, which prioritizes hierarchical management. Implementing changes in laws and regulations would ease operations in IT alignment among public agencies. However, certain practices remain unalterable as they are governed by specific agency laws. Progress in this stage is time-consuming and necessitates the engagement of diverse stakeholders. Efforts to amend laws and improve the working process of the PMS for smarter operations have been attempted; nonetheless, advancement is impeded by the strict adherence of public agencies to their own laws.

4.4 Chapter Summary

This chapter presents findings derived from qualitative data obtained through semi-structured interviews involving the commission, public agencies, and the e-Report system. The study includes 38 participants from diverse government agencies, and their interview sessions were recorded, transcribed, and subjected to grounded analysis. The chapter identifies 12 key findings that shed light on the factors contributing to the misalignment of the e-Report in public organizations. Furthermore, the data analysis introduces an IT alignment action plan to bridge the gap between theoretical and managerial practice.

Chapter 5 Discussion

5.1 Introduction

This chapter casts the study's findings within the context of existing literature, with the aim of elucidating the contributions of the research. The goal is to align with, extend, or challenge current knowledge in the domain and address the primary research questions. The discussion begins by presenting three main sections that correspond to the research questions: challenges in IT alignment, impediments to IT alignment, and an action plan for IT alignment. Subsequently, the chapter concludes with contributions in the substantive areas of alignment.

5.2 IT alignment Challenges in Public Organisation

This section discusses the finding related to research question (1) pertaining to the challenges in IT alignment and public organisation.

RQ (1) How is IT alignment perceived and how are the challenges of IT alignment addressed in public organisations?

The data analysis reveals the dynamic landscape of public organizations, prompting a re-evaluation of the concept of IT alignment beyond traditional perspectives. In previous literature, IT alignment has been characterized as the relationship between IS strategy and business strategy (Luftman et al., 1993, Reich and Benbasat, 2000, Luftman et al., 1999b). This conceptualization portrays IT alignment as an ongoing, conscious process that interrelates all components of the business-IT relationship, placing a particular emphasis on the dynamics between business and IT strategy within organizational contexts (Maes et al., 2000).

However, this definition encounters limitations when applied to the distinctive context of public organizations, as explored in this study. The public sector operates within a complex environment characterized by diverse stakeholder interests, a wide range of services, and intricate institutional structures (Meijer and Thaens, 2010, Winkler, 2013, Vander Elst and De Rynck, 2014). The challenges arising from these factors necessitate tailored IT solutions, highlighting the need for alignment studies across diverse organizational settings (Rusu and Jonathan, 2017a). Furthermore, recognizing IT as a crucial resource for enhancing public

services underscores the relevance and timeliness of such studies in adapting to the evolving landscape of public sector service delivery. The standard focus on the relationship between business and IT strategy falls short in addressing the unique demands of the public sector. To better capture the complexities of IT alignment in public organizations, this research introduces a new term for IT alignment in public organizations, which reflects how public organizations perceive IT alignment. It is defined as '***the extent to which IT goals support the strategic objectives of an IT project, and the commitment of public sector administration to supporting the practices of public employees in achieving these goals.'***

The key distinction between the existing literature on IT alignment and the proposed definition in this study lies in focus and contextual application. Traditional literature emphasizes the ongoing process of aligning all aspects of the business-IT relationship through management and design sub-processes, contributing to the organization's long-term performance (Őri,2016; Karpovsky and Galliers (2015) Alghazi et al. (2018)). In contrast, this study redirects attention from the conventional business-centric alignment to a more tailored approach designed for the public sector. It acknowledges that conventional definitions may not fully capture the intricacies of IT alignment within public organizations. The proposed definition centres on aligning the IT system with the strategic objectives of introduced IT projects and underscores the commitment of public sector administration to supporting the practices of public employees in achieving these goals. This reframing is crucial for addressing the unique challenges and priorities inherent in the public sector context. The distinction goes beyond business and IT strategies and infrastructure, delving into the administrative systems and practices of public employees that contribute to the success of IT alignment.

In addressing challenges within IT alignment, clear evidence of obstacles emerged during the implementation of e-Report, an IT system supporting the PMS project aimed at assisting public agencies in achieving PMS, as reported by interviewees. This study has revealed three key elements representing challenges in IT alignment within public sector organizations. These challenges are intricately tied to IT design, its functionality, and public management system to meet user expectations conveniently. Specifically, they include issues related to feedback mechanisms, system incomprehension, and functionality concerns—all of which are associated with IT artifact.

Prior literature has explored a varied set of challenges within IT alignment (c.f. Ndou, 2004, Jonathan et al., 2020b, Jonathan et al., 2022, Schlosser, 2012, Pelletier et al., 2021). However, many of these studies predominantly focused on macro-level challenges, lacking specificity for policymakers to address. For example, Jonathan et al. (2020b) delved into the influence of organizational structures on IT alignment, while Ndou (2004) presented challenges related to the broad terms of policy, human capital, and change management, without specifically addressing IT artifact functionalities. Likewise, Jonathan et al. (2022) focused on organizational aspects, leadership, and management, along with stakeholder relationships. Unlike previous studies, this study explicitly addresses challenges related to IT design and functionality as key issues in public organizations. This emphasis highlights the importance of considering contextual granular perspectives, such as access methods to IT systems and functional design, which encompass broader infrastructure terms. Therefore, highlighting these differences enhances our understanding of the various factors influencing IT challenges within public organizations.

5.3 Barriers to IT alignment

This section discusses the findings related to research question (2) pertaining operational IT alignment barriers.

> ***RQ (2)*** How do government employees perceive and experience the alignment of IT systems with their work processes, and what factors shape these perceptions in public organizations?

The data analysis identified twelve significant factors (system unreliability, system invalidity, functionality gap, system disintegration, communication ambiguity, project uncertainty, project disutility, project invalidity, process redundancy, opacity, authoritative command, and overload) in four stages that hinder public organizations from achieving IT alignment from an operational standpoint. Previous studies on IT alignment have identified various enablers and inhibitors of IT alignment (c.f. Alphanso et al., 2022; Jonathan et al., 2022; Sundoro and Wandebori, 2021; Ridwansyah and Rusu, 2020; Őri, 2016; Luftman et al., 2015). However, these studies predominantly focused on detailed categorizations of IT alignment barriers in private firms, specifically at the level of business and IT executives. In contrast, this study takes a distinct approach by disaggregating IT misalignment barriers within the specific context of public organizations where previous research is limited. The key findings are organized into four stages (e-Report, e-Reporting, PMS Project, Public Management System) of IT misalignment. These four stages were derived from the

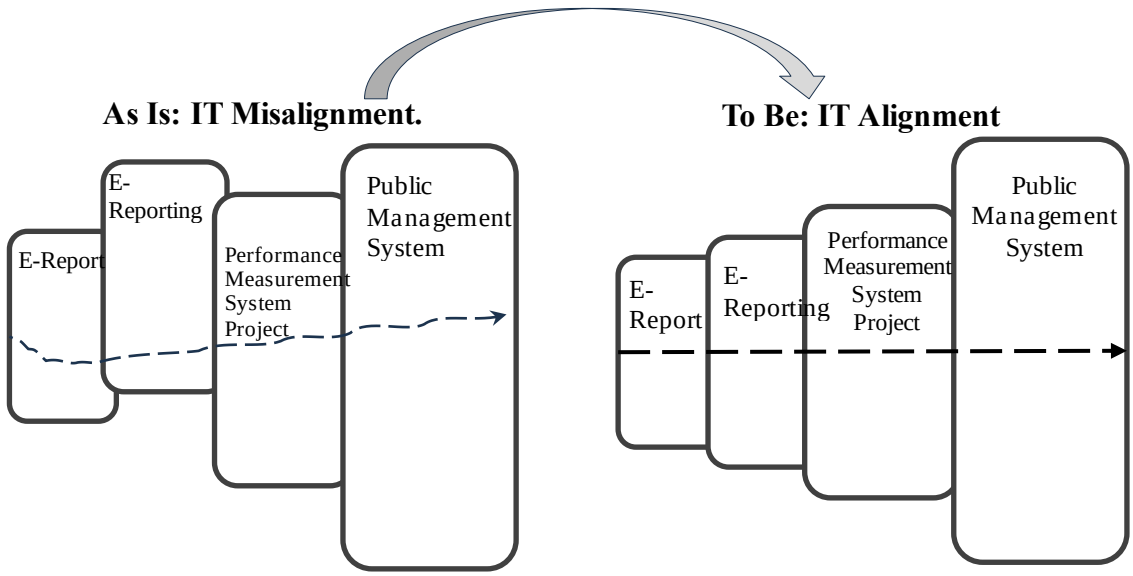
characteristics identified through insights shared by interviewees and their associated meanings. In the subsequent discussion, each of these factors are examined in detail, supported by relevant findings from previous research.

5.3.1 IT Misalignment Framework

The IT misalignment perspective presented in Figure 5-1, developed from the findings, illustrates the stages of IT misalignment from the operational perspective in public organizations. The informants identified that they typically face administrative pressure, such as hierarchical structure, strict procedures, and uncertain environments, which present unique challenges for achieving IT alignment. As illustrated in Figure 5-1, the interplay among each stage (e-Report, e-Reporting, PMS Project, and Public Management System) is nonlinear, reflecting the intricate reality of IT alignment within public organizations. The following section l discussed each of factors in each stage in detail (see 5.3.2-5.3.5).

