Transparency and Accountability in Government Payment Systems: Financial Transfers in the Social Security Office of Thailand

Thesis Submitted for the Degree of Doctor of Philosophy

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Abstract

Despite the growing adoption of cash and digital money for government payments, implementing digital payment systems can face acceptance issues such as transparency shortcomings, service delays and accessibility problems that undermine public trust in government payment systems. Across the world, government agencies have begun using digital technologies such as digital payment and e-services to boost public confidence in their financial operations. These steps are, in large part, intended to reduce corruption and improve government services through increased transparency and accountability (T&A). The Social Security Office (SSO) in Thailand is one such organization that has taken this route and has emphasized financial disclosure in order to improve T&A in its claims processes. The intention of this is to empower insured people through feedback channels that foster trust in the payment process.

The core objective of this research is to explore the influences that enhance T&A in benefit payment systems. Despite the growing focus on enhancing T&A to bolster credibility among government agencies, the role of T&A and the ways to improve T&A in government payments remain unclear. To address this gap, this thesis reports a study to investigate collaborative work in the payment system and then explores T&A within the benefit payment activities by interpreting participants' experience of claims in the Thai SSO. The thesis draws on a narrative approach with in-depth interviews in two data collection studies. The first study interviewed insured persons and government officers to understand the work involved in enabling social security payments. We found that although the demand for digital G2P payment systems has increased, some claims were still processed via paper documentation and cash payments due to the inaccessibility of digital services to some claimants. The key finding was the selection of payment methods to facilitate individuals lacking access to the banking system by offering compensation in cash or a postal order instead of digital transfers. Such findings highlight the importance of accommodating diverse needs and circumstances, ensuring that access to essential services remains inclusive and equitable.

Building on our understanding of the benefit payment process, we further explored T&A processes and practices within the payment system in a second interview study of public

officers and insured persons. These findings reveal the potential T&A in the SSO back and front office systems, which can improve the SSO's work performance and citizen trust in their payment decisions. *'Back-office systems'* primarily handle internal processes such as claim processing, while *'front-office systems'* directly involve insured person interactions. Data and information generated by back-office systems flow towards front-office operations to facilitate citizens' service and responsiveness, such as SSO regulations and tracking claims. However, attracting citizens to engage with information and services solely through digital platforms posed a significant challenge for the SSO. Hence, social influence surrounding insured persons emerged as a crucial driving force. Furthermore, tracking payment records and incorporating citizen feedback regarding complaints and expressions of opinions about the SSO services fostered a culture of accountability and responsiveness within the organization, ultimately contributing to a more effective T&A mechanisms in the SSO payment service delivery.

The outcomes of this research provide contextualized illustrations of the role of T&A in SSO activities and identify T&A guidelines for researchers and designers so that the needs of public officers and insured persons can be foregrounded in the analysis and development of future payment systems. This thesis leverages the findings to discuss research implications regarding systems design and use, and in determining appropriate policy for the design of social security benefit payment systems and services, and e-government payment systems.

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Declaration

This thesis has not been presented as part of any degree, either at this university or elsewhere. It represents my individual effort, with numerous ideas stemming from discussions with my supervisor, Professor Mark Perry. The content of this thesis has not been published elsewhere, except as detailed below.

Publications:

1. Satjawisate, S., 2023, January. Building Digital Accountability in Hybrid Work: Working together to enable benefit payments in Thailand. In *Companion Proceedings of the 2023 ACM International Conference on Supporting Group Work* (pp. 39-41).
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All studies included in this research have obtained the necessary ethics approval, and the corresponding documentation can be located in Appendix.

Abbreviations

- Codebook TA - Codebook Thematic Analysis
- CRCs - Citizen Report Cards
- CROs - Civil Registration Offices
- CSCW - Computer-Supported Cooperative Work
- EFTs - Electronic Funds Transfers
- FAQs - Frequently Asked Questions
- G2P - Government-to-Person
- GDPR - General Data Protection Regulations
- HCI - Human Computer Interaction
- HR - Human Resources
- ICTB - Information and Communication Technology Bureau
- ICTs - Information and Communication Technologies
- IS - Information System
- ISSA - International Social Security Association
- KPIs - Key Performance Indicators
- OGD - Open Government Data
- P2B - Person-to-Business
- P2G - Person-to-Government
- P2P - Person-to-Person
- PDPA - Personal Data Protection Act
- RAT - Recovery Accountability and Transparency
- Reflexive TA - Reflexive Thematic Analysis
- Reliability TA - Reliability Thematic Analysis
- SSA - Social Security Administration
- SSB - Social Security Benefit
- SSF - Social Security Fund
- SSO - Social Security Office
- SSS - Social Security System
- T&A - Transparency and Accountability

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Chapter 1: Understanding the Frontier of Benefit Payment systems and its Transparency and Accountability

1.1 Research Background

The rapid evolution of digital technology has ushered in new modes of human interaction, propelled by Information and Communication Technologies (ICTs), aimed at optimizing traditional government services. Central to the administration of government agencies is the provision of essential financial services crucial for stimulating economic growth and enhancing citizens' well-being (Electronic Government Agency, 2017a). These services encompass vital transactions such as tax payments, tax returns, and benefit disbursements, all contributing to the enhancement of citizens' quality of life. Moreover, these services underpin the smooth functioning of diverse sectors, including businesses, employees, ministries, and other governmental entities. To effectively manage these financial services, the Thai government has embraced the Digital Thailand 4.0 initiative (Electronic Government Agency, 2017b, Sagarik, 2021). This strategic endeavor seeks to digitally integrate the nation's economic and social development agendas by bolstering public sector services, notably by promoting e-payment services.

Alongside this, governments worldwide have recognized the indispensable role of ICTs in bolstering transparency within public sector organizations and institutions (Meijer, 2009). Transparency, by facilitating easier access to and sharing of information for citizens, engenders heightened engagement from both information providers and users, thereby amplifying government accountability. As underscored by the World Bank (2017), governmental transparency not only allows citizens to access information but also enables monitoring and oversight of public sector performance, provides channels for addressing public grievances, and encourages

citizen involvement in decision-making processes. Collaborative stakeholder participation in verifying information further enhances its credibility and acceptance.

According to a report by the International Social Security Association (ISSA), countries worldwide have successfully broadened their universal healthcare coverage by leveraging modern ICT platforms and digital payment transfers to enhance access to healthcare services and implement universal social pensions. In addition, promoting government transparency and accountability (T&A) can be achieved by adopting open government data (OGD), which allows citizens to easily access budget information and track payments made by all stakeholders, thereby discouraging corruption (Social Security Office, 2016). Despite the potential benefits of using ICTs, there are several hurdles to overcome, including the digital divide, data quality concerns, and privacy issues (International Social Security Association, 2019). These complexities make this set of advancements both challenging and multifaceted from a societal and interactional perspective.

In the context of Thailand's Social Security System (SSS), the Social Security Office (SSO), which works under the Ministry of Labor, is responsible for ensuring the welfare of workers by providing financial assistance in cases of sickness, unemployment, or retirement (Social Security Office, 2016). The SSO's existence ensures that Thai citizens can easily access healthcare services and have a reliable source of income. Even individuals who are unable to work can still receive financial assistance to provide for their families and themselves. The reserve Social Security Fund (SSF), aimed at improving the quality of life for the Thai people, has led to the SSO administering the largest pension fund in the nation. It is valued at 2.3 trillion Thai Baht, which equates to approximately 63.01 billion U.S. Dollars (the exchange rate of 36.5 Thai Baht per U.S. Dollar), boasting a substantial membership base, exceeding 10 million insured persons (Bangkok Post, 2023).

As the number of Thai insured persons increases, so does the volume of claiming benefits transactions that need to be processed. Similarly, the demand for services that address insured persons' inquiries or handle complaints continues to rise. Meanwhile, the number of staff in the SSO remains unchanged, this may lead to inefficient service, such as payment delays or insufficient staff to respond promptly to

public inquiries. One viable solution involves adopting Information and Communication Technologies (ICTs), such as e-payment systems and online services, as announced by Thailand 4.0 policy. These technologies provide faster access to financial information and services. In addition, the SSO has also strengthened public confidence by implementing a Zero Corruption policy to remind the SSO officers to maintain transparency in their duties. This policy provides opportunities for the public to access information and submit complaints about the work of officials. Through these means, the SSO can build transparency in claiming benefits processes that involve a large amount of money. Therefore, enhancing transparency and promoting accountability in operations are important goals for the SSO in fostering trust and ensuring the sustainability of the SSF for the Thai people.

1.2 Research Motivation

For the past two decades, Thai laws and regulations have aimed to increase government transparency by making information open and accessible and keeping information updated through various media, including websites, portals, and social networks (Tamronglak, 2023). Furthermore, the Thai government has promoted accountability through ongoing monitoring, compliance, and performance evaluations of its agencies (ibid.). However, Thai government agencies have been criticized as inadequate in T&A (Tamronglak, 2023, Keerasuntonpong et al., 2019), which not only perpetuates ongoing corruption but also undermines public trust (Keerasuntonpong et al., 2019, Bangkok Post, 2025). The problem is that corruption goes unseen when government actions are without transparency and lack of work inspection; thus, enhancing T&A is crucial as it can expose corrupt activities.

Along the same line as the Thai SSO operations, these problems raise motivations and questions regarding the need to build public trust in the transparency of SSO payments and accountability through thorough public scrutiny, which presents a challenge for policymakers and public offices in Thailand. To understand T&A in the benefit payment systems of Thailand, this thesis first begins by examining the behaviours around claiming benefits and user interactions in the payment systems. We use moneywork lifecycle to explain the interwoven actions and decisions around different types of payment, taking the SSO provincial level services in Thailand as a

case example. In order to explore payment habits between government officials and citizens, this thesis relies on the concept of moneywork from Human-Computer Interaction (HCI). This field is essential for understanding how participants use computer technology in government systems, with a focus on user experience and interaction. Alongside this, Computer-Supported Cooperative Work (CSCW) examines how participants work together with using technology as a medium to learn, share, and obtain benefits from government agencies. Through collaborative efforts, participants exhibit behaviors that enhance T&A by utilizing technology to effectively communicate policies and establish channels for public inquiries and feedback on officials' performance.

Most prior work in HCI and CSCW has centred around digital payment transactions, in which transactions involve transferring money from a personal account to a business account (P2B) to repay for goods and services. Nevertheless, the relationship between physical cash and digital currency can be intricate, and despite the presence of digital payment alternatives, there remains a significant societal need for physical cash (Perry and Ferreira, 2018, O'Neill et al., 2017). While digital transfers are becoming increasingly popular, it is imperative for payment options to remain adaptable to accommodate the diverse range of situations and circumstances in which money is utilized. Employing a 'one size fits all' approach to payment methods may not be suitable, as each scenario presents its own unique advantages and challenges (Kameswaran and Hulikal Muralidhar, 2019). For example, consider a rural community where internet connectivity is limited. In such areas, relying solely on digital transfers may exclude certain individuals who lack access to online banking services or face difficulty navigating digital platforms. Conversely, in urban centres where digital infrastructure is robust, digital transfers may offer greater convenience and efficiency. Therefore, tailoring payment options to suit the specific needs and preferences of different individuals and contexts is essential for ensuring inclusivity and accessibility. In addition, the multifaceted nature of human behaviour and decision-making factors significantly into this consideration, impacting not only business environments but also the realm of government-to-person (G2P) money transfers, particularly concerning the receipt and expenditure of social security benefit (SSB) payments. Understanding these complexities is crucial for designing payment systems that effectively meet the

needs and preferences of diverse users, ensuring accessibility and usability across various contexts. Additionally, exploring how these factors influence individuals' behaviours and financial decision-making in the context of government payments can provide valuable insights for policymakers seeking to optimize G2P transfer systems.

Furthermore, there is a lack of research that establishes any relationship between the moneywork cycle and investigating how T&A affects financial transactional work. When agencies incorporate digital technology into their payment systems, it can lead to transparent payment trails (Lochan et al., 2010) and promote financial accountability by allowing the tracking and inspection of the work done by the officials responsible (Hladchenko, 2016). For this reason, after examining the context of the benefit payment systems, this thesis extends this to explore search for appropriate T&A solutions for the SSO.

Several existing studies on T&A focus on a wide variety of organizations. For example, one study investigated how charity staff members perform their daily work activities. These tasks were supported by interoperable digital systems, enabling charities to tailor T&A standards to their specific work and financial practices (Marshall et al., 2018). Another study explored how blockchain technology could enhance T&A in an e-government system (Kameswaran and Hulikal Muralidhar, 2019). The authors suggest that technology alone cannot resolve T&A issues; other crucial factors must also be considered, including acceptability, check and control mechanisms, and legal and regulatory support (ibid.). Although these examples have focused on T&A within the local work system as perceived by customer facing staff, they do not address the broader perspective of promoting T&A throughout the organization, across both back-office to front-office systems. To address these gaps, this thesis examines the hidden work within the organization and explores the use of social T&A mechanisms to enhance the front-office payment system. This system comprises of frontline operations or services within the SSO that directly engage with citizens.

1.3 Research Aim and Objectives

The aim of this thesis is to explore the potential activities and technologies that can be designed and implemented to enhance transparency and accountability (T&A) in the Thai benefit payment process, with the purpose of understanding how stakeholders can leverage technologies to enhance collaboration and improve T&A in the Social Security Office (SSO) payment systems. This thesis provides an explanation of how financial transactions operate within the system, with particular emphasis on the interactions between public officers and insured persons, which are facilitated by digital technologies and citizen engagement initiatives. The findings will offer practical, theoretical, and policy implications that can inform the design of more transparent and accountable payment systems for policymakers, HCI designers, and the social computing research community.

The research objectives are:

1) To understand the participants' behavior around the payment systems at the Social Security Office in Thailand.
2) To examine the potential factors influencing the decision-making process regarding the disbursement of benefits, as perceived by both public officers and insured persons.
3) To identify how digital technology has impacted on transparency and accountability activities for the Social Security Office in Thailand.
4) To explore how participants engage with government services to make use of transparency and accountability features in the payment systems for the Social Security Office in Thailand.
5) To offer guidelines for enhancing transparency and accountability in the benefit payment processes to policymakers, designers, and research communities.

1.4 Research Questions

This study identifies two main research questions:

RQ1. How do participants interact with payment systems of the Social Security Office?

1a. How do participants collaborate with one another using analog and digital media in the payment process?

1b. How do participants make payment decisions?

RQ2. What are the influences that enable transparency and accountability in the SSO payment systems?

2a. How can digital technology enhance organizational transparency and accountability in the SSO payment systems?

2b. How can citizen engagement activities enhance social transparency and accountability in the SSO payment systems?

1.5 Research Approach for Conducting the Thesis

To answer the research questions indicated above, this thesis utilized a narrative approach, which is widely used in qualitative research because of its capacity to offer profound insights into people's experiences and viewpoints (Butina, 2015). By adopting this approach, I can effectively capture the complex and diverse nature of human experiences in a form that is relevant to the fields of HCI and CSCW. To do so, I explore personal claims experiences and interactions with others involved in collaborative payment processes and which draw on or contribute to T&A in payment transactions. Participants' narratives offer a detailed account of their journey toward receiving benefit payments, complete with a well-defined beginning, middle, and end of benefit transactions. I therefore employed qualitative methods to explore the complexities of users' behavior and their social interactions when interpreting and describing a personal experience narrative in the thesis.