The composition of IT alignment in this study is characterized by four key stages: e-Report, e-Reporting, PMS Project, and Public Management System. It is important to note that alignment is an ongoing process, rather than a one-time activity. Each layer is non-linear, highlighting the dynamic and interconnected nature of the alignment process. Consequently, it involves a constant balancing act between adopting a lead or lag strategy (Burn, 1997).

Figure 5-1 IT Misalignment Perspective



Public sector IT alignment encounters obstacles across four stages: e-Report, e-Reporting, Performance Measurement System (PMS) Project, and Public Management System. In e-Report, user trust is influenced by three critical factors: system unreliability, system invalidity, and functionality gap. E-Reporting introduces challenges related to system disintegration and communication ambiguity. This facet is linked to users' perceptions, emphasizing the need for integrating IT systems and central agencies to meet user's needs. The PMS Project involves user perspectives on the project and its development to support performance valuation, addressing concerns such as project uncertainty, project disutility, and project invalidity. On the other hand, the Public Management System tackles public servant practices related to bureaucracy, considering factors such as process redundancy, opacity, authoritative command, and overload.

Sections 5.3.2 – 5.3.5 provide detailed explanations of these hindrance factors.

5.3.2 e-Report

In the initial analysis conducted in this e-Report, several critical factors affecting the development and design of IT artifacts were identified. These factors include system unreliability, system invalidity, and functionality gaps, all of which were found to significantly impact the effectiveness of IT solutions. Our conceptualization enhances understanding by delving into these factors, which have not been extensively discussed in the existing literature on IT alignment. By exploring system unreliability, system invalidity, and functionality gaps, this research provides valuable insights into the complexities involved in designing and implementing IT solutions in public organizations. This deeper understanding enables users involved in IT alignment to make better decisions and develop strategies that address these critical factors, ultimately improving the effectiveness and success of IT initiatives. It is worth noting that the following factors have not been directly discussed in the IT alignment literature. Their definitions have been borrowed from computer science literature (Randell et al., 1978, Adrion et al., 1982, O'Keefe and O'Leary, 1993, Alvarez-Alvarado and Jayaweera, 2017, Pham and Pham, 2006), primarily relate to computer system design. These definitions offer detailed explanations of technical concepts pertaining to IT artifacts and systems. While IT alignment literature often prioritizes organizational and strategic aspects, it may overlook the technical intricacies of IT systems. Therefore, these factors extend the existing literature on IT alignment in public organizations.

5.3.2.1 System Unreliability

System reliability, as defined in this study, refers to the system's ability to successfully perform its intended function without failure under specified conditions over a defined period. This study examines system unreliability, framing it as a deficiency in consistency, dependability, or trustworthiness within the e-Report system. The findings highlight user concerns regarding the reliability and trustworthiness of e-Report outcomes, underscoring the crucial role of system reliability. The e-Report, designed to capture data from all participating public agencies in the PMS, is a complex system requiring meticulous development. Its function also involves storing vast and diverse data, which adds complexity for system designers. Consequently, the system's complexity may contribute to unreliability and lead to misunderstandings between users and designers regarding system specifications.

The identification of system unreliability in this study resonates with the observations made by Randell et al. (1978), who emphasized the influence of system complexity. Echoing their insights, the presence of system unreliability suggests that as systems become more complex, the probability of unreliability rises. This study underscores the necessity for proactive measures to tackle system complexity, aiming to enhance reliability. Furthermore, future research efforts can contribute to a deeper understanding and offer specific strategies for mitigating system unreliability resulting from complexity.

Beyond the manifestation of system unreliability, there is a hint of distrust in the system derived from expressed unreliability. Users not only perceive these unreliability as breeding a sense of distrust in the system but also recognize their potential to lead to IT misalignment. Scepticisms regarding *'system credibility'* arises from users feeling excluded from the system acquisition process, leading to concerns about its overall effectiveness. This sentiment aligns with existing literature, as found in studies such as Schlosser et al. (2015) and Alaceva and Rusu (2015), where trust between IT and business was explored in reciprocal interactions. Despite these studies being conducted in private firms, the implications suggest that addressing system unreliability goes beyond technical fixes; it involves building and maintaining user trust, recognizing the potential impact on IT alignment, and emphasizing the universal importance of trust in both private and public organizations. User involvement in the system acquisition process emerges as a key factor in mitigating these trust-related issues.

To counteract the adverse consequences of system unreliability, it is imperative to take proactive measures. Prioritizing the resolution of user concerns becomes essential in building and fortifying the credibility of the system, fostering trust in its capability to produce accurate results. This objective can be achieved by delivering a comprehensive introduction to the system's design and furnishing explicit descriptions of its features. The implementation of these measures not only elevates the overall credibility of the system but also instigates a favourable transformation, wherein users begin to place trust in the capabilities of the IT system.

5.3.2.2 System Invalidity

In prior literature, validation is characterized as "the determination of the correctness of the final program or software produced from a development project with respect to user needs and requirements" (Adrion et al., 1982). O'Keefe and O'Leary (1993) emphasize that validation involves constructing the correct system. This study introduces the concept of 'system invalidity' to signify the potential IT misalignment of the e-Report system with public employee perception, a novel factor not previously discussed in IT alignment literature.

While system invalidity appeared to be an emerging factor in this study, data analysis revealed that the system's invalidity may be rooted in users' negative perceptions contributing to a low value perception of the e-Report. Several comments primarily point to the inherent repetitiveness in its processes, further extending to negative perceptions about IT investment in the e-Report as a lavish expenditure of time and resources. This scepticism provides compelling evidence that disregarding the intrinsic value of the e-Report heightens the risk of IT misalignment. These findings align with prior research by Pashutan et al. (2022); Ridwansyah and Rusu, (2020); and El-Mekawy et al., (2015), emphasizing the prevalence of a low perceived value of IT within the investment context. This alignment across research efforts reinforces the understanding that negative user perceptions and a diminished value perception significantly heighten the risk of IT misalignment.

Unlike the findings of Ahn and Chen (2022), which suggest that the readiness to implement and adopt AI technologies in government depends on a range of positive and negative views, this study uncovers that users' willingness to use a system is not correlated with IT usage. Perhaps there is a connection with building trust and reliability, which could dynamically shift users' increasing willingness to use the system, instead of solely depending on a range

of positive and negative views. This implication suggests that implementation steps and phases are crucial for addressing trust and reliability issues in a more dynamic manner.

5.3.2.3 Functionality Gap

The findings uncover a notable functionality gap within the e-Report, referred to as the disparity between the anticipated functionalities of the system and its actual features. This gap indicates that certain expected functionalities in the e-Report are absent, creating a divergence between user needs and system capabilities, ultimately hindering the establishment of optimal user experiences. This finding is consistent with previous literature (Alaceva and Rusu, 2015, Dulipovici and Robey, 2013, Coltman et al., 2015), emphasizing the common challenge where IT projects often fail to meet user expectations, this is attributed to business executives not thoroughly articulating the functionalities they anticipate. Consequently, IT initiates the project in a manner that deviates from the intended direction. However, this study extended further by exploring the acquisition of an AI intelligent function to respond to users' needs and users anticipating more sophisticated capabilities from IT. The informants in this study were expecting advanced functionalities, particularly in terms of automation and artificial intelligence for predictive analysis, along with the classification of relevant information to align with organizational strategies. This underscores the evolving landscape of user expectations, leveraging advanced technologies for more effective IT alignment.

In contrast to findings in the literature, as highlighted by Sundoro and Wandebori (2021) and Alaceva and Rusu (2015), which suggest that IT projects often overpromise at their initiation, the tendency to overpromise leads to challenges in effectively and economically delivering the pledged benefits to the company. Within this research, a distinct perspective emerges, revealing that it transcends mere user expectations related to the anticipated benefits of IT implementation. Instead, the study underscores a different viewpoint by emphasizing expectations rooted in the fundamental functionality of IT systems. The factors of unreliability, invalidity, and functionality gaps within the e-Report system can be interpreted from two distinct perspectives. Firstly, considering the system perspective, these factors are linked to how the e-Report presents itself to the user, playing a crucial role in system design and implementation to ensure confidentiality. Secondly, these factors may also stem from an alternative viewpoint: a lack of trust from users in the system. Issues like system unreliability, invalidity, and functionality gaps could be a result of users distrusting the e-Report system. The identified factors may potentially be attributed to cognitive biases associated with the user resistance theory, aligning with insights from previous literature

(Kahneman and Tversky, 2013, Kim and Kankanhalli, 2009, Lee and Joshi, 2017, Samuelson and Zeckhauser, 1988, Rey-Moreno et al., 2018). These findings not only extend but also emphasize the substantial impact of user resistance among public employees to IT implementation. This nuanced perspective contributes to the ongoing discourse about cognitive biases within the context of e-Reporting. The findings suggest a prevailing inclination among individuals in the public employee sector to maintain the current state, leading to significant resistance to deviating from their habits. While previous literature primarily focuses on human resources in a commercial context, it leaves a notable gap in our understanding of how organizational culture and governmental structures may contribute to resistance in the public sector. This highlights the need for further research to explore the unique factors influencing attitudes toward change in governmental IT initiatives, ultimately contributing to more effective strategies for successful IT implementations in public organizations. This finding extends the theoretical understanding of status quo bias in IT alignment and user resistance in the context of a new IS implementation (Kim and Kankanhalli, 2009).