Following this orientation, data was collected using narrative interviews to undertake an in-depth exploration of the participants' experiences. Narrative interviews can provide answers for the research questions as they not only enable the capture of participants' payment experiences and practices, but also gather rich detail on the complex aspects of T&A during participants' collaborative work with other people in those claim processes. In addition, the interviews can provide insight into the design of technologies to support cooperative work in payment processes, as addressed in the implications for design section.

Data collection for this thesis was affected by the COVID-19 pandemic. The process of gathering data in Thailand was made difficult by difficulties of international travel and the requirement for participants to maintain social distancing (see ethics in Appendix I and II). Consequently, online interviews became necessary. The reliability of the interviewed data in this thesis was ensured through the utilization of triangulated data, which allowed for a comprehensive understanding of the SSO benefit payment context and the confirmation of interview information from both public officers and insured persons.

Qualitative research frequently recruits from a small number of participants, with informants chosen based on specific criteria related to the research question, and participants are usually selected to gain in-depth insights, not to generalize the findings to a larger population. Similarly, this study examines participant experiences with benefit payments, as these experiences necessitate in-depth understanding and interpretation to capture the nuanced and complex nature of the government payment systems through small groups of participants.

This thesis is divided into two studies: Study 1) understanding the payment systems in the SSO, and Study 2) exploring and evaluating T&A in the payment systems for the SSO. In studies 1 and 2, public officers were interviewed using judgmental sampling as it was considered a suitable approach because this sampling selects individuals who have significant expertise or experience related to the phenomenon being studied (Tongco, 2007). Participants for the interviews were selected by the head of provincial social security in each province, who served as the gatekeeper and

understood the roles and responsibilities of their subordinates involved in the benefit payment process.

Conversely, snowball sampling was employed to select insured persons in Study 1, as it proved to be valuable when studying a specific user group or a particular behavior within the context of benefit payment. Snowball sampling typically begins by reaching out to a personal contact and then requesting them to refer other individuals to participate (Biernacki and Waldorf, 1981). The concept of snowball sampling is based on the idea that knowledge is not equally available to everyone and that certain individuals, due to their unique life experiences, possess more knowledge and access to a specific area (ibid.). However, the selection of insured persons in Study 2 takes into account more than just their general experience of claims with the SSO. In Study 2, I recruited insured persons with direct experience in utilizing the SSO e-services, allowing the study to examine T&A in citizen engagement (i.e., the citizens interact with the SSO's front-office systems). Consequently, Study 2 employed a two-stage sampling to select participants. The initial stage involved snowball sampling, and this was later supplemented by judgmental sampling. Here, the aim was to identify individuals who met the research criteria, specifically those with prior experience of using the SSO e-services, primarily the SSO official website and SSO Connect Mobile application.

To examine the findings from Studies 1 and 2, a hybrid thematic analysis was utilized, incorporating both deductive and inductive coding and the development of themes to analyze qualitative data. The integration of top-down (deductive) and bottom-up (inductive) coding processes in this approach facilitates a comprehensive and rigorous analysis (Proudfoot, 2023). Themes in deductive thematic analysis are predetermined based on existing literature or theoretical frameworks, while in inductive thematic analysis, themes are allowed to emerge from the data (Tafazoli and Meihami, 2023, D'Amore et al., 2021). For this thesis, the hybrid thematic analysis was used to define the specific themes to be explored in the research questions, as well as identify any new themes that arose from the interview data. To start, I adopted this approach to build an understanding of the existing notions of the moneywork lifecycle in the SSO and its T&A elements, which guided me to interpret the complex phenomena of T&A in the benefit payment systems. This method combines existing ideas and factors

while also remaining receptive to any new insights that are raised during the analysis of T&A influences, as revealed in the findings of Chapter 5.

1.6 Scope of the Study

According to the literature, money serves as a medium of exchange, and as such, it plays a vital role in the operation of governmental systems. The transactional process is where people utilize money within government systems to pay taxes, receive welfare, and obtain social security benefits (Csáki et al., 2013). However, using paper-based payments creates several obstacles in providing public services, such as cash loss and delays in fraud investigations. To establish trust in government agencies, it is important for them to carefully consider characteristics like accountability and transparency (T&A). Using an e-payment systems aims to reduce the manual process of keeping cash and make it easier to track historical payment information, and many government agencies are trying to promote the use of digital payment systems. Likewise, Thai government agencies have implemented a policy that outlines a master plan to support the implementation of standardized e-payment systems that align with existing technology (Chaluay et al., 2017). The intention of this is to leverage digital technology to enhance T&A in government operations and services (Yakean, 2020b).

In order to explore payment habits between government officials and citizens, this thesis relies on the concept of moneywork from HCI. This field is essential for understanding how participants use computer technology in government systems, with a focus on user experience and interaction. Alongside this, CSCW examines how participants work together using technology as a medium to learn, share, and obtain benefits from government agencies. Through collaborative efforts, participants exhibit behaviors that enhance T&A by utilizing technology to effectively communicate policies and establish channels for public inquiries and feedback on officials' performance.

To explore T&A in government payment systems in Thailand, this thesis examines government-to-person (G2P) payments employed by the SSO, an organization that carries out enormous number of financial transactions in Thailand. The SSO utilizes

digital payment systems, through the banking system, to streamline public payments. However, practical challenges are often encountered in this process. There are two distinct groups among the participants: 1) public officers employed by the SSO at the provincial level, as they are the ones who directly handle citizen payments, and 2) insured persons who work in Thailand and have experience claiming benefits with the SSO. These two groups can help us facilitate understanding and consider the issues faced in back and front office services. This research centres on T&A, with a particular focus on two primary domains: the Sapiens system, employed as a back-office mechanism for overseeing benefit payment transactions, and the front-office segment, which endeavours to assess the impact of T&A within SSO e-services on citizen engagement. This latter aspect offers citizens a platform to acquaint themselves with SSO services and to monitor the performance of officials.

The primary emphasis of this thesis is to explore the topic of T&A in the context of SSO benefit payment systems. However, it is important to note that this thesis does not deal with the detailed interaction design of SSO e-services in the Sapiens system, the establishment of new economic systems, the exploration of different forms of currency, or the development of software. These lie outside the scope of this thesis.

1.7 The Structure of this Thesis

Chapter 1 provides research background and motivation, research aim and objectives, research questions, research approach, as well as the scope of this thesis. The following parts provide a comprehensive overview of the structure of the thesis in the following manner:

Chapter 2: Transparency and Accountability in the Financial Transaction Landscape

This chapter discusses the relevant research, which draws from three literature areas: First, money and moneywork in HCI provides the understanding of the digital money and digital payment work and pulls from several fields such as economics, sociology, and computer science. Second, this chapter reviews transparency and accountability

(T&A) in government operations to determine the scope of T&A for this thesis. Finally, this chapter defines the discipline of CSCW to explain the behavior and interactions between a large group of people, computers, and complex work systems. This can help to identify and analyze human behavior and government work practices, which relate to promoting transparency and accountability within the organization.

Chapter 3: Research Methodology

This chapter employs a relevant data collection approach using narrative within qualitative research. This chapter provides a comprehensive explanation of the research design to highlight multiple challenges that can potentially influence the design of research. It also shows how to apply the knowledge of the moneywork lifecycle and T&A factors in this thesis to better understand the practical use of them that are critical to data analysis. Explicitly, this chapter offers a rationale for collecting narratives through online interviews and explains its selection and use of thematic analysis to interpret the collected narrative data used in Study 1 to understand the payment systems in the SSO and in Study 2 to explore and evaluate transparency and accountability in the SSO payment systems.

Chapter 4: Collaborative Work of G2P Payments

This chapter answers the first research question on how participants interact with the SSO payment systems. The findings relate to the participant's experiences with using digital technology and services in relation to activities involved in claims processing, encompassing both cash and digital payments. The financial transactional work is explored through the knowledge of moneywork and analyzes the payment process in the context of socio-technological systems when insured persons interact with government agencies.

Chapter 5: Transparency and Accountability Practices in Benefit Payments

This chapter addresses the second research question by investigating the various influences that contribute to promoting transparency and accountability (T&A) within payment systems. The facets examined in this investigation stem from the scrutiny of participants' behaviours during their interaction with the Sapiens system as a back-

office system and their engagement with SSO e-services. These e-services are designed to align with the public's needs and function as the front-office system, impacting citizen engagement. The findings highlight the importance of T&A factors in enhancing the government payment systems, as outlined in Chapter 2 Section 2.3.5. Additionally, this study examines new elements of T&A elements that have emerged through the analysis of narrative interviews.

Chapter 6: Synthesis and Reflections on Transparency and Accountability in Government Payment Systems

This chapter summarizes the research findings reported in Chapter 4 and 5. It explains the overall research findings, highlights the significant findings, discusses the results with literature review in Chapter 2, reflects on the research questions, and describes the research implications from each study in the thesis.

Chapter 7: Conclusion

The conclusion chapter covers the whole journey of the thesis, summarizing key findings and discussing contributions to knowledge. In addition, this chapter analyzes the research's limitations, future directions and personal reflection.

Chapter 2: Transparency and Accountability in the Financial Transaction Landscape

2.1 Introduction

The widespread adoption of digital technology has dramatically changed the financial transaction landscape, generating new dynamics in how money is managed and transferred. This chapter reviews the complex interplay of digital money, government payment systems, and transparency and accountability (T&A) principles in the context of Human-Computer Interaction (HCI) and Computer Supported Collaboration Work (CSCW).

The first part of this chapter reviews the literature covering the concept of money and its functions, with a particular focus on electronic payments, the role of electronic money, such as mobile payments, and innovative banking services. We discuss the transformation of money into digital forms and how this has influenced the work performed between people and their technologies, called *'moneywork'* in HCI.

The second part of the chapter discusses the principles of T&A within government. It specifically examines how these principles are manifested in the context of digital technology in the public sector and financial mechanisms. Additionally, it outlines potential factors for fostering T&A.

The final part of the chapter begins with a definition of CSCW in the broader context of HCI. CSCW is a research field that investigates how people collaborate using technology. Following that, the section examines into the role of collaborative work in payment systems and addresses the ideas of T&A in CSCW.

2.2 Money and Moneywork in HCI

In the 17th century, the government central banks began to issue a national currency or fiat money to replace the role of private money issuers (Wray, 2012). This transition resulted in the construction of a centralized authority that controlled and oversaw money movement, representing a shift in how currency and assets were handled. Centuries later, however, technological advances led to a new era in which a revolutionary change of money into digital money is taking place in how we use currency, converting it into an electronic format that fulfills multiple roles, such as facilitating transactions, measuring value, and preserving wealth. This technological shift signifies a significant transformation in our understanding and utilization of money, moving away from conventional physical manifestations and towards a more interconnected and digital financial environment. The characteristic of payment in digital money is that it has cash equivalence, so it can be used in transactions of goods and services (Dodgson et al., 2015). To understand the meaning and the ways of using money in general terms, I start this section with a description of money and its functions, electronic payment and its functions, and electronic money through banking services. Nevertheless, daily payments for goods and services are made using both cash and digital money. This shift has transformed user interactions, collaborations, and the use of digital technologies, significantly impacting user behavior, financial processes, and activities within payment systems. By examining the use of money, financial operations, and transactions, I draw on the literature of the moneywork lifecycle to describe in this section how different forms of money influence the interactions between people and their technologies.

2.2.1 Money and its Function

From an economic perspective, money is seen as a commonly accepted means for trading goods and services within a community, and it maintains its worth as a tool for making payments (Yang, 2007, Asmundson and Oner, 2012). Moreover, some authors define and discuss money based on its three fundamental functions (see for example, Bećirović, 2009, Chung, 2009, Beggs, 2023):

1) Medium of exchange: Money is commonly used to pay for goods and services since it removes the uncertainty about what different organizations will accept as payment (Beggs, 2023). As a standardized medium of exchange, money makes transactions more efficient by minimizing the time and costs of exchanging goods and services (Bećirović, 2009).
2) Unit of account: Money is a measured value in the economy (Bećirović, 2009), supporting meaningful units of prices and bank balances (Beggs, 2023). For instance, the dollar bill acts as an accounting unit by measuring the value of goods and services (Chung, 2009).
3) Store of value: Money stores its purchasing power over time (Bećirović, 2009, Chung, 2009, Beggs, 2023), providing flexibility in when producers and consumers decide to buy or sell. This eliminates the immediate need to exchange their income for goods and services (Beggs, 2023).

In most economies, governments have usually produced currency in the form of paper notes and metal coins. However, digital money can also function as a valid form of currency (Beggs, 2023), provided it meets three key characteristics mentioned earlier.

2.2.2 Electronic Payments Definitions

Over the last few decades, electronic payments have become more common and sophisticated. However, there are varied opinions on electronic payment definitions, with concepts from various viewpoints. In business services, the use of electronic payment (e-payment) is defined as the use of digital payment technology (Kilay et al., 2022). These two terms refer broadly to the use of electronic technology to make financial transactions (ibid.). Similarly, the literature reviewed in this thesis frequently uses these terms (e-payment and digital payment) interchangeably to refer to transferring money via digital devices.

Au and Kauffman (2008) define electronic payment as an electronic device utilized to initiate, authorize, and confirm a commercial transaction. This study focuses on the transaction process, which is similar to Hayashi (2015) definition of electronic payment, which involves a collection of functions, procedures, guidelines, devices, technologies, and standards used during payment activities. Kabir et al. (2015) view

electronic payment systems as the components and processes collection to transact and exchange monetary value between two or more parties via electronic means. Likewise, electronic payment, as explained by van der Westhuizen (2017), involves different methods to enable the transfer of money electronically between a bank and its customers or directly between customers. For example, customers can manage their bank accounts and transactions from a distance using internet or mobile banking services provided by telecommunications companies and banks (Ming-Yen Teoh et al., 2013). This integration exemplifies the core principles of electronic payment systems, which leverage digital communication technologies to enable bankers and customers to conduct financial operations without physical interactions. The increasing dependence on e-payment methods in modern banking is driven by advancements in technology and the increasing demand for seamless financial services.

Typically, governments recognize e-payments, such as electronic funds transfers, as legitimate forms of payment that fulfill all functions of money, as discussed in the next section (see Section 2.2.3). Electronic payments are accepted as a medium of exchange for goods and services, helping to minimize costs and time (Singh, 2004). Consequently, electronic banking has emerged as one of the popular methods for exchanges, as society increasingly accepts electronic payments as a channel for purchasing goods and services. This acceptance extends to government payments, where digital payment methods streamline public transactions, enhance efficiency, and reduce administrative costs (see Section 2.3.4).