In addressing the challenge of insufficient integration and automation in IT, a potential solution involves allocating specialized resources explicitly designated for this purpose. This approach aims to bridge the gap between user expectations and system capabilities, fostering a more aligned and mutually beneficial relationship between agencies needs and IT functionalities. The credibility of these insights is reinforced by their alignment with established literature on IT project challenges and the integration of emerging expectations in the evolving technological landscape.

5.3.3 E-Reporting

In e-Reporting, the focus revolves around the intricate process of generating performance reports, such as acquiring and inputting performance data into the system. This section delves into the essential elements and considerations involved in the process of crafting performance reports, exploring how they contribute to IT misalignment in public organizations.

5.3.3.1 System Disintegration

In this study, the term ***'system disintegration'*** is utilized to describe a situation in which a process or system lacks feasibility within a specific context. System disintegration specifically denotes the fragmentation of a cohesive IT system, where the components or

subsystems lose their ability to function cohesively as a unified whole (Grassia et al., 2021). Participants emphasized the impracticality of reporting compulsory key performance indicators (KPIs), advocating for the replacement of the current manual entry procedure with an IT system. The data analysis revealed that the impracticality of the process arises from insufficient integration between the e-Report and other information technology systems of central agencies, such as the e-Budgeting system. Upon a thorough examination of relevant scholarly sources, it becomes apparent that the emergence of system disintegration represents a previously unexplored factor contributing to IT misalignment. This finding adds a novel dimension to the existing literature, shedding light on a previously unaddressed aspect of IT misalignment.

5.3.3.2 Communication Ambiguity

The presented finding underscores the significance of "***communication ambiguity***" in revealing the shortcomings of effective communication within and among public departments, hindering the achievement of organizational goals. Ambiguity can be interpreted as indirectness, vagueness, disqualification, and unclarity (Eisenberg, 1984). The distinctions among these terms have been unclear, primarily due to an inconsistent view of meaning. This communication ambiguity aligns with earlier research where communication has been identified as a contributing factor to misalignment (Alaceva and Rusu, 2015, Alghazi et al., 2020, El-Mekawy et al., 2015a). Previous studies, such as those by Dulipovici and Robey (2013) and Asprey (2004) emphasized a communication gap in the context of IT alignment, focusing on knowledge management and organizational learning. Liu and Yuan (2015), West (2011), and Wagner and Weitzel (2012) have highlighted the critical role of effective communication channels between top management and IT in achieving alignment and enhancing overall effectiveness. These previous researchers particularly focus on the use of broad-interactive communication on social media, providing more opportunities for citizens to deliberate on public policy.

Previous literature has highlighted that communication between business and IT executives constitutes one of the major barriers to achieving IT alignment (Alaceva and Rusu, 2015, Jia et al., 2018, Schlosser et al., 2015, Reich and Benbasat, 2000). Earlier studies extensively examined the dynamics within formal and informal networks, with a specific emphasis on the channels used for business and IT interactions. However, the conventional focus was primarily on the medium employed to transmit information, ensuring communication down to the middle and lower management levels within the organization. Notably, the operational

levels were often skipped, and the method of communication was underscored (Wang and Rusu, 2018, Wagner and Weitzel, 2012, Tarafdar and Qrunfleh, 2010). In contrast to previous literature's focus on communication channels, this study assesses the quality of information exchange between agencies and the commission, with a key focus on communication ambiguity, which refers to unclear or imprecise information. Unlike prior research, which emphasized communication pathways, this study prioritizes the effectiveness and substance of shared information. The central theme is guaranteeing clarity and precision within conveyed information, underscoring its importance and potential for multiple interpretations. By emphasizing communication ambiguity, the study highlights the necessity of ensuring clear, precise, and easily interpretable information exchange between agencies and the commission.

However, this study extends the existing knowledge relate to the imperative nature of communication, with a particular focus on enhancing its quality to bridge the gap between public agencies and the commission. The emphasis is on employing a common language and establishing mutual understanding of information requirements between business and IT (Schlosser, 2012). To effectively address this issue, public agencies must collaborate to enhance communication channels, improve communication quality, and cultivate a culture of mutual engagement among themselves. Adopting this approach holds promise for a deeper understanding of anticipated outcomes and requirements, thereby facilitating the improved integration of information technology within the public sector.

5.3.4 PMS Project

The primary goal of the e-Report is to secure the success and efficiency of PMS projects. Essential factors within the PMS project centre around users' perceptions concerning the uncertainty, disutility, and invalidity of the system. It is noteworthy that the PMS project emerges as a novel factor, signifying a project specifically developed to be supported by the IT system. This observation is critical, as the in-depth analysis thoroughly explores the micro-level dynamics, elucidating how a project may experience misalignment with the corresponding IT system. These factors contribute to the expansion of existing knowledge in the realm of IT alignment literature.

5.3.4.1 PMS Project Uncertainty

The findings from the data analysis suggest that uncertainty within the Performance measurement system (PMS) is primarily characterized by a lack of clarity concerning the

PMS project itself. Project uncertainty, as noted by Mitish et al. (2021), plays a pivotal role in shaping the success of a project. This uncertainty arises due to a dearth of PMS information, impeding a firm's ability to proactively plan and make well-informed decisions before project execution (Galbraith, 1974). In the present context, uncertain PMS manifests as a deficiency in predictability, stability, or clarity within the PMS process and its measurement or interpretation. This lack of clarity results in confusion, particularly when attempting to comprehend and proactively process KPIs information for the development of performance agreements. It not only hampers the effective implementation of the PMS but also holds the potential to generate inaccurate performance outcomes, thereby impeding the achievement of strategic objectives within departments. Moreover, the uncertainty in the process significantly hampers the optimal utilization of the e-Report, hindering its ability to initiate promptly and deliver performance outcomes on time. The data analysis underscores the substantial impact of project uncertainty on increasing the likelihood of IT misalignment.

In contrast, prior research has identified various dimensions of uncertainty, encompassing environmental uncertainty, which includes political, economic, governmental, cultural, and discontinuous uncertainties (Sniazhko, 2019, Sharma et al., 2020). Through a thorough examination of existing scholarly works, it is evident that PMS project uncertainty emerges as a new factor contributing to IT misalignment, a facet not previously identified in another research. This discovery introduces a unique dimension to the current literature, illuminating a previously overlooked aspect of IT misalignment linked to the uncertainties inherent in the PMS process.

5.3.4.2 PMS Project Disutility

The findings uncovered a significant discrepancy between users' expectations from performance outcomes and the public image projected, leading to the perception of '***PMS project disutility***'. In this study, disutility refers to the negative aspects associated with the e-Report implementation, indicating that the technology implementation is causing difficulties, dissatisfaction, or operational inefficiencies rather than delivering the intended benefits. Participants expressed the viewpoint that organizational performance outcomes should align with the image presented by the organization itself. Through a thorough comprehensive analysis of existing literature and an in-depth examination of IT alignment studies reveal that PMS project disutility plays a distinctive role in inducing IT misalignment. This discovery represents a novel contribution to the field, as it has not been previously identified in prior research. To address this issue proactively, measures are

recommended to ensure that the IT system produces performance outcomes aligned with what the organization presents to the public. This proactive approach can mitigate the potential for confusion and disagreement in IT alignment, fostering a more congruent relationship between user expectations and the public image projected by the organization.

5.3.4.3 PMS Project Invalidity

The analysis revealed a noteworthy contribution of ***'PMS project invalidity'*** to the realm of IT misalignment. In this context, PMS project invalidity denotes a situation where the PMS fails to measure accurately or reliably what it is intended to assess. This unveils deficiencies or shortcomings in the design, implementation, or execution of the PMS system, which is meant to evaluate the performance of public organizations. This term encapsulates a misunderstanding of project objectives and details, potentially leading to breakdowns in communication and collaboration, ultimately adversely impacting IT alignment. The analysis illuminates a prevalent perception among users that the performance measurement scheme is inadequate for accurately evaluating their department's actual performance. Informants expressed scepticism toward the performance measurement system (PMS) project, believing it lacks credibility to fulfil its strategic functions as promised to public agencies. This finding has emerged as a novel factor not previously uncovered in the existing IT alignment literature. It sheds light on the crucial importance of addressing PMS project invalidity to enhance communication, collaboration, and overall IT alignment within public organizations.

5.3.5 Public Management System

The Public Management System acts as a pivotal influencer, impacting organizational effectiveness. This introduction dives into the broad impact of the public management system on IT misalignment, spotlighting factors like process redundancy, opacity, authoritative command, and overload. These elements pose significant challenges to IT alignment.

5.3.5.1 Process Redundancy

The data analysis reveals that ***'process redundancy'*** is a factor contributing to IT misalignment in public organizations. In this context, process redundancy refers to the unnecessary repetition of steps or activities within the e-Reporting process, involving duplicate or overlapping tasks, steps, or components in the overall workflow. The analysis

sheds light on how IT misalignment incorporates the complexities and inefficiencies introduced by the public management system, particularly red tape, which obstructs human interaction and consequently hinders IT alignment. This hindrance takes the form of redundant procedures designed to achieve specific outcomes. For instance, drafting a performance report on paper and then transferring it to an IT system generates redundant work processes for users. Furthermore, the process redundancy may be attributed to the risk-averse nature of government agencies, aligning with the observations of Buurman et al. (2012) and Frank and Lewis (2004). These studies suggest that individuals in the public sector exhibit a higher degree of risk aversion compared to their private sector counterparts, primarily due to concerns about unintended consequences in case of errors, and they focus on protecting themselves from such errors.