2.2.3 Electronic Money through Banking Services

Developments in information communications and technologies (ICTs) offer potential for new services in the banking sector. These advancements not only enhance the use of current payment methods through digital platforms and communication networks but also open the way for entirely new ideas in making, processing, and receiving payments. This progress has led to creative ways of managing banking activities, such as through electronic banking, which includes electronic money, mobile payments, and other innovative banking services. Below, I describe the functions for these in turn:

1) Electronic money: Electronic money refers to a form of monetary value that is represented by a claim on the issuer, which consists of: a) electronic money retains its value and can be accessed through electronic devices (e.g., computers, smartphones, or dedicated e-wallets); b) the issuance of electronic money is dependent on receiving funds that equal or surpass the designated monetary value; c) entities other than the original issuer must recognize and accept electronic money as a valid mode of payment (Hartmann, 2006). Electronic money can be stored on servers and accessed through cards and devices. Examples of this type of money include prepaid cards, digital wallets like M-PESA in Kenya, or online services like PayPal. According to the World Bank, the term *'electronic money'* can cover a range of different products and services that allow for the transfer of money in digital form (Firpo, 2009).
2) Mobile payments: Mobile payments refer to payments made through a mobile device (Hartmann, 2006, Flood et al., 2013, Sorensen, 2023). This payment type is made possible by mobile phones and wireless communication, delivering new ways to access accounts and use payment services. Transactions completed with mobile phones include payments for digital goods, online orders, and purchases of physical items (Hartmann, 2006, Perry and Ferreira, 2018). Mobile payment systems either use money directly from commercial banks or, in cases where mobile service providers act as settlement agents, connect users to the banking sector. Therefore, developing viable models of cooperation between the banks and mobile providers is a significant issue for trading transactions (Hartmann, 2006).
3) Innovative banking services: Banking services can be broadly described as the interactions between a bank and its customers, as well as the delivery of banking products. Innovations in banking may come in the form of new products, new processes, or new ways of communication, such as Internet banking and mobile banking (Hartmann, 2006). Internet banking has become an essential source of distribution for banking services like retail payment transactions (Hartmann, 2006) and also government payment services (Cirasino et al., 2012). Mobile banking is another way to access banking services. It connects a mobile phone to a personal or business bank account,

providing services like withdrawals, deposits, bill payments, account transfers, and checking the account balance (Firpo, 2009).

At present, payment alternatives like online banking are considered a way to reduce the use of physical money, such as coins and banknotes (Schulze, 2004). This approach is gaining traction globally, including in Thailand. Under its Thailand 4.0 policy, the Thai government has been promoting the use of digital payments supported by the Bank of Thailand, which aims to develop a digital payment ecosystem to facilitate various financial transactions among individuals, businesses, banks, and government agencies (Ponsree, 2024). The move towards digital payments is seen as beneficial, mainly due to the innovative banking services it enables, enhancing efficiency and accessibility in financial operations.

Electronic banking offers a quicker and more convenient way to manage financial transactions because it allows customers to complete multiple transactions online without requiring to visit a bank or wait in line for a cashier or manager to handle their payments or documents (Saleh and Andrea, 2002, Nami, 2009). Online banking can also offer lower banking fees for consumers (Nami, 2009), track easily money laundering activities (Kumari and Khanna, 2017), make electronic payments 24 hours a day from anywhere, without requiring physical contact with the bank (Nami, 2009, Omariba et al., 2012). Furthermore, customers who use this payment method do not have to carry large sums of cash, which helps reduce the risk of loss or theft (Kumari and Khanna, 2017). Nevertheless, even though electronic banking delivers many benefits, there are also some drawbacks both for the banks and the customers who use this service.

The key drawbacks of digital/internet banking include abuse of electronic transactions and failure to protect customers from the theft of sensitive customer information to unauthorized parties such as hackers (Nami, 2009), as well as fraudulent misrepresentations (i.e., false or misleading statements) and increased international transfer fees (van der Westhuizen, 2017). The electronic funds transfers (EFTs) that involve a bank as the third party authorizing online payments and accessed through electronic banking systems, increase the potential for theft, fraud and money laundering (Hespeler, 2008) in electronic form. These drawbacks will result in an

imbalance in the level of security between customers and businesses involved in banking transactions.

2.2.4 Moneywork in HCI

In order to understand the everyday financial activities undertaken in a digital-physical hybrid environment, the term *'moneywork'* is described by Lewis and Perry, (2019, p.2) as *"the physical and social interactions that users make individually and collectively in order to enable transactions"* (see also Barros Pena et al., 2021a, 2021b, Perry and Ferreira, 2018). Perry and Ferreira examined the interactional work around the Bristol Pound (an alternative digital currency), focused on patterns of user behavior in money-related activities, their use of the technologies and social resources to enable the financial transactions. Their analysis emphasizes *"how people do transactions"* by describing the activities and artifacts involved and grouped as pre-, at-, and post- transactional work. These ideas propose a three-stage investigation of financial transactions as a distinct boundary for analysis. By doing so, this thesis can leverage these ideas to explore the collaborative work and execution of different users participating in financial transactions of regional bureaucracy (see more details in Section 3.6.1).

A significant body of work in HCI has examined the interactions and experiences provided by analog and digital money that have demonstrated how the design and representation of money have different situated social meanings and uses (Ferreira and Perry, 2014, Perry and Ferreira, 2018, Kameswaran and Hulikal Muralidhar, 2019). Previous studies of analog (i.e., non-digital) money have revealed some key limitations, for example, the difficulty of providing payment change (Kumar et al., 2011). Although coins and notes are relatively easy to spend, users are still often concerned about fraud and the safety of carrying them (Balan et al., 2009, Kameswaran and Hulikal Muralidhar, 2019). To enhance safety and prevent corruption associated with carrying cash, governments frequently advocate for the adoption of digital payments (Krishnan et al., 2019) which provides benefits including fast and secure digital transactions (Balan et al., 2009, Vines et al., 2012, Kameswaran and Hulikal Muralidhar, 2019), easier transaction tracking (Kaye et al., 2014, Kumari and Khanna, 2017, Lewis and Perry, 2019), reducing need to carry cash (Pritchard et al.,

2015, Kumari and Khanna, 2017, Yakean, 2020a), and corruption, and money laundering (Kumari and Khanna, 2017, Yakean, 2020a). Hence, reducing the production of unrecorded illegally earned funds and enhancing transaction monitoring is often seen as a means of increasing the transparency and accountability of the financial system (Jatau and Dung, 2014, Kumari and Khanna, 2017).

The introduction of digital payments has been uneven, and several studies show that digital payment methods have not been widely adopted by particular groups, most notably the elderly and people in remote, rural locations. For example, Vines et al. (2012)'s study about payments by older people in the UK found cheques to be considered as more flexible than other forms of payment. Likewise, Keates et al. (2000) explain how post offices have played a key role in banking services to deliver government benefits for customers aged over 65, because many rural banks and other local businesses are closing. Therefore, the study of financial services may uncover or reveal aspects that are not immediately apparent due to the technological factors, different users and activities involved in financial transactions (Kameswaran and Hulikal Muralidhar, 2019). Given these complexities in payment systems, moneywork in HCI can offer valuable perspectives on the processes of using digital currencies and financial technologies. This is because a moneywork orientation can shed light on the hidden work and endeavors undertaken by users to ensure the optimal functioning of these systems within their daily routines.

2.2.5 Section Summary

From an economic standpoint, money is seen as a widely accepted item that is exchanged for goods and services during the trading process. However, the revolutionary change in physical to digital money has transformed our perception of currency and facilitated a shift toward a more interconnected and digital financial environment.

The functions of money, traditionally defined as a medium of exchange, a unit of account, and a store of value, are not exclusive to physical money but can also be fulfilled by electronic money. Electronic money provides a convenient way for people to exchange value without the need for physical money. The process is facilitated

through electronic devices, and examples of electronic money systems include prepaid cards, mobile payments, and online payments.

In order to understand how people use cash and digital money in their everyday financial activities, the literature review on the moneywork cycle provides insights into the utilization of money in individuals' daily financial operations. It offers an opportunity to shed light on the hidden work within complex systems such as government payment systems and help describe the behavior of individuals' steps across all of the payment process. It allows researcher to collect experiences, attitudes, and beliefs regarding the adoption of digital technology to enhance T&A of each payment step.

To assist researchers and designers to understand the concepts of T&A, the next section will discuss T&A in government agencies that employ digital technology in their work processes to deliver public services.

2.3 Transparency and Accountability in Government

Governments on both the national and local levels are currently contending with a growing need for increased transparency and accountability (World Bank, 2017). Conversely, the direction is quite different in Southeast Asia. Gabriel (2017) has stressed the unfortunate state of governance in Southeast Asia when measured against global benchmarks of transparency, accountability, and other attributes associated with effective governance. While there may be variations across countries within the region, it is evident that governments in Southeast Asia must collectively strengthen their efforts to foster T&A. To this end, governmental bodies in Thailand are actively promoting the adoption of digital technologies, such as e-payment systems, to support T&A in their operations. This brings us to the importance of acknowledging key topics. Specifically, the definition of T&A, the role of digital technology in supporting T&A, financial transparency, and accountability mechanisms are crucial considerations. Building on this knowledge, the subsequent step involves exploring the range of factors that help support T&A. Exploring these factors provide

guidelines and scope for the thesis, weaving together the global context with specific regional challenges and solutions.

2.3.1 Government Transparency Definitions

The importance of transparency in government has garnered increased attention, particularly in the context of the growing influence of e-government, advancements in computing, and the pervasive impact of the Internet in the digital age (Bannister and Connolly, 2011). Consequently, transparency is not only acknowledged but actively promoted and facilitated in governmental processes and services. This alignment with good governance ideals is facilitated by the integration of digital technology. The rise of e-government, coupled with the benefits of computing and the Internet, has prompted a shift towards fostering transparency as a fundamental aspect of contemporary governance practices. This emphasis on transparency aims to enhance work procedures and government services, bringing them in line with the principles of good governance, through implementing e-government portals, open data initiatives, online public records, digital reporting tools, blockchain technology, and digital feedback mechanisms (Graglia and Mellon, 2018, Khairuddin, 2019).

Transparency is considered to be crucial in public administration, organizational management, and governance. As noted by Garrido-Rodríguez et al. (2022) transparency can be defined as the ability of public entities to provide access to their information, promoting trust, accountability, and participation among citizens. Transparency is considered essential for developing a reliable and responsible government (Kim and Lee, 2019) and is closely related to openness, information disclosure, and democratic governance (Garrido-Rodríguez et al., 2022, Kandhro and Pathrannarakul, 2013, Grimmelikhuijsen et al., 2013). Moreover, Kandhro and Pathrannarakul (2013) emphasize that *"transparency is visible decision-making,"* characterized by openness to public participation, allowing individuals to share their voices and provide feedback. This active engagement fosters collaboration between the public and organizations, working collectively towards a shared public objective. The practice of transparency by providing open data ensures that public services can be held accountable by remaining open to public monitoring. In creating transparency in public service systems, Stirton and Lodge (2001) set particular criteria for evaluating

how transparent a public service should be. They identify four fundamental mechanisms inherent to transparency: voice, representation, choice, and information. *'Voice'* involves citizens actively shaping public services. *'Representation'* focuses on institutionalized involvement of service users in setting standards, monitoring compliance, and enforcing compliance. *'Choice'* encompasses various ways individuals can influence services, such as selecting alternative providers or voting for elected officials. Lastly*, 'information'* is essential for informed decision-making, such as when consultation documents are available before decision-making events. These transparency mechanisms empower citizens by giving them the means to influence public services, thereby curbing misuse of authority, reducing corruption, and furnishing citizens with well-informed choices through transparent government information.

Government transparency is *"one of the keys to better governance"* (Grimmelikhuijsen et al., 2013). Conversely, a lack of transparency lowers the level of trust among citizens, resulting in feelings of exclusion from public administration and governance processes (Garrido-Rodríguez et al., 2022, da Cruz et al., 2016). By promoting citizens to be part of public management, transparency can be a critical instrument for balancing power dynamics between the government and the public, which is often perceived as a prerequisite for effective governance (Janssen and van den Hoven, 2015). Enhancing transparency within government institutions necessitates active public engagement, ensuring a balance of power between governments (as service providers) and citizens (as service recipients). Taking this perspective, Cotterrell (1999) posits that transparency entails not only the availability of information on public policy matters but also active citizen participation in knowledge acquisition, dissemination, and generation. Likewise, Grimmelikhuijsen and Welch (2012) describe transparency means making information about an organization or person available to the public. This allows people outside the organization to monitor on its internal activities and how well it is performing.

Despite widespread appreciation for transparency, practitioners and academics continue to use different definitions of the term. While some scholars focus on the effects of transparency on citizen trust, reduced corruption, and the balancing power of citizens as described above, transparency is also addressed as arising out of the

growth of information and communication technologies (ICTs) and the Internet (Grimmelikhuijsen et al., 2013, Meijer, 2009), which has opened up a new perspective on transparency as well as accountability. At this point, transparency and accountability as digital phenomena will be discussed later (see in Section 2.3.3).

2.3.2 Government Accountability Definitions

Elevated levels of transparency and accurate measurement of information, the decision-making process, and active citizenship, can help improve government accountability, fostering citizens' trust, and promoting good governance (Bauhr and Grimes, 2014, da Cruz et al., 2016). Transparency enables external actors to monitor and evaluate the performance of government officials, reducing the likelihood of corruption and mismanagement (Mabillard and Zumofen, 2017, Grimmelikhuijsen et al., 2013), making their actions accountable to the public. In order to foster trust among citizens, good governance should encompass not just transparency, but also accountability, thereby encouraging greater citizen engagement with the government sector. This section delves into these topics to provide a better understanding of the nature of accountability in government entities.

In terms of government accountability, it is the responsibility of government officials and institutions to demonstrate answerability, transparency, and responsibility for their acts and decisions (Nastiti et al., 2021). Being aware of responsibility ensures that government agencies operate in the best interests of the citizens they serve by explaining their duties and answering questions to the citizens (Ilelah et al., 2022, Bivins, 2006). This viewpoint is supported by Bovens (2010), who writes that the concept of accountability is claimed to be a type of duty of government officials. Furthermore, some authors separate accountability into *'horizontal'* and *'vertical'* accountability. Horizontal accountability refers to a situation in which the government keeps its officials accountable to prevent abuse of power by establishing an upper level of public authorities to govern lower level authorities through hierarchical processes, typically governed by laws (Hladchenko, 2016, Rahman, 2008). In terms of the vertical accountability, Hladchenko (2016) highlights the use of vertical accountability by citizens, social organizations, communities, and news media to monitor an official's performance. This approach involves questioning the

government's actions and inaction on policy decisions and implementation (Combaz and Mcloughlin, 2014, Ilelah et al., 2022).

Aligned with the principles of good governance advocated by scholars such as Beshi and Kaur (2020), accountability measures within government operations play a pivotal role in strengthening governance. This involves the establishment of sound policies, enhancement of public services, reinforcement of public trust, and the promotion of democratic ideals within society. Ilelah et al. (2022) stress the critical nature of accountability in governance, functioning as a bridge of trust between the government and citizens. It serves to inform citizens about the government's performance and provides avenues for seeking solutions when issues arise, as highlighted by (Adejuwon, 2014, Forster, 2004). Building on this foundation, the importance of citizen engagement emerges as a crucial component directly contributing to the accountability factors within government structures. As emphasized by Bucci et al. (2015), citizen engagement assumes a critical role in decision-making processes, ensuring that governments are not only accountable but also responsive to the public's demands and concerns. This reciprocal relationship between accountability and citizen engagement is further exemplified by Singh and Kaushik's (2020) reference to the MyGov platform in India. This platform facilitates direct interactions between citizens and government agencies, policymakers, and implementers, creating a channel for citizens to express feedback and suggestions on various government policies and plans. Consequently, MyGov's link between accountability in government and citizen engagement promotes transparency by fostering open communication between the government and its citizens, all essential elements for accountable and effective government operations.

As information technology advances, government agency performance can currently be tracked in (near) real-time data (Schillemans et al., 2013). This change has the advantage of providing citizens with timely information. However, some citizens have difficulties when engaging with government services because of their low level of ICTs literacy and skills (Wakabi and Grönlund, 2015) and this may prevent e-government services from being used to their maximum benefit. As a result, HCI designers must consider both the positive and negative aspects of using digital technology and adapt design solutions to suit social and economic circumstances.