Additionally, the provision of process redundancy can be encapsulated by the concept of red tape, which refers to a set of administrative rules and procedures creating obstacles that negatively impact organizational performance (Bozeman, 1993). The definition of red tape aligns with this analysis, as public agencies back up their activities to ensure compliance with rules and standard procedures. While various studies have confirmed the effects of red tape on public organizational performance (Rauf, 2020, Kaufmann et al., 2019, Pandey and Moynihan, 2006), the high level of red tape also affects the public sector's ability to adopt innovative technological solutions (Bozeman, 1993, Moon and Bretschneiber, 2002, Pandey et al., 2007). This renders public organizations less flexible, more self-oriented, and less responsive to political superiors and service users (Brewer and Walker, 2010). The influence of process redundancy as a result of rules and standard procedures presents challenges in aligning IT in public organizations.

5.3.5.2 Opacity

The study's findings underscore the significance of '***opacity***' as a hindrance to information exchange among public departments. In the context of information technology (IT), opacity refers to a lack of transparency or clarity regarding the internal mechanisms of a system, software, or process. Specifically, the e-Report is identified as opaque, signifying that its internal operations are not easily accessible to users, leading to limited information sharing among agencies.

Despite the opacity factor not being explicitly addressed in the existing IT alignment literature, its relevance becomes apparent when viewed through the lens of government

information literature, particularly in the context of information sharing between public agencies. Opacity emerges as a distinctive contributor to IT misalignment, significantly impeding information sharing among public organizations. This aligns with the observations of Yang and Maxwell (2011), who underscored the challenges associated with information sharing within bureaucratic structures. The limitation in information sharing, observed both within and between public organizations, can be attributed, in part, to the presence of functional silos that create barriers between different departments. Previous research has emphasized that public organizations often view information as power, and organizational structures are perceived as potential obstacles to knowledge sharing (Titi Amayah, 2013, Seba et al., 2012, Ridwansyah and Rusu, 2020). Nelson and Cooprider (1996) discovered that the presence of mutual trust and shared interests between IT and business professionals significantly impacts their shared knowledge. While prior research primarily focused on examining factors (mutual trust and interest) contributing to shared knowledge, this study focuses on operational factors that lead to IT misalignment without delving into the precursors of shared knowledge.

5.3.5.3 Authoritative Command

The data analysis underscores the impact of '***authoritative command'*** on IT alignment in public agencies, referring to clear and officially issued commands from a recognized authority. These commands carry substantial weight and are expected to be unquestionably followed, characterized by clear authority, official communication, binding nature, and consequential impact. This aligns with arguments in previous literature, such as Bozeman and Scott (1996), who suggest that regulations optimize organizational effectiveness. Similarly, Kurti et al. (2013) posits that top management's dedication directly influences assistance levels from functional managers and user behaviour. Sundoro and Wandebori (2021) identified the lack of business executive commitment as a factor in IT misalignment, emphasizing the need for top management sponsorship. This study extends the existing knowledge regarding organizational management, recognizing that public organizations operate under country-level management control, which involves adherence to commands such as those issued by the cabinet. Therefore, top management extends beyond organizational management to encompass commands from the cabinet or prime minister.

This finding aligns with Adaba et al. (2022) and Khatri (2009), indicating that high power distance organizations concentrate power and authority with autocratic decision-making. Within such structures, subordinates often hesitate or fear expressing dissent. Asprey (2004)

argued that executive leaders' involvement is crucial for successful IT alignment, especially in public management systems. Conversely, lower power distance, as argued by Adaba et al. (2014) leads to subordinates challenging superiors, causing conflicts that negatively impact IT alignment. This finding emphasizes the importance of executive leaders, e.g., minister, prime minister, taking specific actions to enhance IT alignment. It suggests that leaders issue clear and authoritative commands, policies, or decisions through the cabinet. To address this, public sector organizations should establish clear and enforceable criteria for aligning information technology and ensure thorough implementation at all levels. This may involve setting up oversight and enforcement mechanisms, providing training and resources for adherence, and implementing fines for non-compliance.

5.3.5.4 Overload

This study emphasizes that ***'overload'*** plays a role in inconsistent implementation, contributing to IT misalignment. In public organizations, overload refers to being overwhelmed, exceeding normal capacity, leading to confusion, ineffective IT alignment, and a potentially unethical environment. The findings show instances where public departments received numerous commands from the Cabinet, each requiring prompt consideration. However, limited human resources hindered their ability to manage multiple duties simultaneously, resulting in inconsistencies in policy implementation and exacerbating IT misalignment. This finding aligns with El-Mekawy et al. (2015b) and Sundoro and Wandebori (2021), indicating that excessive workloads and a limited workforce contribute to IT misalignment. Furthermore, Jonathan et al. (2020b) suggest that information overload can be a symptom of a lack of awareness of the need to manage IT alignment within public strategies. Additionally, the factor of overload extends existing knowledge by emphasizing that its impact includes not only inconsistency in workload but also contributes to an uncertain environment, consequently leading to IT misalignment. To address overload, establishing clear communication lines is crucial. Prioritizing and sequencing directives based on urgency, potential impact, and practicality can alleviate strain on the organization's finite human resources. This approach offers practical steps to mitigate the challenges posed by overload and enhance IT alignment within public organizations.

5.4 IT alignment Action Plan

This section discusses the findings related to research questions (3), which focuses on the implementation plan for minimising the chance of IT misalignment from an operational perspective.

> ***RQ (3) How can public organisations effectively ensure IT alignment and minimize IT misalignment from the user's perspective?***

One of the shortcomings noted in previous literature was the absence of managerial solutions for achieving IT alignment in public organizations (Wagner, 2014, El-Mekawy et al., 2015a, El-Mekawy et al., 2015b, Ridwansyah and Rusu, 2020, Hu et al., 2023). Although Aseeva et al. (2022) offer a methodology aimed at mitigating IT-business misalignment, their resulting solution—an algorithm for identifying and correcting such misalignment—primarily focuses on symptom collection rather than providing actionable steps for achieving IT alignment. Consequently, its applicability in public organizations may be limited, given its deficiency in offering concrete strategies for ensuring alignment. This gap between theory and practical implementation underscores the need for more actionable plans in bridging the IT-business alignment divide. Considering the findings of this research, the purpose of this subsection is twofold: (1) to develop policy recommendations with an action plan that will guide public sector entities to successfully achieve IT alignment, and (2) to develop a framework that potentially minimizes IT misalignment in the public sector. In essence, the proposed action plan and framework aim to bridge the gap between theory and practice.

The proposed action plan has been developed from the findings and based on the outcomes of the entire research (see 6.4.1). This action plan could improve IT alignment in public organizations or similar contexts, helping them achieve IT alignment. It may serve as a guide for public organizations to accelerate the IT alignment process and minimize the impact of IT misalignment.

5.5 Study Contributions

In public sector organizations, a significant gap in understanding exists regarding the investigation of IT (mis)alignment issues. This crucial area has been overlooked and underexplored. Despite the absence of a precise definition of IT (mis)alignment, particularly within the public sector context, the deficiency of a comprehensive action plan to address alignment-related challenges persists, as emphasized by Luftman et al. (2017). The primary

objective of this study is to enhance comprehension of IT misalignment, making a noteworthy contribution to the current body of knowledge in this field. Addressing this research gap, the study proposes an extended definition of IT alignment, IT misalignment, and managerial contributions, contributing to the existing knowledge in the aspect of IT misalignment in public organizations.

5.5.1 Theoretical Implication-IT Alignment Literature

The topic of IT alignment has been a focus for both scholars and practitioners, receiving in-depth scrutiny over the past decade (Luftman et al., 2017, Kappelman et al., 2021, Pelletier et al., 2021). Despite the abundance of diverse investigations and various perspectives suggesting different avenues for future research, certain areas in this field remain unexplored. Previous research has contributed by presenting distinct definitions and characteristics, identifying numerous factors influencing IT alignment (Luftman et al., 2015, Ilmudeen, 2021, Chan et al., 2006, Slim et al., 2021), and introducing various models to address the challenge of achieving alignment in organizations (Renaud et al., 2016, Henriques et al., 2019, Audretsch and Belitski, 2022). However, limited attention has been given to its specific application within public organizations, and it has not received the attention it deserves from researchers (Winkler, 2013, Vander Elst and De Rynck, 2014, Walser et al., 2016).

This study contributes to alignment theory by introducing the concepts of IT alignment and misalignment in public departments at the operational level. It provides two significant contributions. Firstly, the study extends to the current knowledge of IT (mis)alignment definition in public sector organizations. Scholars have attempted to define IT alignment in public organizations, as exemplified by Winkler (2013, p.834), who defines it in a public organizational setting as "*the degree to which the IT goals support the strategic goals of a public agency, and to which administration and IT stakeholders are committed to support to these goals.*" This study expands on the definition by incorporating aspects of public sector management as a crucial influence on the application and practice of IT implementation in public organizations. Consequently, IT alignment in public organizations is characterized as '***the extent to which IT goals support the strategic objectives of an IT project, and the commitment of public sector administration to supporting the practices of public employees in achieving these goals***.' In essence, it provides a comprehensive perspective of how IT objectives are intertwined with the strategic goals of the organization. This emphasised the vital role of public sector administration in supporting the efforts of public

employees toward these shared goals. This broader viewpoint aims to deepen our comprehension of IT alignment within the distinct context of public institutions.

Misalignment holds equal importance to IT alignment. It is increasingly recognized as a significant concern and subject of scholarly interest within organizational contexts. Misalignment is an unfavourable state where organisation is unable to attain alignment (Őri and Szabó, 2019a), and it is likely to negatively impact business performance (Alghazi et al., 2018). Misalignments involve management and information system to detect and test the interrelation of all components of business-IT relationship consciously and coherently. This study contributes to the notion of IT misalignment as ***'an ineffective management between IT systems, IT project and public management system'.*** This notion emphasised the importance of recognising goals and objectives of developing IT systems to cooperate with IT project with the support of public management system.

Secondly, this study advances comprehension and unveils 12 barriers identified as problematic issues in the interactions among the commission, public agencies, and public management administration within public organizations, discovered through an in-depth empirical study. On one hand, the examination of these barriers in IT alignment aids researchers in developing a framework with tangible measures to overcome them, thereby facilitating the achievement and maintenance of IT alignment. On the other hand, these findings contribute to a more comprehensive understanding of IT alignment, shedding light on how it can be achieved and enhanced. In addition, these 12 factors emanate from the micro view of users in different public agencies, providing a critical and precise perspective on practice that differs from the macro-level viewpoint found in previous existing literature, which may be challenging to distil into specific points for improvement. Moreover, the research offers practical insights, presenting formulated action plans for central agencies. This approach can be adopted when introducing other national IT systems within the public sector.

Lastly, this research incorporates concepts from the user resistance perspective (Kim and Kankanhalli, 2009, Rey-Moreno et al., 2018) and the theory of status quo bias (Samuelson and Zeckhauser, 1988). In contrast to previous IT alignment literature, which has not extensively explored user resistance concept (see Kim and Kankanhalli, 2009, Ali et al., 2016, Lee and Joshi, 2017, Rey-Moreno et al., 2018), this study delves into IT alignment from an operational perspective, specifically focusing on the changes associated with IS implementation among public employees. The research takes a targeted approach,

concentrating on public employees directly affected by new IT implementation, offering a more comprehensive perspective within the realm of IT alignment studies. Additionally, this study introduces the novel concept of cognitive bias determining users' resistance in IT alignment. While cognitive bias has been studied in prior user resistance research, this unique aspect makes its initial appearance in IT alignment research, with a particular emphasis on operational actors in public organizations.

5.5.2 Managerial Implications

The study makes substantial contributions to the current understanding of IT alignment challenges in public organizations. While prior research extensively explores models and frameworks in the private sector (Gajardo and La Paz, 2019, Luftman et al., 2017, Luftman et al., 2015, Tarafdar and Qrunfleh, 2009), there is a notable absence of a tailored managerial framework for public organizations, hindering the successful alignment of IT. This identified gap underscores the critical need for a framework guiding public organizations in effectively overcoming operational barriers and achieving successful IT alignment. As part of its contribution, this study introduces an action plan designed for central agencies, acting as a guiding tool to enhance the realization of IT alignment in public organization.

In summary, this study provides valuable insights into the challenges faced in aligning business and IT functions within public sector entities. It emphasizes the need to understand the causes of misalignment and offers a novel framework for addressing these issues, ultimately optimizing the benefits of IT strategy implementation. This research addresses a significant gap in literature, facilitating a deeper understanding of IT misalignment in the public sector.

5.6 Chapter summary

The discussion chapter explores the hurdles faced in achieving IT alignment within public organizations. It scrutinizes IT systems, IT projects, and public management systems, identifying twelve critical factors that contribute to IT misalignment. These factors are discussed in the context of IT system design (e-Report, e-Reporting), PMS projects, and public management systems. Furthermore, the chapter introduces a defined concept of IT (mis)alignment in public organizations. In conclusion, the study makes substantial contributions to both theoretical understanding IT alignment in public organisation and practical management by offering an action plan tailored for central agencies when introducing new IT systems to public sector organizations.

Chapter 6 Conclusion

6.1 Introduction

This chapter offers a concise conclusion, presenting theoretical, policy, and managerial implications alongside a summary of the primary research findings. Addressing three core research questions, it explores the key challenges of achieving IT alignment within public organizations. It also investigates the factors hindering IT alignment from the public sector employees' perspective and discusses strategies for ensuring alignment and minimizing misalignment. Furthermore, the chapter explores the research contributions regarding the social dimension of IT misalignment from the operational level perspective of public sector organizations. It concludes by outlining the study's limitations and proposing recommendations for future research.

6.2 Summary of Finding

This research focuses on the social IT alignment in public organizations in Thailand. The concept of Business-IT alignment, backed by its demonstrated impact on organizational performance—including competitive advantage, increased profitability, and enhanced agility (Őri and Szabó, 2019b, Kim and Kim, 2020, Kappelman et al., 2021)- poses a formidable challenge. The challenge spans from strategic to operational levels, encompassing social dimensions. The intellectual aspect emphasizes aligning business and IT strategies, while the social dimension centres on fostering shared understanding among executives and staff from both sectors. Recognizing the crucial role of operational actors in driving the achievement of IT implementation is essential (Wagner, 2014, Schlosser et al., 2015). Despite ongoing efforts to understand IT alignment antecedents, resolving this challenge continues to evolve due to technological advancements and shifts in the corporate landscape. However, the exploration of IT alignment in public organizations has been limited (Rusu and Jonathan, 2017a, Jonathan et al., 2018), resulting in a noticeable research gap. In addition, generalizing findings from the private sector to the public sector faces constraints due to diverse contextual factors and shifts in the alignment concept over time, highlighting the need for comprehensive knowledge regarding IT alignment formulation in the public sector.

This study aimed to explore the concept of IT alignment within public organizations, specifically focusing on an operational perspective and identifying factors that impede the achievement of IT alignment. Furthermore, the study aimed to bridge a managerial gap by constructing a comprehensive framework, designed to aid Thai public policymakers in navigating challenges associated with IT misalignment. In addressing these aims, this study adopted a qualitative approach, employing semi-structured interviews to extract insights that span from the strategic to day-to-day operational levels. The participants in this research consisted of thirty-eight individuals from the performance reporting units of various public agencies within Thai government. The interviews were conducted between April and October 2021.

The analysis has revealed three distinctive sets of findings. Firstly, the study proposed the new concept of IT alignment within the public organization context, highlighting the crucial roles of IT objectives, IT projects, practice of civil servants and public management systems in achieving IT alignment. Secondly, the analysis uncovers the stages of misalignment, providing a clear depiction of what and how misalignment occurs during IT implementation. Lastly, 12 novel factors have emerged as a distinctive set of hindrances that potentially lead to IT misalignment.

The finding extend research in alignment in three significant ways. Firstly, it became evident that the prevailing definition of IT alignment in the existing literature (c.f. Winkler, 2013, Jonathan, 2022) is not suitable for the context of the Thai public sector. In this study, IT alignment is defined as the extent to which IT goals support the strategic objectives of an IT project, coupled with the commitment of public sector administration to bolstering the practices of public employees in achieving these goals. Secondly, the study identified 12 factors hindering IT alignment, some of which have not been previously discussed in the IT alignment literature, such as system unreliability and invalidity. Lastly, an IT alignment managerial action plan has been proposed in this study, which public policymakers can apply during new IT implementations to ensure IT alignment in public organizations.

6.3 Theoretical Implications

This research introduces significant implications and contributions to IT alignment theoretical frameworks. It extends the application of alignment literature by introducing the concept of IT alignment in public organizations at the operational level. The focus is on the interplay between relevant factors involved in the misalignment process, making three key contributions.

Firstly, the study significantly extends the prior research definition of IT alignment within public organizations by incorporating operational actors and public sector management. This novel definition goes beyond the existing framework outlined by Winkler (2013) research in public sector IT alignment. Recognizing the crucial role of operational actors becomes paramount, as they play a pivotal part in translating strategic plans into day-to-day activities and facilitating the implementation of IT practices within public organizations. Furthermore, the research identifies 12 factors that hinder IT alignment in the context of public organizations, addressing a domain with limited prior exploration (Ridwansyah and Rusu, 2020, Hu et al., 2023). Notably, prior studies by Ridwansyah and Rusu focused on social IT alignment from a managerial perspective, overlooking the importance of day-to-day operational aspects. On the other hand, Hu et al. (2023) concentrated on social alignment's impact on organizational agility. This study extends existing knowledge by exploring the perspective of social IT alignment from an operational standpoint, where key roles in day-to-day operations significantly contribute to the achievement of IT alignment.