2.3.3 Transparency and Accountability in eGovernment

Digital technology is increasingly used to improve T&A in government departments through a variety of means, including e-services, e-payments, and the integration of ICTs into government operations (Batubara et al., 2019, Qureshi, 2018, Hladchenko, 2016, Chaterera, 2016). Shim and Eom (2008), as an illustration of using ICTs to boost citizen participation in government, stress the potential of ICTs in lowering corruption through citizen e-participation. ICTs can make the communication process easier and faster for citizens to engage in compared to traditional methods of participation, as e-government websites provide more opportunities for citizens to express their opinions. Consequently, digital technology has the potential to improve internal and managerial controls, minimizing corrupt behavior and increasing government transparency and accountability (Bertot et al., 2012, Shim and Eom, 2008) by adopting digital technology, allowing citizens and oversight bodies to review government actions.

One way that digital technology promotes transparency is by giving individuals access to information such as government operations, finances, and decision-making processes via digital platforms that allow citizens to monitor and evaluate government performance (Hladchenko, 2016, Chaterera, 2016, Bertot et al., 2012). Likewise, Sakay et al. (2015) note that ICTs have proven reliable as a source for providing, retrieving, and disseminating information, ensuring transparency and sharing experiences among community groups, officials, and locals. In Africa, for example, to counter corruption, particularly within the context of local and national governments, there is a push for greater transparency and good governance through open access to public data (Adejuwon, 2014). Therefore, digital technology could play a crucial role in enabling key government stakeholders to promote T&A. Digital government initiatives increase government responsibility, making operations more transparent and thereby reducing opportunities for corruption (Kandhro and Pathrannarakul, 2013). By enhancing accountability within government agencies, citizens are empowered to utilize digital technology as a tool for active participation. This enables them to effectively track and monitor the performance of government officers (Batubara et al., 2019, Harekrishna, 2015), fostering greater engagement and transparency in governmental processes. This is consistent with Wakabi and

Grönlund's (2015) argument that digital technology enables citizens to interact with, monitor, and assess government service performance. In addition, digital platforms amplify citizens' voices to report misconduct complaints, providing anonymity and security when reporting corruption (Ardigó, 2019). Digital technology can also improve civic education through mass communication (Wakabi and Grönlund, 2015) and allow the government to respond more quickly (Davies and Fumega, 2014). The expeditious response of the government to queries, complaints, and other forms of communication from individuals can indicate government agencies' commitment to their duties and their willingness to be held accountable for their acts.

On the other hand, while digital technology offers benefits, it also presents deployment challenges. This underscores the importance of stakeholders being mindful of digital transformation. As an example, Sakay et al. (2015) show that developing countries' primary challenge in implementing e-government initiatives is the accessibility and adequacy of ICT infrastructure within both governmental and private sectors. For instance, many areas suffer from a lack of good infrastructure, weak education systems, and unequal access to technology (Sakay et al., 2015). Additionally, many government organizations are worried about the gap in internet access. It is also important to recognize that vulnerable groups, living in rural areas with poor accessibility, and individuals with lower incomes, face other barriers to communicating and participating with local governments (Driscoll et al., 2015). These barriers include lengthy procedures, language difficulties, or inconvenient office hours, which discourage people from getting involved (ibid.). The limited availability of technology or obsolete infrastructure can also hinder individuals' access to digital government services, educational resources, career possibilities, and welfare payments, hence contributing to the existence of a digital divide.

Government sectors rapidly employ digital technology to improve T&A by integrating ICT into daily operations. This technology could reduce corruption by increasing citizen involvement and providing the government agencies with digital platforms to access their information, such as operational details and financial records. However, deploying such technology presents difficulties, particularly in developing countries where ICT infrastructure is frequently lacking, and the digital divide remains a

substantial obstacle. These challenges emphasize the need for thoughtful digital adaptation to ensure equitable access and participation.

2.3.4 Financial Transparency and Accountability Mechanisms

E-Government is broadly defined as the strategic transformation of government services through the use of ICTs to enhance cost savings, accessibility, and the delivery of services and operations. This transformation aims to benefit citizens, businesses, and government officers alike (Azmi et al., 2016, Teo et al., 2008). The ability to conduct online transactions, particularly the transfer of funds, plays a significant role in e-government activities. Such transactions are frequently cited in the context of financial operations involving procurement or revenue collection, including the payment of fees, taxes, or fines (Treiblmaier et al., 2006).

According to the research by Satjawisate and Perry (2023) ,which references studies by Csáki et al. (2013) and Lochan et al. (2010), the trend in how welfare payments are made is moving away from the use of paper-based methods and towards electronic payment systems (e-payment); the intention of this is that by moving toward digital payments, there will be an increase in transparent payment trails (Lochan et al., 2010). There are two main reasons for this: 1) recipients have digital records of their payments and it minimizes the number of people 'touching' the money, reducing the number of potential leakage points; 2) financial service providers require more stringent identity proof for digital payments beneficiaries, making it difficult to hide the recipient's identity (Klapper and Singer, 2017). If the internal process is transparent, this not only prevents money loss but also protects financial information since officials and citizens can track and monitor all financial transactions at every stage. Moreover, the provision of open data is recognized as having many advantages for enhancing digital transparency in government. By sharing their information with the public, government agencies can create societal benefits such as monitoring government activities, improving the quality of public policy, increasing public trust in government, and corruption prevention (Bertot et al., 2012, Hogan et al., 2017, Purwanto et al., 2020). For this reason, the design and development of government payment systems must allow accurate and reliable reporting of financial transfers. This is crucial because transparent financial information will be accessible through public relations channels

of government agencies, including offline and online services. The dissemination of information to the public is an important strategy for enhancing accountability of government entities (Saldanha et al., 2022). Accountability in government functions as “a mirror to the organization” (Schillemans et al., 2013), reflecting past operations. By examining historical financial transactions, public organizations can gain insights into both their successes and failures. This retrospective analysis allows governmental entities to identify areas for improvement in their operational regulations, enabling policymakers to evaluate the effectiveness of existing regulations, identify gaps or areas requiring adjustment and make informed decisions about refining regulatory factors to enhance accountability in future operations. Leveraging historical financial transactions, therefore, facilitates the development of more robust and effective operational regulations, ultimately contributing to improved governance practices.

Traditional accountability, as commonly practiced, primarily centres on scrutinizing financial data and ensuring the legitimacy of expenditures (Schillemans et al., 2013). However, it often resembles little more than a straightforward report of income and expenses, lacking depth in addressing broader policy aspects. This one-dimensional nature of traditional accountability arrangements, compounded by their infrequent occurrence, typically once a year, restricts their effectiveness in facilitating organizational learning such as budget reporting and public hearing during the budget process (Hladchenko, 2016). In contrast, through information technology, organizations now have the capability to monitor their performance in (almost) real-time, presenting opportunities for more dynamic and responsive accountability practices. In consequence, accountability in the digital environment allows people and inspection organizations to check and understand a complex system's inputs, processes, and outputs, identify problems, and take steps to fix them (Diakopoulos, 2014, Saldanha et al., 2022).

In addition, technological advances that enable the emphasis on performance through interactive accountability mechanisms can be leveraged to encourage citizens to participate in making the government directly accountable (Schillemans et al., 2013). For example, e-government payments leave a digital trail, making tracking and monitoring financial transactions easier (Klapper and Singer, 2017). This can help eliminate corruption and promote accountability by making it more difficult for

individuals to engage in fraud without leaving a trace. Hence, with every corruption or financial misconduct, the past financial traces can assist citizens easily track their financial information to ensure that the government transfers their money safely and completely. Moreover, ensuring the country's financial stability necessitates an evaluation of the government's ability to manage budgets and spend money wisely (Citro et al., 2021), which will affect the ability to pay social welfare and benefits to citizens (Dekker et al., 2019). For instance, the Recovery Accountability and Transparency (RAT) board have launched of *'Recovery.gov',* a website designed to enable citizens to monitor the expenditure of the United States government, as promised by President Obama during his initial presidential press conference: *"every American will be able to go online and see where and how we're spending every dime"* (Schillemans et al., 2013, p.420). In the era of digitalization, individuals are afforded greater convenience and accessibility in verifying and retrieving financial transactions.

An overall outcome of this, the adoption of digital technology comes with both advantages and challenges that governments need to address. By solving these obstacles, Governments should carefully use digital services and be concerned about citizen engagement to enhance T&A in their payment systems. Consequently, this thesis explores T&A factors that emphasize the use of digital services within government agencies (i.e., government officers use digital payments) and external services (i.e., citizens use government e-services) to aid in the promotion of T&A in benefit payment systems.

2.3.5 Potential Factors in Transparency and Accountability

Computer-mediated communication has revolutionized how government officials operate communication, and information exchange between workplace layers has altered. A government's capacity to track individual and team performance can be improved dramatically by digital collaboration and information sharing. Moreover, provincial and district governments have upgraded their public sector organizations to improve operational efficiency and effectiveness with T&A capability at the federal and provincial levels of government through digital technologies (Kandhro and Pathrannarakul, 2013), such as e-payment, e-participation, and social media. These services enable closer engagement between government agencies and citizens who

can use them to inquire about legal regulations and obtain financial aid from government agencies. Improving government work procedures encompasses more than just enhancing communication services and disseminating information to the public; it also involves optimizing financial services, particularly the transactions between government agencies and citizens, commonly referred to as Government-to-Person (G2P) payments including various types of payments, such as income tax refunds, pensions, and social benefits (Klapper and Singer, 2017). Research by Cirasino et al. (2012) and Csáki et al. (2013) has shown that these transactions are frequent or occur in large numbers. The presence of a large number of financial transactions can pose challenges in terms of verifying and monitoring payment procedures. Due to this rationale, the Thai government seeks to promote T&A within the *'front-office system'* to address citizens' demands effectively. According to the literature on T&A in government payment systems, it tends to consider either the *'back-office system'* focused on *'system mechanisms'* and the front-office system based on *'citizen engagement',* which enhances T&A through access to government e-services. As a result, this study considers not just government official perspectives but also citizen perspectives through an *'overview system'*: an organization's internal and external perspectives on creating T&A. In this section, I investigate T&A from two high-level perspectives in trying to bridge this gap, which follows my previous works, as seen in Satjawisate and Perry (2023) and Satjawisate (2023).

In the back-office system of government operations, information is generated by government officials who are involved in the operational processes. It is crucial that this system operates transparently and is held accountable to ensure the accuracy and verifiability of the data it produces. Meaningful transparency in this context encompasses three key aspects: data transparency, process transparency, and transparency in decision-making and policy formulation. These dimensions of transparency are discussed by scholars such as Bannister and Connolly (2011), Hosseini et al. (2018), Batubara et al. (2019), emphasizing the importance of clarity and transparency in government operations. Transparency facilitates insight into the internal operations of government, while accountability serves as a tool to evaluate its performance (Romzek, 2000). When a government makes itself accountable to its citizens and fulfills its obligations in accordance with established standards (Graglia

and Mellon, 2018), it ensures T&A in its operational actions. The elements of accountability discussed in this thesis draw upon concepts developed by Vance et al. (2013) and Batubara et al. (2019), which include three key aspects: identifiability, monitoring and evaluation, and social presence. These dimensions of accountability shed light on the decision-making process within government entities and offer indicators of the effectiveness of public policy implementation. Based on the previously reviewed scholarly literature, table 2.1 presents a description of a T&A factors utilized to investigate T&A inside government payment systems.

Table 2.1: Factors in Transparency and Accountability for System Mechanisms (Back-Office System)

Concepts	Factors	Explanations	References
Transparency	Data transparency	Data transparency relates primarily to what information is required in the system, who may be included as stakeholders, when it will be used, and where it will happen.	Bannister and Connolly (2011), Hosseini et al. (2018), Batubara et al. (2019)
	Process transparency	Process transparency is the dissemination of information on the steps through which government processes progress. This addresses how information is handled, when task units and sub-units are completed, and how users can track the status of a process.	Bannister and Connolly (2011), Hosseini et al. (2018), Batubara et al. (2019)
	Decision and Policy transparency	Decision and Policy transparency concerns the government's intentions, decision-making, and policies. This includes explaining why and how a decision or policy is decided.	Bannister and Connolly (2011), Hosseini et al. (2018), Batubara et al. (2019)
Accountability	Identifiability	Identifiability allows an individual to monitor his/her acts and accept responsibility for those actions, which make it is a crucial facilitator of accountability.	Vance et al. (2013), Batubara et al. (2019)
	Monitoring and evaluation	Monitoring involves observing or keeping track of someone's actions, while evaluation is the process where these actions are judged or assessed by another person.	Vance et al. (2013), Batubara et al. (2019)
	Social presence	Social presence is the awareness of the effects on behaviour to another person in the system.	Vance et al. (2013), Batubara et al. (2019)

Government agencies often actively promote citizen engagement with their daily tasks to enhance T&A in government citizen service systems. This participation can provide citizens with valuable information to enhance their understanding of government policies and procedures (Lněnička et al., 2021). Such information can be made accessible through open government data (OGD), which encompasses digital technologies and social media platforms. In addition, individuals can monitor and evaluate the government's performance using these technologies. This thesis examines three key factors that drive citizen engagement with OGD: motivation (Hogan et al., 2017, Purwanto et al., 2020, de Souza et al., 2022), social influence (Purwanto et al., 2018, Purwanto et al., 2020, Zuiderwijk et al., 2015), and technical factors (Cai and Zhu, 2015, Purwanto et al., 2018, Purwanto et al., 2020). These factors are potential directions to explore the indicators that impact citizens' participation in OGD initiatives, ultimately enhancing government transparency.

Although utilising openness information in transparency efforts is a critical first step toward strengthening accountability, the path from transparency to accountability is challenging because the expectations of the results received by each citizen are different (World Bank, 2017). To better understand the needs of various individuals, it is recommended that governments should strengthen the *'citizen voice'* to hold bottom-up actors accountable through social accountability as viewpoints of accountability by external or social perspectives (Forster, 2004). This thesis examines three factors that increase accountability: tracking information (Stoney and Krawchenko, 2012, Joshi, 2014), complaint mechanisms (Joshi, 2013, Read and Atinc, 2017, Blair, 2018), and satisfaction surveys (Joshi, 2013, Ankamah, 2016, Read and Atinc, 2017). These factors are shown in table 2.2 to describe the T&A relationship on citizen engagement.

The research literature in this section offers valuable insights into the complicated identifying T&A, serving as a foundation for exploring and comprehending the challenges, possibilities, and potential solutions associated with online-offline payment systems. Its overarching aim is to explore T&A factors within computer-mediate payment systems and external points with citizen engagement aspects in the public sector.