Notably, some of these factors, such as unreliability and invalidity, have remained conspicuously absent in the existing IT alignment literature due to its predominantly technical focus on systems. Many of the system-related factors discovered in this study stem from a lack of trust or cognitive bias (Kim and Kankanhalli, 2009, Abdelhakim et al., 2022) of users towards the perceived utility of the e-Report system. Consequently, these factors, often overlooked in the IT alignment literature, contribute to augmenting the current understanding by shedding light on aspects that hinder effective alignment. Transitioning from the identification of these novel factors, the study not only bridges a substantial research gap but also yields valuable insights for both practitioners and policymakers. This comprehensive understanding forms the bedrock for devising targeted strategies aimed at enhancing IT alignment within the distinctive landscape of the public sector.

Moving on, the study advances the existing social IT alignment literature by introducing IT misalignment models. These models provide a more granular understanding of the challenges encountered during new IT implementations within public organizations. While traditional social alignment framework (Alaceva and Rusu, 2015, Ridwansyah and Rusu, 2020, Reich and Benbasat, 2000) often explore broader aspects such as communication and shared knowledge domains, this study takes a more managerial approach. It breaks down the process into identifiable stages and pinpoints specific aspects contributing to IT misalignment. By introducing these models, the research sheds light on the intricacies of IT alignment failures, providing a more comprehensive framework for analysis. The identification of key stages and associated factors enhances our ability to recognize potential pitfalls in the alignment process. This nuanced approach offers a valuable contribution to the field, going beyond the generalities of previous frameworks and enabling a more targeted understanding of the dynamics at play during IT implementation in public organizations.

Lastly, through the combination of alignment theory, user resistance theories (Kim and Kankanhalli, 2009, Rey-Moreno et al., 2018), and status quo bias theory (Samuelson and Zeckhauser, 1988), this study contributes to both user resistance literature and IT alignment literature. While much of the user resistance literature focuses on overall changes associated with IS implementation among users (Kim and Kankanhalli, 2009, Ali et al., 2016, Lee and Joshi, 2017, Rey-Moreno et al., 2018), this study specifically concentrates on public employees who are directly impacted by the achievement of new IT implementation. A more holistic view is obtained in IT alignment studies by considering aspects related to actors in a new IS anchored on public employees' current situations. Additionally, the introduction of cognitive bias determining users' resistance in IT alignment is a novel concept in this study. While the aspect of cognitive bias has been studied in previous user resistance research, this unique aspect makes its first appearance in IT alignment research, particularly focusing on operational actors in public organizations.

In summary, these contributions significantly enhance our understanding of IT alignment in the public sector, offering valuable insights and frameworks that can inform both theoretical discussions and practical strategies for organizations and policymakers.

6.4 Managerial Implications

The study significantly advances understanding of IT alignment challenges in public organizations, addressing a gap where prior research predominantly focuses on private sector models and frameworks. The absence of a tailored managerial framework for public organizations underscores a critical need, hindering successful IT alignment. To bridge this gap, our study introduces a comprehensive framework designed for central agencies, serving as a guiding tool to enhance IT alignment in the public sector.

6.4.1 Process Recommendation

The current study addresses a noticeable gap in the existing literature regarding the managerial practical realization of IT alignment in public sector organizations. While previous research has highlighted the frequent occurrence of business-IT misalignment, particularly in the final stages of a project, the process of rectification often lacks a well-defined methodology or approach (Carvalho and Sousa, 2008, El-Telbany and Elragal, 2014, Aseeva et al., 2022). This study not only presents operational factors contributing to IT misalignment but also introduces an action plan designed for the effective implementation of IT alignment in public organizations.

The proposed action plan derives directly from the insights obtained from the comprehensive analysis conducted in the completed study. Its purpose is to proactively address the potential consequences stemming from misalignment factors. Comprising four distinct phases—Initial, Planning, Execution and Monitoring, and Ongoing—the plan is structured as an ongoing and adaptive process. This framework is carefully developed to bridge the gap between theoretical concepts and practical application. The overarching goal is to furnish public organizations with a comprehensive and practical guide, facilitating the successful attainment of effective IT alignment. The recommendations can be applicable to any central agencies or public body intending to introduce an IT system and implement it throughout all public agencies.

6.4.1.1 Phrase I: The Initial Phase

Initiating the initial phase of this comprehensive action plan, a strategic focus emerges on securing crucial endorsements or directive approaches (Shang, 2012) from central agencies responsible for overseeing the IT system requirements of the project. At the forefront of this initiative, an official approval from cabinet, is the imperative to garner commitment from

country-level management, a process facilitated by the weight of cabinet enforcement. This commitment, deemed pivotal, serves as the foundation in aligning the department seamlessly with the overarching mandate of the IT project.

Key players in this initial phase are the commission, whose role extends beyond mere oversight. They immerse themselves in a meticulous assessment of the relevant laws and regulations that govern the public organizational landscape. This detailed scrutiny equips them with a profound understanding, empowering them to advocate persuasively for the adoption of the system across various public departments. The goal is not merely compliance but a strategic alignment that resonates with the unique needs and objectives of each department.

An aspect that underscores the proactive nature of this phase is the deliberate stance taken towards adjusting or eliminating hindering laws. This strategic move aims to remove any obstacles that might impede the smooth alignment of the IT system with organizational goals. The proactive approach signifies a commitment to navigating potential challenges with foresight, ensuring that the implementation process unfolds seamlessly.

In essence, the initial phase sets the foundation for the entire action plan. It is characterized by a sequence of strategic manoeuvres, from securing high-level endorsements and managerial commitment to the meticulous assessment of legal landscapes. Through these deliberate steps, the groundwork is laid for a cohesive alignment of the IT system with organizational objectives, setting the stage for a successful and strategically aligned implementation process.

6.4.1.2 Phrase II: The Planning Phase

The planning phase consists of three integral components—system acquisition, management preparation, and unit preparation.

System Acquisition

A strategic and comprehensive approach to system acquisition involves several key steps. Initially, it is crucial to collect system and outcome requirements from relevant parties by actively engaging with stakeholders. This process entails identifying and documenting their specific needs and expectations concerning the system. Gathering requirements encompasses features desired, reporting functionalities needed, and any specific outcomes stakeholders aim to achieve. Following this, the design of the user interface plays a pivotal

role in ensuring the system is user-friendly and aligns with the preferences and needs of end-users. This phase involves creating a visually intuitive interface that enhances the overall user experience and facilitates efficient interaction with the system. In preparation for system implementation, an essential step is to develop and tailor a comprehensive training plan for the responsible units. This plan should be customized to address the specific needs of the units and cover aspects such as system functionalities, data input procedures, and troubleshooting. By implementing these steps, the acquisition process can be optimized, ensuring that the system meets the unique requirements of stakeholders and that responsible units are well-equipped to utilize the system effectively.

Management Preparation

In anticipation of the system implementation, it is essential for effective management preparation to adhere to the following key steps. Firstly, there should be a meticulous effort to prepare and comply with new or amended rules and regulations governing the use of the system. This necessitates a thorough review of legal requirements to guarantee the system's alignment and compliance.

Another critical step involves the assignment of specific departments to take charge of the system. Clearly defining responsibilities within designated departments is paramount for successful system management, ensuring accountability and a structured approach to overseeing operations. Furthermore, it is imperative to convey the positive aspects of collaboration with other agencies regarding the performance measurement system (PMS). Building a positive narrative around PMS involves effective communication of the benefits and advantages, fostering a cooperative mindset, and encouraging collective efforts toward common goals.

Lastly, active collaboration with central agencies is crucial for the seamless integration of the system into central portal systems. This collaborative phase involves coordinating efforts to align the new system with broader organizational frameworks, facilitating centralized data access, and ensuring a cohesive and integrated approach. By adhering to these comprehensive steps, management can significantly enhance the preparedness and success of the system implementation.

Unit Preparation

To prepare a responsible unit within each department, there are two steps to follow. Firstly, there should be a clear and defined assignment of responsibility within each department. This will facilitate effective communication and ensure that a dedicated unit is accountable for the seamless implementation and ongoing operation of the system. Secondly, it is imperative to focus on preparing and enhancing the digital literacy of the staff members. This involves providing necessary training and resources to equip all users with the skills required to proficiently navigate and utilize the digital tools associated with the new system. By prioritizing these measures, the transition to the new system can be made more efficient and effective, fostering a technologically adept and collaborative work environment.

6.4.1.3 Phrase III: The Executing and Monitoring Phase

The executing and monitoring phase is a pivotal component of the action plan. It takes centre stage as the foundation for the successful implementation of the IT alignment initiative. In this crucial phase, the individual tasked with overseeing the system assumes a central role in ensuring the proper execution of IT alignment. A profound understanding of the updated rules and regulations becomes imperative, forming the bedrock for their successful application throughout the implementation process.

Project execution

Ensuring effective project execution involves implementing several key practices. Firstly, establishing a clear communication protocol, specifying channels (e.g., emails, project management tools, or regular meetings) and determining update frequency, is essential. This well-defined protocol ensures that all stakeholders remain informed and engaged throughout the execution phase. Secondly, organizing regular project steering committee meetings is crucial for keeping key stakeholders updated on project progress. These meetings serve as a platform to discuss current issues, address challenges, and make necessary adjustments to the project plan. Additionally, implementing periodic surveys and closed-up monitoring mechanisms is vital to gauge user satisfaction and collect feedback on the system's performance. This information proves valuable in identifying areas for improvement, addressing user concerns, and ensuring alignment with user expectation. Finally, conducting awareness programs within the organization is essential for project success. These programs may include informational sessions, workshops, or promotional materials to ensure that all stakeholders, including end-users, understand the project's goals,

benefits, and alignment with organizational objectives. By incorporating these practices, project managers can enhance communication, address challenges promptly, align with user expectations, and foster organizational understanding and support.