Table 2.2: Factors in Transparency and Accountability for Citizen Engagement (Front-Office System)

Concepts	Factors	Explanations	References
Transparency	Motivation	Motivation encompasses the reasons why citizens engage with OGD, including the external rewards such as salary or pensions, compensation its offers (extrinsic motivation) or the enjoyment derived from participation (intrinsic motivation).	Purwanto et al. (2020), Hogan et al. (2017), de Souza et al. (2022)
	Social influence	Social influence relates to influence from important people who may affect a citizen's intention to engage with OGD, such as family, friends, colleagues, and social media communities.	Purwanto et al. (2020), Purwanto et al. (2018), Zuiderwijk et al. (2015)
	Technical factors	Technical factors refer to data classification, format, and description that are clear and easy to understand (readability), regularly updated (timeliness), and easily accessible to the public (accessibility).	Purwanto et al. (2018), Cai and Zhu (2015), Purwanto et al. (2020)
Accountability	Tracking information	Citizens can demand information from the government related to spending, process, and performance by tracking funding or spending, which makes information more credible, allowing them to protect their interests.	Stoney and Krawchenko (2012), Joshi (2014)
	Complaint mechanisms	Complaint mechanisms, such as hotlines, social media platforms, and systems designed to handle complaints, help to increase government accountability.	Read and Atinc (2017), Joshi (2013), Blair (2018)
	Satisfaction surveys	The public can show their satisfaction, and performance metrics of government agencies/officers are captured in surveys conducted by citizen groups or public bodies to improve their performance.	Ankamah (2016), Joshi (2013), Read and Atinc (2017)

Ultimately, the highlighted T&A factors provide more practical, effective, and relevant guidelines to examine in this thesis. These factors are crucial during the early stages of system design because they provide designers with a greater knowledge of the complex landscape in which these systems will operate.

2.3.6 Section summary

Transparency and accountability (T&A) are principles that complement and support one another. They collectively empower government officials and citizens by providing a platform to voice their concerns, influence decision-making processes, and ensure that decision-makers are held accountable for their actions. These two principles work together to establish comprehensive potential factors that provides vital information, resources, and opportunities to government officials and citizens to design policies, procedures, and guidelines for improving work performance. Researchers and designers need to understand the role and value of T&A in order to recognize the importance and benefits it can bring to government agencies and citizens. Among the key benefits of implementing digital technology in government institutions are increasing access to information, fostering financial accountability, and facilitating citizen participation. The literature suggests that digital technology has great potential to improve T&A in government. However, obtaining these benefits necessitates overcoming several problems to ensure that government agencies and officials can adopt and adapt digital technology successfully incorporated into government operations. There is currently relatively little research on T&A in public sector payment systems, as well as T&A when the public participates in financial information services via an e-service system. By exploring potential factors to improve T&A, it is critical to establish a clear research literature review to help identify the essential relevant elements affecting increasing T&A within the system and offering services to outsiders under scholarly literature. Furthermore, the motive of this study is to investigate the relationship between users and their social, technological, and economic contexts, which influence citizens' attitudes, opinions, and experiences when interacting with payment systems. As a result, the next section will explore the literature on how computer-supported collaborative work (CSCW) can help us understand the interplay between users and their socio-technical environments, particularly in the context of payment systems, transparency, and accountability.

2.4 Computer-Supported Cooperative Work (CSCW)

Computer-Supported Cooperative Work (CSCW) is a field that investigates collaborative practices among individuals and technology for organizational and social purposes (Pratt et al., 2004). Its objective is to obtain an understanding of the social and organizational elements connected with the implementation and utilization of collaborative systems in order to increase collaboration and improved collaborative work performance (Pratt et al., 2004, Bannon, 1992). By studying how CSCW works, HCI researchers and designers can develop improved collaborative technologies by defining future design patterns, assisting in the development of completely new tools, and contributing to the development of CSCW systems. This section describes the fundamental principles of CSCW and its connection to HCI and emphasizes the significance of CSCW for researchers and designers in the HCI field. This section also examines the literature on CSCW in the context of payment systems, transparency, and accountability.

2.4.1 CSCW in HCI

CSCW is often considered as a subfield of HCI (Lanamäki and Väyrynen, 2016), as some elements of CSCW have intersections and distinctions related to HCI. The core of the connection between CSCW and HCI lies in their shared focus on developing interfaces that facilitate efficient interaction and collaboration among users (Schmidt and Bannon, 1992). The field of CSCW primarily concerns itself with the development of systems that enhance the coordination of group activities. In contrast, HCI extends the scope of individual user interactions with technology (Bannon, 1992). The presence of common ground is apparent as both disciplines push for interfaces that improve user engagement and productivity. As Orlikowski (1992) notes, CSCW's contextual investigation of collaborative work settings supports HCI's user-centered design philosophy. This link is especially important because both professions emphasize the need to understand users' unique situations in order to design interfaces that respond to their requirements and preferences (Bannon and Bødker, 1997). The combination of CSCW's contextual awareness with HCI's user-centricity provides support to develop interfaces relevant to users' specific work contexts.

Although CSCW and HCI share a common emphasis on collaborative interaction design and context, there are distinctions between the two fields. Bannon and Schmidt (1989) highlight the differentiation between CSCW and HCI in their respective areas of emphasis: whereas HCI mainly concentrates on individual interactions, CSCW examines group dynamics, decision-making processes, and social interactions. While both disciplines acknowledge the significance of social factors, CSCW places particular emphasis on the collaborative dimensions of human-computer interaction and technology's role in facilitating collaborative work (Pratt et al., 2004). In this regard, CSCW entails a more profound exploration of the complexities of collaborative efforts, providing significant perspectives for developing interfaces that facilitate the establishment of trust, effective communication, and efficient group coordination.

CSCW's knowledge base contributes to HCI designers through its specialized focus on designing technologies that foster collaborative activities among individuals and groups, enhancing the HCI design landscape with valid and deep insights into the nature and diversity requirements of cooperative work and practices (Schmidt and Bannon, 1992). CSCW offers a distinct perspective on interface design that aligns with HCI's goal of optimizing user interactions. This relationship empowers HCI designers to create interfaces that facilitate seamless coordination, communication, and task-sharing while also integrating a contextual understanding drawn from CSCW's emphasis on collaborative work's social, cultural, and organizational aspects (Bannon and Bødker, 1997). Moreover, CSCW's research on usability in collaborative settings can contribute targeted design guidelines for addressing challenges such as information sharing and group awareness (Nielsen and Molich, 1990), improving HCI designers' capacity to create user-centered collaborative interfaces. In essence, CSCW's focused exploration of collaboration offers insights that mutually enrich HCI design practices, supporting the building of interfaces that balance user needs with the complexities of collaborative work situations.

2.4.2 Collaborative Work within Payment Systems

Collaborative work in payment systems can result in increasingly complex interactions, particularly as the rapid expansion of digital transactions necessitates communication with a diverse user base. This issue arises from several factors: the integration of advanced technologies, the need for robust security measures, and the diversity of user needs and preferences.

Effective collaboration among diverse stakeholders, including customers, service providers, and financial institutions, has emerged as a critical necessity for both public and private organizations, especially as human behaviors evolve with technological advancements. This section draws on the areas within CSCW to explain the detailed interactions between technology and human behavior within payment systems. It explains into various aspects, including the use of technology in payment systems, the application of socio-technical system concepts, system design considerations, and user adoption of digital payment methods.

CSCW, defined as the study of *'practical interactions'* around technology in real-world settings, offers valuable insights into collaborative work dynamics (Schmidt, 2011, Kuutti and Bannon, 2014) that are relevant to payment. It explores how people interact and coordinate with technology to rationalize and transform existing practices. For instance, research by Perry and Ferreira (2018) examines mobile device payment (the Bristol Pound) practices, scrutinizing user comprehension, technical constraints, usage patterns, and social interactions.

The field of CSCW explores the topic of *'designing systems'* for cooperative use to enhance collaboration among stakeholders efficiently (Ackerman, 2000, Grudin, 1994). This orientation helps to address how to design and develop workplace applications that rely on individual or organizational needs and social contexts in payment systems. For example, Schmidt and Simonee (1996) designed the framework for a coordination mechanism, which has been implemented under the name Ariadne. Their work repeatedly modified and refined processes in payment systems based on CSCW system design principles as guiding concepts in the development of coordination mechanisms, illustrating how CSCW can enhance the

functionality and efficiency of payment systems through iterative and context-aware design processes. This focus on iterative design and context-awareness aligns closely with the concepts of socio-technical systems, which focus on how social and technological parts are connected and rely on each other within organizations.

To understand organizational procedures and users' behaviors, *'socio-technical systems'* approach helps the designers and developers to consider the integration of technology within complex workplace systems that can explore how technologies are embedded inside the systems which involve interdependencies between people, norms, organizations, regulations, and technical components (Baxter and Sommerville, 2011, Kling, 1992). For example, a study conducted by O'Neill et al. (2017) investigates how loan payment are embedded in social contexts and socio-technical systems, which explores the significant of collaborative work within the loan payment systems.

In terms of *'adoption and adaptation',* the field of CSCW investigates the processes of adopting and adapting new technologies and practices through time (Orlikowski, 1992, Pipek and Wulf, 2009). This perspective provides a lens through which one can gain insights into the changing dynamics of digital payments and their impact on collaborative processes in the business context.

In the context of government payments, CSCW also offers crucial insights for examining collaborative work within public sectors. By drawing on CSCW literature, researchers can explore how users interact with technology within payment systems, applying socio-technical system concepts, considering system design factors, and understanding user adoption of digital payment methods. To integrate these essential concepts, CSCW facilitates a comprehensive understanding of the acts involved in leveraging technology for efficient payment solutions and comprehensively analyzes digital payments' role in government collaboration and service delivery.

To address the research question regarding user behavior in government payment systems, this research concentrates on literature pertaining to practical interactions, socio-technical aspects, as well as adoption and adaptation. Through *'practical interactions'*, CSCW can help identify and analyze the existing institutional work practices and routines. For example, Vyas and Dillahunt (2017) investigated resilient

behaviors among individuals receiving government welfare payments. Drawing on CSCW, their study looked at participants' daily activities and how technology supports them, considering factors such as spending and saving habits, awareness of government services, and personal objectives.

As the previous section, designers need to understand the difficulties inherent in financial transactions, which arise from users' evolving diverse demands and rapid technological advancements. To explore the embedded processes within collaborative work in government payment systems, the designers need to consider the principles of *'socio-technical systems'* in which technological, social, and organizational contexts are involved government payment tasks. For example, Vitak et al. (2018) draw on socio-technical approach to identify complex relationships between user experiences with online government payment services, focusing particularly on negative experiences and the lack of trust associated with data sharing through online platforms. Their findings revealed that users' behaviors were influenced not only by the advantages of digital technology but also by negative attitudes toward using digital payment methods, thus resulting in heightened concerns about protecting personal information.

To realize the benefits and risks associated with using digital payments in government agencies, they have prepared a multifaceted plan to *'adopt and adapt'* new technologies in their payment systems. This plan systematically integrates innovative technologies to suit and optimize their payment processes. For instance, Karusala et al. (2019) explore how health organizations and workers adopt and adapt mobile payment systems (M-Pesa) for salary payments, proposing an assets-based approach to address the existing resources or assets of users (e.g., worker's skill and knowledge) rather than focusing on the target user's need or problem.

Overall, the role of collaborative work within payment systems is significant, particularly with the increasing prevalence of digital transactions. This impact extends beyond individuals to various stakeholders, including service providers, healthcare facilities, and financial institutions. In this respect, CSCW can offer a useful perspective as a field dedicated to exploring how computer-based systems can enhance the capacity of collaborating actors to coordinate and articulate their activities

(Schmidt and Simonee, 1996, Schmidt and Bannon, 1992). This perspective is particularly relevant in the context of government payment systems. Researchers can investigate these systems to understand the broader social, organizational, and systemic roles that digital payments play in the delivery of government services.

2.4.3 Transparency and Accountability in CSCW

The collaborative work in the organization emerged within the field of HCI and its closely associated disciplines, including CSCW and Information System (IS), which expand their focus beyond examining individual user interfaces to encompass the analysis of group settings. These perspectives of HCI, CSCW, and IS are consistent with this thesis that explores the relationships between individual and group workers within their complex socio-technical systems. In order to achieve an understanding of the T&A within collaborative systems, this section begins with how organisations can build information transparency; it then addresses accountability within organizational work processes. Finally, I draw on social transparency and accountability to address user interactions and experiences when their social networking's communication is mediated with digital technology engagement.

It is increasingly common for organizations to emphasize the development of web-based services, which necessitates restructuring institutional processes where transactions of services are embedded, and optimizing the integration and organization behind the web platform (Chongthammakun and Jackson, 2010, Fountain, 2001). This can disrupt the organizational work process in the practices, procedures, and systems as well as impact on user behaviours and interactions, and therefore altering the forms of T&A. An example of transparency can be seen in an institution that offers well-defined and concise documentation of its operating processes, such as modifying procedures or policies (e.g. Matheus et al., 2021), that assists staff members in comprehending their respective duties and obligations, as well as the criteria and benchmarks for performance that are relevant to their tasks (Rahman et al., 2021). These practices can enhance transparency by facilitating effective communication among workers and navigating the organization's systems, processes, and policies. However, transparency makes institutions and their practices visible to a large group of people, providing those involved with insight and

control over institutions that affect someone's lives by disclosing personal information and allowing individuals to track and choose in relation to corporate data processing (Schade, 2023).

Some organizations utilize ICTs to establish a reliable and auditable trail, incorporating ID transactions and documents such as passports, driver's licenses, and citizen cards in their operational processes (Borchorst et al., 2012). This integration enhances accountability within the organization. For instance, in healthcare settings, accountability infrastructure often involves medical records systems that facilitate data comparisons among different hospitals within a province (Pine and Mazmanian, 2015). The sharing of data between hospitals is not only efficient but also allows doctors to track patient information seamlessly. Additionally, accountability for worker actions can be improved by providing a clear basis for evaluating performance (Pine and Mazmanian, 2015). Call center workers, for example, are often assessed based on Key Performance Indicators (KPIs) such as call duration and call volume, which are monitored periodically (weekly and monthly). Moreover, feedback on performance is provided based on these metrics (Colombino et al., 2014). Overall, using ICTs enhances organizations' accountability by establishing mechanisms for tracking, monitoring, and evaluating actions and performance, thus ensuring adherence to standards and regulations.

To handle large-group communication and collaboration via computer networks, Kügler and Smolnik (2013) point out the importance of incorporating user-created content (UCCs) into work systems, such as text messages, blogs, user profiles, images, videos, and activity streams. Social monitoring helps to increase the transparency of the working system by encouraging teamwork within the organization to learn and exchange information between groups of people with similar interests. However, communication barriers that block transparency can occur from out-of-date information because of information overload, information that is mismatched or difficult to interpret for the recipient, resulting in the recipient not being interested in participating or motivated to exchange information, and delays and poor performance in providing information produce tension and pressure for workers (Alsaedi et al., 2019b, Alsaedi et al., 2019a). To stimulate interest in receiving information, some researchers propose another aspect of transparency as social translucence, which

encompasses three key characteristics: *"visibility, awareness, and accountability, as building blocks of social interaction"* (Erickson and Kellogg, 2000, p.62). Socially translucent systems facilitate the visibility of social information, enabling users to perceive the activities and interactions of others within the system through, for example, showing online status, typing indicators, and read message receipts (Erickson and Kellogg, 2000). Providing information about the activities of others promotes accountability through tracking mechanisms to monitor and display user actions, holding them accountable for their behaviors (Alsaedi et al., 2022, Erickson and Kellogg, 2000).

Based on Mulgan (2000) and Bovens (2007), accountability means that people or organizations must explain their actions or decisions to those affected by them and be responsible for the results they create. The issue of social accountability, however, motivates workers inside an organization to actively interact between information providers and information recipients, for instance, negotiating face-to-face interactions by increasing public pressure through media campaigns and meetings with the public (Forster, 2004), or receiving complaints or queries via digital services such as the NHS Covid-19 app (Heaton et al., 2023). It is important to understand the broader societal impacts of these technologies to ensure responsible development and use that does not worsen existing inequalities (Diakopoulos, 2016). As a result, system designers and developers have to consider a diverse variety of users and their demands, with the combination of technological and social solutions required to handle this issue, which affects stakeholders and communities in the design and implementation of systems (Selbst et al., 2019) to help reduce inequality or neglect of voice from any group of users.

2.4.4 Section summary

This section shows how the fields of HCI and CSCW can be utilized to draw on designing in government agency payment systems that have a range of user groups. CSCW not only assists in analyzing workflow systems by looking at how workers interact within an organization or group of people but also how they engage with their surroundings and social dynamics. To that end, this review of CSCW literature aids in understanding how users or involved persons cooperate and work with digital

technology and how their interactions are shaped by, and impact on social, cultural, and organizational environments. We identify the benefits, difficulties, and concerns before concluding with a discussion of ideas for building collaborative work inside payment systems and increasing T&A from the perspectives of workers and their community networking.

2.5 Chapter Summary

Digital technology has been widely adopted in government payment systems to promote transparency and accountability (T&A). However, different countries have various perspectives on user experiences in the use of digital technologies. Challenges and obstacles in technology adoption also differ across nations. In Thailand, research on T&A remains limited, with few studies exploring its integration into operational systems and citizen engagement activities. Existing studies are often conducted separately, focusing either on back-office or front-office systems. This fragmented approach makes it difficult to understand how T&A is implemented and linked between back and front office systems. To close this research gap, this study reviews relevant literature on money and moneywork in Human-Computer Interaction (HCI), T&A in government systems, and Computer-Supported Cooperative Work (CSCW). Insights from the literature provide a foundation for understanding and identifying ways to enhance T&A throughout the various phases of payment processes within the Social Security Office (SSO) in Thailand.

This chapter starts by examining the concepts of money and moneywork to build a better understanding of government payment systems. It explores the strengths and weaknesses of different payment methods and explains financial workflows from beginning to end which focuses on back-office and front-office functions. These insights are then applied to analyze the SSO's payment system, providing a clearer view of how officials and citizens interact at each stage. Furthermore, T&A is investigated through the moneywork framework to identify challenges within the system and determine responsible parties based on established classifications in moneywork studies.

The second section explores T&A in government systems, emphasizing the diverse interpretations and potential factors that define the scope of this study. This research offers a comprehensive view of payment systems, allowing the analysis of T&A's potential factors from two perspectives: the technical perspective, focusing on internal system operations, and the citizen engagement perspective, addressing e-service systems for citizen interactions. By reviewing these perspectives, the study reveals missing potential factors in the SSO payment system, which are discussed in Chapters 4 and 5.

The final section explores the principles of CSCW (Computer-Supported Cooperative Work), which serve as a framework for understanding collaboration within payment systems. In this study, CSCW concentrates on key areas such as 'practical interactions,' 'socio-technical systems,' and 'adoption and adaptation.' These aspects provide a deeper analysis of the factors influencing T&A in payment systems, enabling the development of systems that meet both technological demands and social expectations in the future.

Chapter 3: Research Methodology

3.1 Introduction

Chapter 3 addresses relevant literature on ideas, concepts, and theories to develop a research design that can effectively answer the study aim, objectives, and questions outlined in this thesis. The chapter illustrates how qualitative research can deliver a deeper understanding of the SSO benefit payment context. By utilizing the interview method, we can identify the benefit payment routines and investigate their impact on transparency and accountability (T&A) practices within the system mechanisms, while also shedding light on the influences of T&A through citizen engagement.

In order to understand the reasoning behind methodological decisions and research design choices, the research methodology initiates an exploration of research paradigms in Section 3.2, and it explains why the interpretive paradigm is selected as the approach for this thesis. In Section 3.3, I will discuss the use of quantitative and qualitative research methods, as well as the rationale behind choosing a qualitative approach for this particular study. I draw on the narrative approach as a tool in qualitative research in Section 3.4. Then, I describe my research design in Section 3.5, which addresses the challenges that directly affect the research process, and the ethical considerations discussed in this thesis.

In the research design, two distinct studies are presented. Section 3.6 provides a detailed explanation of applying the moneywork (Study 1) and the potential T&A factors (Study 2) in the context of benefit payments within the SSO. I will then explain my rationale for selecting interviews as an appropriate method for data collection in this thesis and utilizing thematic analysis to analyze the collected narratives, outlined in Sections 3.7 and 3.8, respectively.

3.2 Research Paradigm

Understanding the concept of research paradigms is essential for examining government payment systems. These paradigms provide researchers with the suitable tools and theoretical viewpoints needed for in-depth analysis. Having a clear understanding of both positivist and interpretivist approaches is especially helpful. Through these perspectives, researchers can better understand how government payment systems work and how they can be improved.

The positivist paradigm, with its emphasis on empirical and objective analysis, plays a crucial role in data analysis. It enables researchers to quantify data and identify patterns within government payment systems. This is especially important in computer systems, where it is used to develop algorithms and systems based on measurable data. Conversely, the interpretivist paradigm, which emphasizes subjective understanding and context, allows for a deeper exploration of these systems' social and cultural implications. It provides insights into user behaviours and system impacts, which are crucial for examining how users interact with digital technologies during their engagement with payment systems. Reviewing both these approaches, it is critical for understanding the broader significance of research paradigms to determine which methods are suitable to study.

However, my research study employs only the interpretivist paradigm to better capture the complex, contextual factors influencing government payment systems. To better understand the research paradigm approaches, this section will be explained and addressed the importance of research paradigm in order to comprehend the meaning of a research paradigm and the conceptualization of a research paradigm in terms of positivism versus interpretivism. In conclusion, I explain why my study employed the interpretive paradigm.

3.2.1 Importance of Research Paradigm

The word '*paradigm*' is used to explain different phases of research within a field comes from Thomas Kuhn's theory in which he wrote in the book, "The Structure of Scientific Revolutions" in 1970. In this book, he explains how scientific research within

a specific field is defined by a set of practices, norms, and standards. Kuhn argues that science does not simply progress by gradually adding new facts. Instead, it advances through major shifts, called paradigm shifts, where an existing framework is replaced because it cannot explain new anomalies. These shifts can change the very nature of what we consider to be facts. Applying Thomas Kuhn's concept of a research paradigm to computer systems helps us understand the evolution and shifts in methodologies and technologies in the field. Because of this, we can better anticipate future trends and adapt our approaches to stay relevant by identifying and analyzing paradigm shifts.

Research paradigms in areas such as computer sciences and information systems have historically embraced a positivist approach, concentrating on objective measurements and observable phenomena (Avgerou, 2000, Toh et al., 2016). However, interpretivist paradigms, which focus on understanding subjective meanings and experiences, have gained increasingly acceptance (ibid.). Based on the previous context, a clear understanding of the definitions and distinctions among various research paradigms becomes essential for researchers when selecting appropriate methodologies that align with their research questions and objectives. As highlighted by Rehman and Alharthi (2016), a person who strongly believes in one research approach and does not understand or consider the theory and terminology used in other approaches will find it difficult to properly assess research from different perspectives. This lack of openness can hinder their ability to understand fully and critique studies that follow alternative approaches.

Building on the understanding of research paradigms and reflecting on human interaction with digital money work systems, Khairuddin (2019) proposes applying Kuhn's theory of the structure of scientific revolutions to human and computer interactions in research paradigms. Kuhn stated that a specific research paradigm can be characterized by four fundamental elements: a common comprehension of the phenomenon under study, the appropriate inquiries to pose about it, the methodology to address those inquiries, and the proper interpretation of the outcomes. These details are interdependent and rooted in deeper conceptualizations, as described below:

1) A common perspective on the interaction ideas relevant to the study can influence the development of a particular paradigm.
2) The suitable questions that are used to ask those interaction characteristics.
3) A collection of broad approaches can be employed to organize our approach to addressing such questions.
4) A shared consensus on the appropriate interpretation of the outcomes of these operations.

Based on the points mentioned above, research paradigm helps clarify what answers we aim to discover, appropriately guiding the design and interpretation of new findings.

Harrison et al. (2007) refers to Kuhn's argument that a particular paradigm is defined by a shared understanding of the topic being studied, the types of practical questions to ask, how to organize our methods to find answers, and how to interpret the results. When researchers plan their study and determine their goals for data collection, they can choose between a positivist or interpretivist paradigm, deciding which one best fits their research.

3.2.2 Positivism versus Interpretivism

Positivism involves forming hypotheses to test existing theories, assuming that reality can be described through measurable properties (Myers, 2009, Chilisa and Kawulich, 2012). The positivist approach is usually employed with a quantitative approach, using techniques from the natural sciences to investigate social reality (Bryman and Bell, 2015). Consequently, if the research has measurable variables and hypotheses that would represent results regarding the phenomenon from a sample toward a population, we can use the research positivist (Orlikowski and Baroudi, 1991).

Nonetheless, positivism in HCI focuses on analyzing humans as objects, overlooking individual differences by measuring human performance standards derived from human factors and psychology (Alghamdi, 2017, Khairuddin, 2019). These metrics are heavily based on a task-centered model, where individual task performance can be quantified and measured, including task accuracy, performance time, error rate, learning time, retention over time, and user satisfaction (Lazar et al., 2017).

In contrast, interpretivism is typically linked to studies that aim to understand and explain human processes rather than objective facts (Koshy, 2006). Instead of discovering universal, context- and value-free knowledge, interpretive study aims to understand individuals' interpretations of the social events that they engage with. Similarly, Rehman and Alharthi (2016) noted that interpretivism emphasizes how individuals interact with others and society, assigning meaning and names to various social phenomena. Interpretivism is thus generally associated with qualitative methods, which provide a deep understanding of social issues. Nevertheless, it is unable to generalize its findings to a broader population. (Winfield, 1991, Alghamdi, 2017).

Based on the knowledge discussed above, researchers have adopted the interpretivist paradigm to study human interaction with digital technology, emphasizing subjective interpretation and understanding human interests. This approach focuses on human behaviors and allows researchers to provide detailed descriptions of phenomena as they are experienced, helping to understand people's perceptions of external events (Mohlameane and Ruxwana, 2020). To draw on the interpretivist paradigm, researchers can delve into the subjective nature of social constructs, such as collaborative practices, communication, and trust, which are essential in fields like collaborative work and human and social interactions (Ruan et al., 2013).

These two research paradigms differ significantly. Positivist research focuses on testing hypotheses measured by statistical tests (Thanh and Thanh, 2015). On the contrary, interpretivist research is subjective, as it depends on how the researcher interprets the actions of the participants, especially in regards to detailed human behavior and social phenomena (De Villiers, 2005).

3.2.3 Selection and Justification of the Interpretive Paradigm

This study aligns with the interpretive paradigm. This is because the interpretive paradigm focuses on how people interact with the external world and how they attach their own meanings and interpretations to the phenomena being studied. In the interpretive paradigm, individuals are viewed as the creators and interpreters of their social world. They play a key role in forming and constructing knowledge about a

phenomenon, relying on the meanings understood and shared by those who are directly involved in it (Orlikowski and Baroudi, 1991, Myers, 2009, Rehman and Alharthi, 2016, Klein and Myers, 1999). In the context of my study, I intend to investigate a particular subject: the process of benefit payments that explores how the SSO paid benefits to the citizens as G2P payment. It intends to construct new insight and knowledge about T&A work in the government sector. As a result, I utilize the interpretive paradigm in my thesis because it allows me to understand and interpret the complex and subjective of benefit payment in the SSO context. This paradigm would explain the significance that individuals assign to their experiences, actions, and social phenomena when seeking benefit payment.

3.3 Research Method in this Study

When doing research, we can choose from various research methods. Before this step, the researcher needs to construct their research questions based on research motivations, problems, and the aim to answer. Each question links the research paradigm to the research method which are drawn on the use of data collection and analysis. In this section, I describe both quantitative and qualitative methods because they are the two commonest methods in research design (Hassan, 2011). In addition, I explain how to adapt them in the fields of HCI and why I use qualitative method for this study.

3.3.1 Applicability of Research Methods

A research method could be defined as one of a variety of methods employed to gather data for inference, interpretation, prediction, and explanatory purposes (Cohen et al., 2007). This is the practical methods and steps employed during the process of collecting data (Bryman, 2016). Research methods are usually divided into two types: quantitative and qualitative (Hassan, 2011), while the mixed-methods approach refers to the technique of combining both methods (Bryman, 2016). If the study is more quantifiable, as defined by the positivism, a researcher might prioritize the quantitative method. In contrast, if the study's goal is to identify and discuss themes, the researcher

could employ the qualitative technique, which is associated with the interpretivism (Bryman and Bell, 2015). However, the importance and use of quantitative and qualitative research methods have been a topic of debate among social scientists for a long time. These discussions emphasize the strengths and weaknesses of each method and their appropriateness for different kinds of studies and research approaches (Bryman, 1984). Therefore, the most appropriate method is generally considered to be a technique that fits the investigative context, taking into account the research questions and objectives that the study aims to address. Drawing on this method, the main differences between quantitative and qualitative research lie in the kinds of questions they address, the units they analyze, and the level of researcher involvement (Al Hussaini, 2021). A comparison of quantitative and qualitative methods in HCI is provided below, along with the critical differences between them.

3.3.2 Quantitative versus Qualitative

Quantitative research is frequently used to test pre-determined research hypotheses (De Villiers, 2005). In HCI research, quantitative methods are valuable for assessing system usability and comparing different technologies or interfaces (Cairns and Cox, 2008). Many quantitative research methods are available, including laboratory experiments, surveys, and numerical techniques like mathematical modeling (Hassan, 2011). These methods study the connection between variables by measuring them in numerical terms and analyzing the data using statistical and graphical tools (Oseni, 2017). Statistics play a significant role in data analysis for quantitative research, which involves two main types: descriptive and inferential statistics (Van Elst, 2019). Descriptive statistics help summarize and explain the key features of the data, making it easier for researchers to interpret and understand the information collected in a study (Van Elst, 2019, Khairuddin, 2019). On the other hand, inferential statistics allow researchers to gain a deeper understanding of the data to decide which of the previously set hypotheses should be tested in future studies (Khairuddin, 2019, Cairns and Cox, 2008).

The qualitative method is associated with interpretive theory, which typically involves gathering data to establish a conceptual framework by examining the participants' meanings and relationships (Oseni, 2017). Examples of qualitative research sources

cover documents and written texts, observing people and situations, participating in fieldwork, conducting interviews and surveys, and considering the researcher's impressions and responses (Hassan, 2011, Bryman, 2016). In the field of HCI, qualitative research covers a wider range than quantitative research, which often focuses only on measuring things like the time and error rates involved in human-technology interactions (Khairuddin, 2019). Qualitative approaches, on the other hand, examine people's behaviors and the reasons behind their actions when they use technologies. This approach provides more detailed and context-rich data, which helps in understanding new and complex situations (Holtzblatt and Beyer, 1998, Khairuddin, 2019).

In terms of data analysis, qualitative methods do not rely on numbers or hypotheses but instead use data such as personal reports, stories, and user experiences (Yilmaz, 2013). In contrast, quantitative methods follow a structured and standardized procedure to measure data, making them more effective in evaluating people's understanding before and after they use technologies (Khairuddin, 2019). However, in studies about people and their use of technology in financial matters, it is less suitable to form hypotheses about human behavior by using numbers to measure their experiences, attitudes, and complex processes because quantitative measures may not capture the entirety of participants' experiences, the subjective meanings individuals assign to their payment actions, and participants' own verbal expressions around positive or negative experiences.