E-report training

Implementing a thorough training program is paramount to ensure user proficiency in utilizing the e-reporting system. These training sessions should encompass system functionalities, data input procedures, and troubleshooting, empowering users to navigate the system effectively and minimizing potential disruptions. In addition, establishing a helpdesk support system is essential for providing continuous assistance to users. This support mechanism involves addressing queries, resolving issues, and offering guidance. A responsive helpdesk plays a vital role in creating a positive user experience and ensures that any challenges encountered are promptly addressed. Together, a well-structured training program and a responsive helpdesk contribute to the overall effectiveness and user satisfaction with the e-reporting system.

6.4.1.4 Phrase IV: The Ongoing Phase

The ongoing phase unfolds as a critical stage, marked by a commitment to continuous evaluation of the current state and the results of system deployment. In this dynamic process, regular updates are not just a formality but a strategic necessity, ensuring that the management team is consistently informed about the evolving landscape of IT integration.

Project Frequently Update

Ensuring effective project management and system performance involves several key practices. Firstly, providing frequent project updates is crucial to keeping all stakeholders informed. These updates can be disseminated through various channels such as emails, project management tools, or newsletters, ensuring that everyone stays abreast of the latest developments and milestones. Organizing regular meetings with the management team is essential to provide a comprehensive overview of the IT system's status and outcomes. These meetings serve as a platform to discuss achievements, challenges, and any necessary adjustments to align the project with organizational goals.

Conducting regular system audits is imperative to ensure the IT system operates efficiently and complies with established standards. Audits help identify potential issues, security concerns, or areas for improvement, enabling timely corrective actions. In addition, implementing regular quality assurance checks involves assessing the system's performance

against predetermined criteria. This ensures that the system maintains a high standard of quality, functionality, and reliability.

Finally, holding regular review sessions establishes a continuous feedback loop. Collecting feedback from users and stakeholders helps identify areas for improvement, address concerns, and make necessary adjustments to enhance the system's overall effectiveness. Together, these practices contribute to the successful management and continuous improvement of the IT system.

Training

To optimize the utilization of the system, a multifaceted approach is recommended. Initiating ongoing training sessions is paramount to maintaining user proficiency, covering updates, new features, and system changes to enhance efficiency continually. Simultaneously, establishing a user feedback mechanism allows users to share insights, aiding in addressing concerns, identifying additional training needs, and continuously improving the user experience.

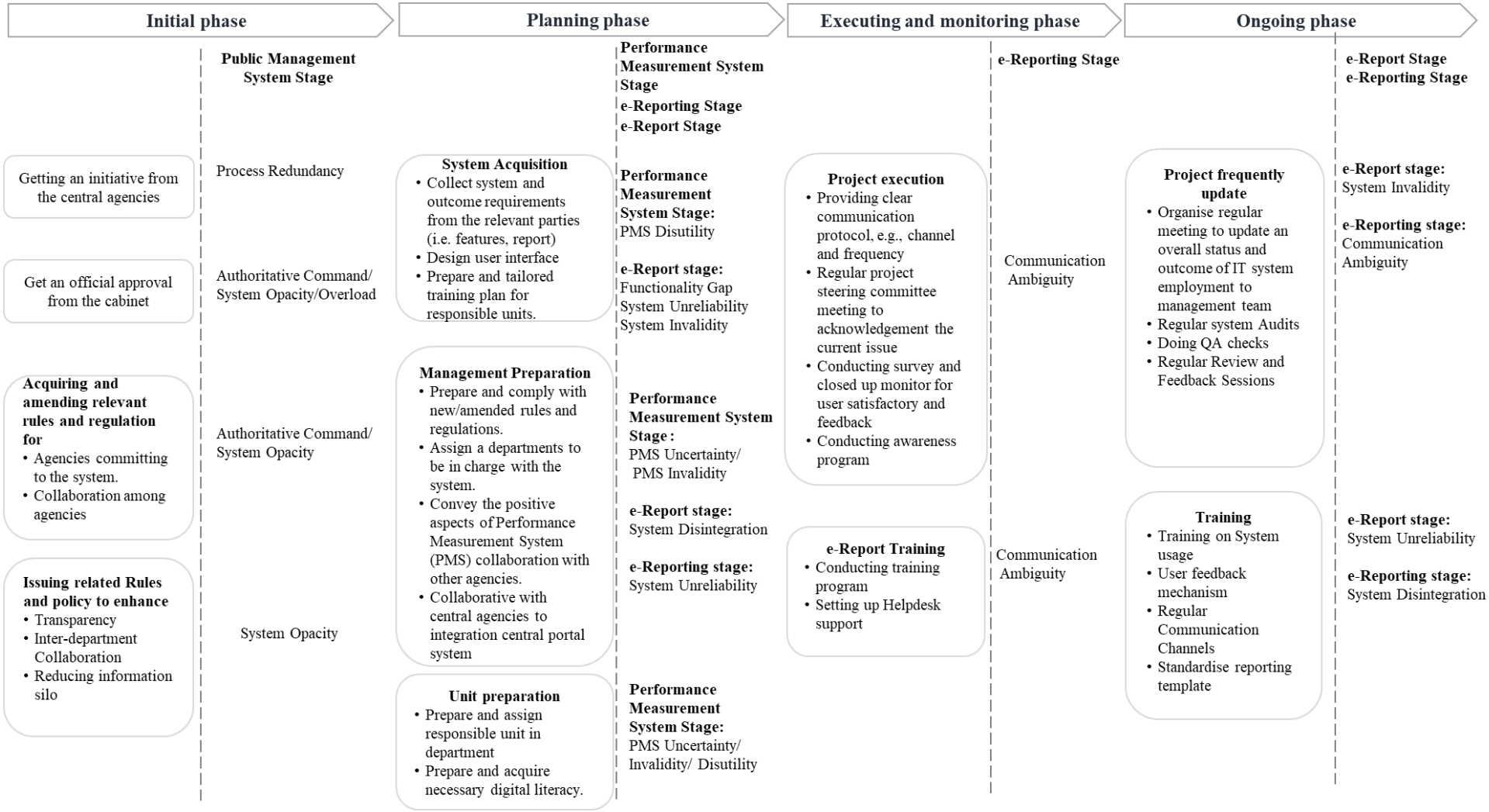
Maintaining regular communication channels, such as newsletters or discussion forums, is vital for facilitating information exchange among users, keeping them informed about system updates, best practices, and relevant announcements. Additionally, implementing standardized reporting templates ensures consistency in presenting information, simplifying data analysis, and promoting effective communication across various departments.

In the ongoing phase, transparency and adaptability take centre stage. Frequent system audits comprehensively examine functionality and performance, while proactive question-and-answer sessions address stakeholder concerns, fostering a culture of openness and collaboration. Presenting implementation results to the cabinet strategically provides an opportunity for essential modifications based on findings.

The insights gleaned from system performance, user feedback, and audits serve as invaluable inputs for refining and optimizing the IT alignment initiative. This adaptive approach ensures that the system evolves in tandem with organizational needs and technological advancements. Through diligent execution, consistent communication, and ongoing evaluation, organizations can achieve sustained success and efficacy in system deployment. This ongoing commitment to excellence aligns the IT initiative seamlessly with

the broader mission and vision of the organization, making the ongoing phase not just a culmination but a continuation of the strategic journey. Adaptability and responsiveness become the hallmarks of organizational success, as illustrated in the figure 6-1 below depicting the IT alignment action plan process.

Figure 6-1 IT Alignment Action Plan



6.5 Limitations and Recommendation of the Study

Understanding the research findings within an academic framework necessitates acknowledging the inherent limitations in this study. The first limitation pertains to the examination of a single setting, raising questions about the generalizability of the findings beyond this specific context. Interviews conducted in Thai and translated into English introduce the potential for misinterpretation, as nuances in language may be omitted, impacting the fidelity of the translated data.

Furthermore, this study focuses on user experiences with information technology systems, inherently laden with subjective viewpoints. While this methodological choice aimed to cross-verify data and mitigate potential exaggeration (Lincoln and Guba, 1986, Bell et al., 2022), it presents a limitation in terms of the subjectivity involved. Additionally, this research represents the initial investigation into misalignment in the execution of a nationwide IT system used by governmental departments, which, while novel, may constrain the range and depth of insights obtained (Jonathan et al., 2018, Jobarteh et al., 2020, Ridwansyah and Rusu, 2020). The relatively narrow viewpoint from the sample of thirty-eight participants, though offering valuable perspectives, may not fully capture the diversity of experiences within the entire public sector. Notably, the data comes from a relatively small sample, posing challenges in extrapolating results to encompass the entire public sector (Yin, 2014). Differences in IT usage perspectives among different generations may affect the generalizability of the findings (Chreim et al., 2007). While younger participants provide insights into system utilization, older individuals likely offer a more comprehensive understanding of the performance evaluation process and their overall experiences with information technology systems.

Similarly, qualitative research inherently brings issues impacting validity and reliability (Bryman, 2016, Bell et al., 2022). This study acknowledges constraints arising from the interview technique and broader research context. Regarding interviews conducted in Thai and translated into English, the study employed quality control mechanisms to mitigate misconceptions or mistakes. A skilled expert fluent in both languages reviewed the translated data to ensure accurate representation. The study faced challenges related to the global spread of the COVID-19 pandemic during the data-gathering period. Travel restrictions hindered physical travel for crucial data collection and interviews. Shifting to virtual online interviews introduced unique challenges, including complex scheduling due to time disparities between the UK and Thailand. Despite the flexibility of online interviews, they

lacked the tangible rapport associated with in-person discussions. Additionally, the remote work situation and simultaneous meetings may have impacted participants' focus during interviews.

Future research directions can be outlined below.

Firstly, the current body of literature predominantly concentrates on individual aspects within the realm of information technology (IT), specifically delving into either IT alignment or IT implementation success (Chan et al., 2006, Luftman et al., 2015, Liang et al., 2017). However, there is a discernible gap in the literature concerning a holistic exploration of the entire process that encompasses both IT alignment and IT implementation. Integrating studies on both IT alignment and IT implementation would contribute to a more comprehensive understanding of the intricate dynamics within the IT paradigm. This approach aims to bridge existing gaps and provide insights that offer a fuller picture, potentially benefiting public organizations seeking a more nuanced and complete perspective on IT integration.

Secondly, adopting a quantitative research approach, particularly multiple case studies, in future studies can enhance generalizability and validate findings. Exploring alternative theoretical frameworks, such as actor-network theory or organizational theory, may provide fresh perspectives on IT (mis)alignment. In addition, future research could delve into the perspectives of individuals in management positions, including department directors, politicians, and cabinet members. Understanding their viewpoints on IT (mis)alignment is crucial, as they play a pivotal role in influencing alignment through policy decisions.

Lastly, future research could explore the unintended consequences of misalignment in IT systems, an under-researched area. This involves investigating the effects of misalignment in terms of investment, system worthiness, and suitability, offering valuable insights into potential ramifications.

This study introduces a novel IT alignment definition and identifies twelve elements that impede public IT alignment from an operational perspective. These elements encompass IT objectives, IT projects, and the public management system. The proposed framework aims to ensure IT alignment in public organizations. While limitations of the research may exist, the study suggests avenues for future research to further extend the existing knowledge on IT alignment.

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Appendices

Research Ethic Approved

Consent Form

Participant Information Sheet

Interview Questions

Research Ethic Approval

18 February 2021

Dear Naruemon Tiyasangthong

College of Social Sciences Research Ethics Committee

Project Title: Misalignment in IT based regulation

Application No: 400200092
The College Research Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. It is happy therefore to approve the project, subject to the following conditions:

- Start date of ethical approval: 18/04/2021
- Project end date: 30/04/2024
- Any outstanding permissions needed from third parties in order to recruit research participants or to access facilities or venues for research purposes must be obtained in writing and submitted to the CoSS Research Ethics Administrator before research commences. Permissions you must provide are shown in the *College Ethics Review Feedback* document that has been sent to you as the Collated Comments Document in the online system.
- The data should be held securely for a period of ten years after the completion of the research project, or for longer if specified by the research funder or sponsor, in accordance with the University's Code of Good Practice in Research: (https://www.gla.ac.uk/media/media_490311_en.pdf)
- The research should be carried out only on the sites, and/or with the groups and using the methods defined in the application.

    - **Approval has been granted in principal**: no data collection must be undertaken until the current research restrictions as a result of social distancing and self-isolation are lifted. You will be notified once this restriction is no longer in force.

- Any proposed changes in the protocol should be submitted for reassessment as an amendment to the original application. The **Request for Amendments to an Approved Application** form should be used:
  https://www.gla.ac.uk/colleges/socialsciences/students/ethics/forms/staffandpostgraduateresearchstudents/

Yours sincerely,

Dr Muir Houston
College Ethics Officer

University of Glasgow

College of Social Sciences

Consent Form

Title of Project: Misalignment in IT-bases regulation

Name of Researcher: Miss Nauremon Tiyasangthong
Name of Supervisor: Dr. Wee Meng Yeo and Prof Anna Morgan-Thomas

Please tick as appropriate

Yes ☐ No ☐ I confirm that I have read and understood the Participant Information Sheet for the above study and have had the opportunity to ask questions.

Yes ☐ No ☐ I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

Yes ☐ No ☐ I consent to interviews being audio-recorded.

Yes ☐ No ☐ I acknowledge that copies of transcripts will be returned to participants for verification upon request.

Yes ☐ No ☐ I acknowledge that participants will be referred to by pseudonym.

Yes ☐ No ☐ I acknowledge that there will be no effect on my performance score/employment arising from my participation or non-participation in this research.

I agree that:

Yes ☐ No ☐ All names and other material likely to identify individuals will be anonymised.

Yes ☐ No ☐ The material will be treated as confidential and kept in secure storage at all times.

Yes ☐ No ☐ The material will be destroyed once the project is complete.

Yes ☐ No ☐ The material will be retained in secure storage for use in future academic research.

Yes ☐ No ☐ The material may be used in future publications, both print and online.

Yes ☐ No ☐ I waive my copyright to any data collected as part of this project.

Yes ☐ No ☐ Other authenticated researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.

Yes ☐ No ☐ Other authenticated researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.

Yes ☐ No ☐ I acknowledge the provision of a Privacy Notice in relation to this research project.

I agree to take part in this research study ☐

I do not agree to take part in this research study ☐

Name of Participant …… Signature
……

Date ……

Name of Researcher ……Signature
……

Date ……

…… End of consent form ……

University of Glasgow
College of Social Sciences

Participant Information Sheet

Study title and Researcher Details. Misalignment in IT-based regulation.

Invitation Paragraph
You are being invited to take part in a research study. Before you decide to take part, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would like more information. Take some time to decide whether or not you wish to take part.

Thank you for reading this.

What do I have to do?
The purpose of this study is to explore how the information technology in a performance measurement system, in this context – eSAR, are undertaking the practice during the performance process in public organisation within the fiscal year. This research seeks to understand how information technology enables or constrains organisational performance by exploring (1) their experiences using the electronic system as well as eSAR system in regarding to rule, practice and the IT artefact itself; (2) what are the challenges they are facing during the use of the electronic system; and (3) their voice for improvement of the eSAR system itself to improve organisational performance. You are being invited to take part in a research study because you are an experienced public employee and have responsibilities in the performance measurement process in your organisation.

If you decide to take part, you will be given this information sheet to keep (and be asked to sign a consent form). The interview will take about 30-60 minutes. You do not have to answer any questions that you do not want to, and you can withdraw at any point until the end of the interview. You do not have to give a reason in the case of a withdrawal. You can contact the researcher at any time to ask questions about participation.

You do not have to participate in this study, and if you choose not to do so, it will still be possible for you to participate in other studies conducted by the College of Social Sciences or the University of Glasgow. Your personal data will be destroyed immediately after the completion of my study (30/01/2024). You may also withdraw from the study any time until the analysis is completed (30/01/2024). If you change your mind after agreeing to participate, please let us know before this date, and we will remove entirely any information that you do not feel comfortable sharing.

Keeping information confidential

Interviews will be recorded only for use by the research team, and transcription will be kept in a password-protected electronic file. Your name will not be mentioned, and your comments will be anonymised by using participant identifiers. Assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is uncovered. In such cases, the University may be obliged to contact relevant statutory bodies/agencies.

The results of this study

The results from this thesis will be published in academic and practitioner journals and in my doctoral thesis arising from the published articles. A summary of the results will be made available to any participants who request it.

The anonymised research data will be retained for a period of up to 10 years, according to the University postgraduate research code of practice. The research data will be stored, and eventually destroyed, following University policies.

What are the possible disadvantages and risks of taking part?

There are no reasonably foreseeable discomforts, disadvantages, distress or risks to participation.

What are the possible benefits of taking part?

As there is limited empirical research around the topic of information technology and performance measurement system, you will be part of a pioneering research project. Your participation will play an important part in creating an understanding of how public employee are undertaking eSAR in practice in the organisational performance.

Contact for further information

This study has been considered and approved by the College of Social Sciences Research Ethics Committee.

If you have any questions about this study, you can contact me: Naruemon Tiyasangthong (n.tiyasangthong.1@research.gla.ac.uk) or my supervisor Dr. Wee Meng Yeo (Weemeng.yeo@glasgow.ac.uk) and Prof. Anna Morgan-Thomas (Anna. Morgan-Thomas@glasgow.ac.uk

To pursue any complaint about the conduct of the research: contact the College of Social Sciences Ethics Officer, Dr Muir Houston, email: Muir.Houston@glasgow.ac.uk

Thank you for agreeing to take part in the study!

_____End of Participant Information Sheet_____

Interview Questions

Introductions, background to project, consent

Q1	Please describe your current roles and responsibilities with respect to the eSAR system.
Q2	Please describe the process how do you make the self-assessment report on performance measurement. (how you collect data, the workflow to submit the report)
Q3	What are the expected outcomes of using the eSAR system?
Q4	What is the user perception toward the eSAR system? How eSAR system enhance organisational performance?
Q5	Are you aware of any rules/guidance/relating to the eSAR system?
Q6	What, in your view, are the main challenges in using eSAR system?
Q7	Is there anything else you would like to add?