3.3.3 Selection and Justification of the Qualitative Method

In the process of data collection and analysis, qualitative and quantitative research approaches each serve their own different set of aims. In this thesis, I justify using the qualitative method because it is considered to be the most appropriate for a variety of reasons. First, the current study aims to investigate T&A in the government financial transactions by exploring the interactions of socio-technical factors for e-Government and services. By doing this, the results might represent real-life situations or the everyday habits of people (Thanh and Thanh, 2015), as well as address T&A aspects and investigate the guidelines to increase T&A of e-Government and services. Thus, the qualitative method can provide a rich and detailed understanding of the

complexities of participants' experiences and viewpoints to enhance T&A in the government payment systems. Second, I am less focused on finding objective truth through numbers and more interested in understanding how participants perceive reality. As a result, the qualitative research approach aids in collecting the narrative contextual data related to money (Vines et al., 2012, Perry and Ferreira, 2018, Kameswaran and Hulikal Muralidhar, 2019) and T&A in government agencies (Marshall et al., 2018, Marshall et al., 2016, Saha et al., 2022). Finally, the qualitative method allows researchers to explore complex and less recognized phenomena in depth, which provides for a deeper knowledge around the issues involved (Al Hussaini, 2021). For example, research on e-government payments, specifically G2P payments regarding social welfare or social security benefits, is less documented in the published literature, and the existing articles are not closely related to HCI and CSCW. Thus, this study is appropriate for the qualitative method because it offers flexibility during interviews, allowing us to study benefit payment procedures and T&A aspects affecting the claim in a natural situation and gain understanding of practical experience from users of these systems.

3.4 Using Narrative in Qualitative Research

The storytelling presented by participants provides their experiences as stories with a beginning, middle, and end of obtaining benefit payments. To interpret and describe a personal experience narrative, I employ qualitative methods for this study in order to explain the complexities of users' behaviour and their social contexts. I draw on the narrative approach, which is one of several interpretative approaches in the qualitative method. While the narrative approach is less widely recognized than case study, grounded theory, or ethnography (Elliott, 2005, McAlpine, 2016), it helps researchers collect data on how individuals interpret situations and behaviours in their lives, positioning themselves as the main actors in these narratives (McAlpine, 2016). This section provides insight into its usage, as well as a thorough understanding of the narrative's potential and limitations. This section consists of the narrative definition through the narrative as a daily event, a description of the narrative type, and an explanation of why I choose narrative for this study.

3.4.1 Narrative as a Daily Event

Narratives are built around a series of events that occur over time. An event refers to something that occurred to an individual or something at a specific moment or within a particular context (Bold, 2011). Narratives naturally recount things that happen in human lives, mirror people interest, and assist in making sense of our experiences (ibid.). A narrative offers a helpful way for someone to build a clear and connected story about their life, giving it a structure with a start, middle, and conclusion — covering their past, present, and future (McAlpine, 2016, McCormack, 2004). Thus, it can be a solid way to turn past experiences into meaningful lessons, allowing the narrators to recognize themselves and others in the narrative and reflect on the future (McAlpine, 2016). Constructing a narrative entails integrating chronological sequence, detailed events, and societal landscape, creating a clear and coherent storyline (Bold, 2011, McAlpine, 2016). These stories can shape how the narrator views themselves and guide their decisions and actions (Holley and Colyar, 2009). Hence, narratives can encourage HCI and CSCW researchers to look for the past, present, and future of participants' experiences. The advantages of collecting data at every moment allows researchers to see the overall picture of an event that is sometimes similar and different from participants' perspectives. In qualitative research, the participants' narratives are pivotal for gathering rich, in-depth data and offering diverse suggestions based on participants driven topics during data collection. Even though narrative techniques for gathering data can differ widely, it is important for researchers to choose them carefully to match their research objectives. The type of narrative method selected should be based on the study's needs, as different techniques provide unique perspectives and findings (see section 3.4.2). If the wrong narrative method is used, it may lead to collecting information that is either too broad or too narrow, which can negatively impact the accuracy and reliability of the research results. Accordingly, it is essential to understand the varied differences in each narrative type to properly capture participants' experiences and accurately respond to the research questions.

3.4.2 Describing Narrative Types

Narratives in research are not a new concept; they have been used in a variety of disciplines, such as sociology, psychology, political science, and computer science.

They have used them in various ways and are now gaining acceptance in other fields interested in human behavior (Bold, 2011, McAlpine, 2016). Current narrative approaches tend to focus on data collection and analysis through conversation and dialogue, ethnographic observation, and interviews (Bold, 2011). The relevant approach for this thesis is to collect data through interviews (as explained in 3.7.2). Bold states that stories elicited in interviews are typically organized around a series of consequential events that may be evaluative in nature, that the narrator's decisions about what to include or exclude from the narrative are influenced by the story's context, and that the same story will have a different meaning if told in another interview at a different time (ibid.).

When comparing three approaches—conversation and dialogue, ethnographic observation, and interviews—in practical use, the conversation and dialogue approach proves to be highly effective as it involves participants interacting to understand each other and collaboratively create shared meaning to solve problems by incorporating dialogue into the analysis (Bold, 2011). In comparison, ethnographic observation is interested in an in-depth exploration of specific relationships between elements which does not focus on chronological events of the daily workings of the organization (Bold, 2011). For interview techniques, it is appropriate to use elicitation of an evaluative narrative by cognitively and emotionally engaging interviewees around consequential events (Johnstone, 2016, Bold, 2011).

In the next section, I will elaborate on why this thesis utilizes the narrative approach by incorporating interviews. This decision is informed by the definition and practical use of narrative types discussed earlier, as well as the insights gained from the literature review sections.

3.4.3 Selection and Justification of Narrative in this Study

Drawing from the literature on the moneywork cycle, we can utilize these ideas to gather detailed information on consequential events throughout the benefit payment process, spanning past, present, and future aspects, providing examples of interesting events or issues. This narrative approach will allow the thesis to receive diverse

information from each participant, not only from the predefined questions but also from further interviews following the topics of interest in the storyteller's direction. The narrative method also offers the advantage of collecting data chronologically, enabling researchers to investigate payment transactions from initiation to payment processing completion. This approach focuses on detailed narratives from the beginnings to the endings of users' experiences (Brown, 2006), helping to determine if the user's interactions with co-workers or digital technology indicate a change in T&A throughout the payment systems (see Section 3.6.3).

To compare with other qualitative methods such as grounded theory, which may prioritize identifying patterns or the essence of experiences, the narrative approach emphasizes the chronological order and contextual details of each story. To focus on these aspects, the narrative approach interprets consequential events in participants' specific experiences as they unfold over time that unfolds in chronological order (McAlpine, 2016, McCormack, 2004, Bold, 2011). Furthermore, other scholars of the narrative approach emphasize the benefits of narrative methods, noting their ability to express complex ideas, show the order of events over time, and capture uncertainty and ambiguity, along with other human actions that are difficult to describe using other methods (Brown, 2006, Reddy, 2001).

In this thesis, this method can provide the participants' stories of their claims following money movement (see details in Section 3.6.1). The chronological narrations of benefit payments can show causal relationships by demonstrating which events or activities can increase transparency, leading to increased government accountability. Another reason to use narrative approach is that it can inspire people to raise unexpected issues and opportunities. Indeed, these points can aid HCI researchers by leading people to consider new beliefs and values (Spaulding and Faste, 2013). As a result, narrative approach can guide us to learn about good and bad experiences of participants with computer tools to create guidelines which improve T&A in the SSO benefit payments.

3.5 Building the Research Design

A strong research method is paired with a well-planned research design that provides a clear path for gathering the pertinent evidence to help answer the research questions (Omar et al., 2020). As a result of this, the researcher has the necessary skills to conduct the study, knows how to use the selected methods, and is self-aware and motivated enough to maintain the effort needed to complete the research (Marshall and Rossman, 2016). Research design can be seen as a systematic and logical framework that starts with a set of research questions and leads to conclusions or answers related to those questions (Yin, 2014). Eisenhardt (1989) states that the development of a unique research design enables the researcher to effectively employ and modify the most suitable research methodologies in order to clarify and appreciate the phenomenon under study. The outline in this section displays the study limits that directly affect the research design in the data collection, data analysis. Within this chapter, I present the research process to illustrate the overview of the thesis. Finally, I address the ethical issues that are applied to preserve the privacy and confidentiality of the participants.

3.5.1 Meeting the Challenge

In research design, researchers need to plan around the current circumstances or limitations that influence their data collection within the context of their research inquiries. To design qualitative research, Marshall and Rossman (2016) emphasize the importance of two key aspects: (a) showing that using qualitative methods is suitable and reasonable for the specific research question, and (b) creating a proposal that encompasses several found in traditional proposals. The emphasis of these issues is to explain why qualitative methods are suitable for the research question and incorporate essential elements similar to those found in traditional research proposals. By adopting this approach, the research remains accurate and rational, even in the face of challenges.

As described in Section 3.4.3, my research employs qualitative methods for collecting data with data garnered through interviews. The interviews focus on addressing the narratives of Thai government officials and citizens regarding the investigation of claim

experiences and T&A perspectives in the SSO payment systems. Nonetheless, the circumstances of the COVID-19 pandemic restricted access to public officials and citizens, presenting significant challenges in this thesis. Even though I faced obstacles that influenced data collection, my research design was modified to accommodate the changes in circumstances and participant behavior that may have been affected by this. In order to address the challenges, I attempted to maintain flexibility through minor adaptions to allow remote interference.

Due to the COVID-19 situation, most participants preferred to have online interviews rather than in person. Nevertheless, I encountered problems about changing data collection techniques toward an online approach. For example, scheduling online interviews has become problematic due to the time difference between Thailand and England. Because of that, I have informed participants of the time zone difference and propose a suitable time, such as after work or the weekend.

Another challenge was the limitations of access to public officers, who are typically busy, could make the use of focus groups challenging since not everyone would be available at the same time. Accordingly, I utilized individual interviews for every participant. Although this type of interview was time-consuming, participants are free to change the schedule and do not feel pressured if they must express differing views from the SSO benefit payments' procedures and policies.

The impact of memory is also a difficulty in this study because if the same individual retold the story a week later, there would probably be variation due to memory (Bold, 2011). For that reason, the interview's scope was communicated to all participants in advance so that they could try to recall their memories of past events and experiences. With this result, I was able to conduct interviews quickly and obtain responses from participants with less confusion regarding the chronological sequence of events.

To better understand research design in this thesis, I will discuss the rationale and logic behind the particular qualitative genre on which the study is based, as well as the overall strategy and specific design elements in the following section.

3.5.2 Research Design

Before implementing the research methodology, it was important to choose the right research design to guide the various stages of the research process. In this context, research design refers to the overview plan and structure that a researcher uses to logically connect different aspects of the study. It encompasses various decisions, such as participant selection, data collection, and analysis techniques, collectively establishing a structured approach to answering research questions with validity and reliability (Khanday and Khanam, 2019, Merriam and Tisdell, 2015, Mahmood, 2018). When beginning to organize the research design, the researcher can establish the research design components in several ways. As suggested by Khanday and Khanam (2019, p.370), the research design might comprise *"title, statement of the topic/ problem, motives and goals, research questions and objectives, review the literature, research strategies, concepts/ theories/ hypotheses/ models, data sources/ types/ forms, selection of data sources, data collection and timing, data reduction and analysis, and problems and limitations".* This is just an example; there are no rules or regulations for setting a research design's structure. Thus, the research design's components are practically presented in different ways.

To conduct the research process in this thesis, I commence my research design by providing an overview of the research processes explained in this section. Figure 3.1. illustrates that this thesis was organized in seven stages: 1) research aim and objectives, 2) literature review, 3) exploring the cycle of moneywork and potential transparency and accountability (T&A) factors, 4) research design, 5) organizational and personal identification, 6) data collection and analysis, and 7) drawing conclusions.

In stage one, this process included presenting the research motivation, problem, scope, and gaps of the study that helped to identify the research aim, objectives, and questions. Reference prior research that informed the formulation of these questions as shown in stage two. In this stage, a comprehensive evaluation of the relevant literature was undertaken to understand the basic concepts of cash, digital money, transparency, and accountability in the government sector to analyze current research concerns, narrowing research issues and considerations. Based on literature review,

the key processes of moneywork cycle and T&A influential factor were explored and presented visually in stage three.

The conceptual framework, therefore, stands out as a guide for the empirical investigation of this thesis. By doing this, we can learn the steps of benefit payment cycle and relevant factors of T&A along with a logical manner. During the research design stage, a procedural plan was developed to facilitate the selection of cases, manage the data-collecting technique, and resolve administrative and ethical issues linked to the research (Al Hussaini, 2021). As shown in stage four, the qualitative research design implemented enabled the researcher to investigate the process, and in-depth complexities of e-Government payment. This research design helps to provide participant identification presented in stage five that the SSO staff at the provincial level and insured persons across Thailand were identified.

As for stage six concerning data collection and analysis, an online interview was conducted, which is an appropriate method for use, during social distancing policy in the COVID-19 situation. Yin (2014) points out that researchers who possess considerable flexibility in data collection have the opportunity to explore the phenomenon within its context. During this stage, thematic analysis served as the chosen method for data analysis due to its ability to systematically scrutinize qualitative data. Researchers can proficiently organize and synthesize information through thematic analysis, thereby identifying meaningful patterns or themes, elaborated in Section 3.8.

Finally, in stage seven, the discussion focused on the findings obtained from data analysis and presented this research's theoretical and methodological contributions. It also highlighted the limitations and potential future research directions, as outlined in Figure. 3.1.

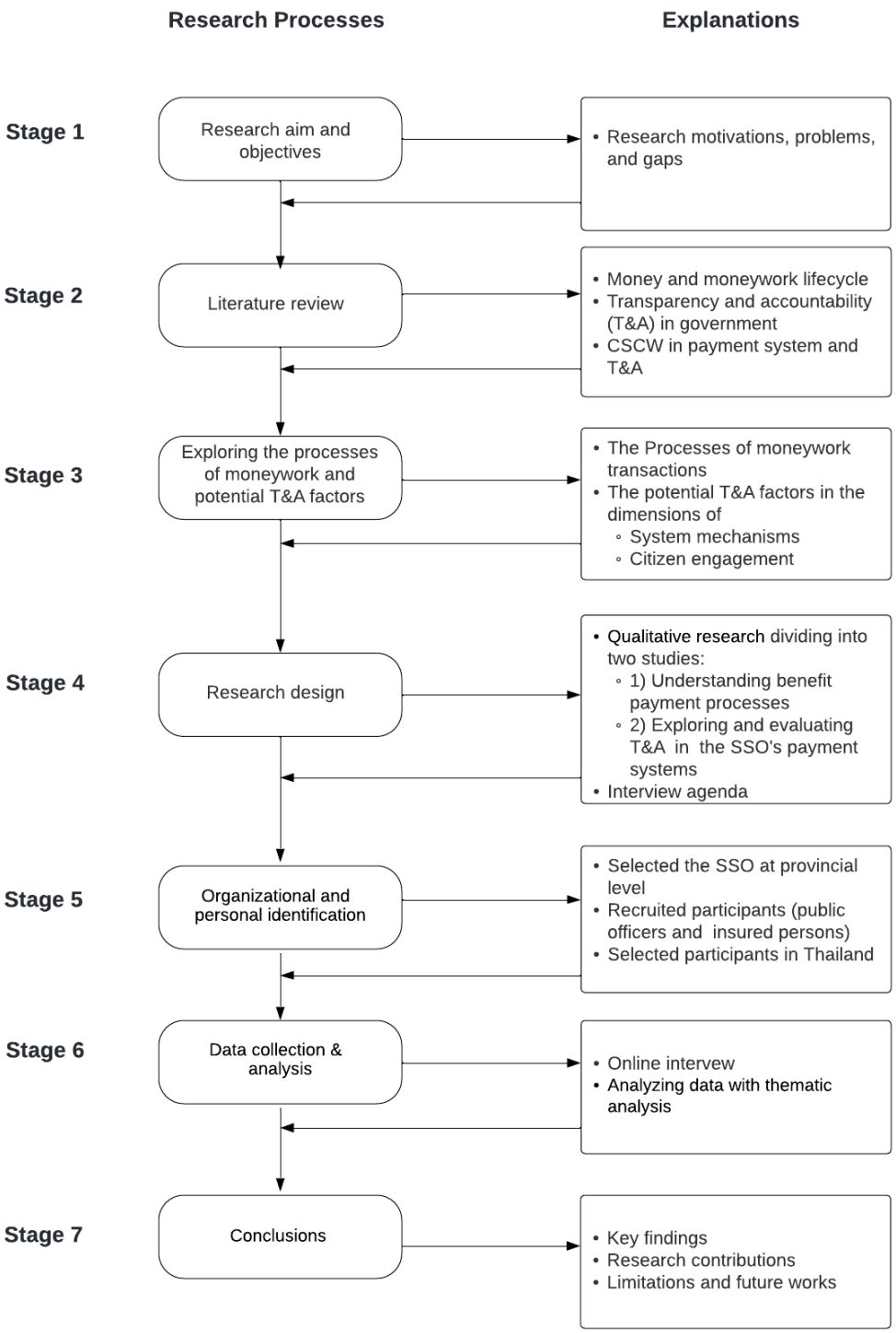

Figure 3.1: Stages of the Research Process

3.5.3 Ethical Considerations

In this section, I clearly have the ethical considerations in my research, including the four ethically required documents I was obligated to submit. This application consisted of a risk assessment report, a participant information sheet, a participants' consent form, an authorization letter from the SSO in Thailand, and the guidelines for interview questions in every study. These questions should be reasonable and knowledgeable, without any biases, leading language, or threats toward the participants. After reviewing interview questions, my supervisor was the last person to review the questions.

Participants in this study have self-determination, defined as the freedom to engage in research and to withdraw at any time (Punchoojit and Hongwarittorrn, 2015). In my participant information sheet and consent form, I pointed out their rights, including whether to give or not to give permission, because participation is entirely voluntary. Participants received this information sheet and signed a consent form if they wished to participate. Regardless of whether they want to participate, they can withdraw at any time until September 30, 2024, without having to give a reason. Every time before the interview began, I explained these points again to someone who had not understand the details in the participant information sheet.

Privacy and confidentiality were guaranteed so that the collected data, such as participants' personal and sensitive information, is private and confidential. In my consent form, I asked for permission to record participants' voices during interviews. The original audio files will be kept for five years. Details will be anonymized. By doing this, outsiders are unable to be traceable to identify whether who the participant is. Moreover, I informed in my participant information sheet that their interview data will be used for academic publications. I did not reveal participants' full formal names, but I used the coding participants' names such as IP101, IP102, IP103, and so on. Likewise, when parts of an interview were quoted, this is also anonymous; any names or identity features would be omitted.

When all the required documents were prepared, I submitted them to the Brunel Research Ethics Committee through the Brunel Research Ethics Online (BREO)

system. Afterward, I was granted formal ethical approval for this research before collecting data (see appendix I and II for ethical approval letter).

3.6 Applying the Moneywork Lifecycle and T&A Factors

Money manifests in various forms, including coins, cash, debit, and credit cards, and online or mobile-based banking platforms, serving as a fundamental medium of exchange for goods or services. Its significance extends to relationships between individuals and organizations using money for diverse objectives and commercial transactions. This complexity arises from the intricate social context in which human behavior is observed, alongside the multifaceted factors influencing the utilization of money. Therefore, it is challenging for HCI researchers to clearly describe users' behavior when interacting with money, other people, and digital technology inside the payment systems.

To analyze these complexities, this section draws on the moneywork lifecycle to describe how payment is handled in Study 1 (Section 3.6.1). The moneywork cycle, can offer insights into how money is utilized in individuals' everyday financial activities. This can help HCI researchers explain practices or actions that reflect a transparent work process, such as the collaboration between officials and citizens via government e-services as Open Government Data or OGD. They allow citizens to monitor the government work process, which enables officials to be accountable for their duties. Nonetheless, T&A concepts are wide-ranging and intangible; hence, it is vital to specify the principles for interpreting these two factors —transparency and accountability—precisely in this study.

For this rationale, this section also explains the application of T&A in Study 2 (Section 3.6.2) to examine the analysis process and discussion part under the scope and objectives of the research. The final topic addressed the relationships between moneywork and potential T&A factors (Section 3.6.3), which describes how the moneywork cycle shapes T&A factors when applied in this thesis.

3.6.1 Applying the Moneywork Lifecycle

The mechanisms behind digital financial transactions, in terms of physical and social infrastructure, are often concealed from users, similar to the regulations that oversee them (Nelms and Rea, 2017, Muralidhar, 2019). As noted in Chapter 2, the user's considerations, such as the cost issues in choosing a particular form of money and payment method, also remain hidden. Some factors that are not immediately visible to the user when they engage in digital financial transactions. For example, users may be unaware of the complex infrastructure such as payment platforms, payment regulations, and security layers. In consideration of the aforementioned rationales and constraints, recent research studies by Muralidhar et al. (2018), Kameswaran and Muralidhar (2019), Muralidhar (2019), and Perry and Ferreira (2018) uncover these latent concerns using the concept of moneywork. The moneywork lifecycle introduces a framework that separates work into pre-, at-, and post-financial transactional stages, aiming to explore their practical implementation (see Figure 3.2).

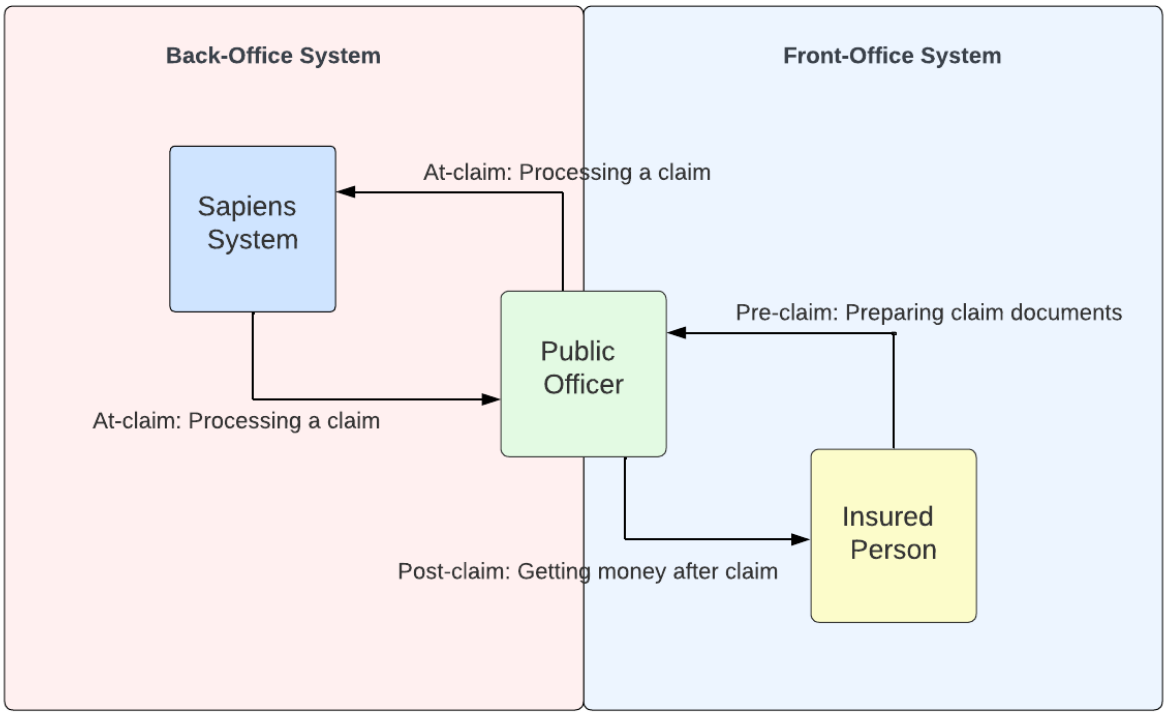

Figure 3.2: Applying the Moneywork Lifecycle in this thesis

'Pre-transaction' entails the assessment of how to conduct a financial transaction and ready the user for feasible transactions; *'at-transaction'* activities involve selecting permissible payment methods, evaluating social interactions during the exchange, preparing the payment media, reaching an agreement on the transaction, executing the exchange, and confirming and concluding the interaction. Ultimately, *'post-transaction'* work revolves around the actions after the transaction is concluded, such as maintenance, getting ready for future transactions, and interacting with others to disseminate information about the transaction process (Perry and Ferreira, 2018, Hulikal Muralidhar et al., 2018). These lifecycle components map effectively to the SSO payments and offer an approach to understanding the *'work'* of enabling social security payments.

According to the ideas of moneywork lifecycle, this thesis has divided the SSO payment systems into three phases, focusing on the financial transactional work involved in claims using the Sapiens system. As shown in the figure 3.2, I examine financial transactions in the public sector by identifying three phases in the process of making benefit payments, covering pre-transaction as pre-claim (preparing a claim), at-transaction as at-claim (processing a claim), and post-transaction as post-claim (getting money after claim) in order to demonstrate how financial transactional work functions in a regional bureaucracy. Details in each three stages of benefit payments are described more in Section 4.3.

3.6.2 Applying the Transparency and Accountability Factors

Money transactions involve different types of interactions, such as person-to-person (P2P), person-to-business (P2B), and person-to-government (P2G) exchanges. These abbreviations define the specific scenarios in which money is exchanged, differentiating transactions between individuals, businesses, and government entities. In this thesis, the main focus is the payments made by the government to provide benefits to its citizens. To clarify, the government transfers money directly to individuals, also known as G2P (government-to-person). Cirasino et al. (2012) expand the definition of G2P, which is generally characterized by a relatively small value, and encompassing a vast number of transactions. For instance, G2P payment is typically associated with payroll and incentives for government officers, income tax refunds,

and social benefits, including disaster relief assistance and social security benefits (ibid.).

The term ‘G’ denotes provincial social security officials, while ‘P’ denotes the insured persons who receive benefit payments. With this terminology defined, we can determine a research area that focuses on the viewpoints of public officers and insured persons to narrate the benefit payment processes and perceptions of T&A surrounding these transactions. The researcher also takes data from both groups to verify the accuracy of the data between them; a technique called triangulation is used in qualitative research to acquire an in-depth comprehension of phenomena (Patton, 1999). The triangulation method employed in this thesis draws on data source triangulation, which involves gathering diverse perspectives and validating data, as highlighted by Carter et al. (2014).

Focusing on G2P payments, T&A investigations can be classified according to user groups, namely ‘G’ or public officials involved in back-office operations, while ‘P’ or insured persons are users of services from the front-line services. Therefore, the nature of interaction with this payment systems means exploring T&A in the benefit payment systems in the SSO can be divided into two parts. Part 1 (RQ2a) focuses on T&A in the back-office system, (see Figure 3.2), which explores the influences of T&A during public officers’ interactions with the Sapiens system and is visualized in Figure 3.3.

Figure 3.3 depicts the T&A in system mechanisms, drawing upon insights from the literature reviewed in Chapter 2. This analysis sheds light on the potential transparency facets within the payment systems, encompassing data transparency, process transparency, and transparency in decision and policy. Furthermore, the analysis reflects on the potential for accountability, characterized by identifiability, monitoring and evaluation, and social presence. These T&A elements in Figure 3.3 outline the questions for interviewing public officers in Chapter 5. Additionally, they play a crucial role in establishing the analytical framework used to classify T&A themes in the back-office system. These concepts were derived from a thorough examination of relevant literature and guided the coding and analysis of interview data (refer to Chapter 6).

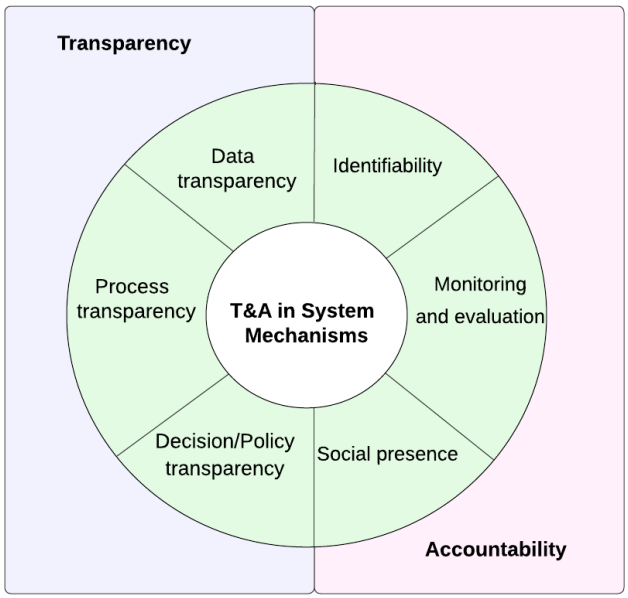

Figure 3.3: The Potential T&A Factors in System Mechanisms

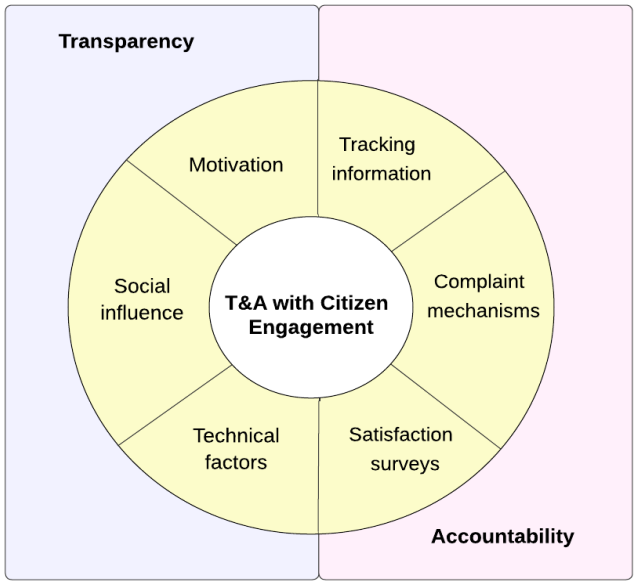

Figure 3.4: The Potential T&A Factors with Citizen Engagement

This thesis, as shown in Figure 3.2, explores T&A in both the back-office and the front-office system, which is the main scope of part 2 (RQ2b). The objective of part 2 is to investigate the communication between public officers and insured persons through SSO e-services as the tools of the SSO's citizen engagement. To find T&A in this engagement, I employ the potential transparency factors with citizen engagement,

namely motivation, social influence, and technical factors. These factors contribute to the overall transparency of the front-office process. Moreover, the accountability aspect is bolstered by potential factors such as tracking information, complaint channels, and satisfaction surveys. These T&A elements in Figure 3.4 are used as a guide for interview questions with insured persons (Chapter 5) and set of an initial theme in citizen engagement for analyzing insured persons' experiences (Chapter 6).

3.6.3 Relationships between the Moneywork and T&A Factors

The relationships between the moneywork and T&A factors are represented in Figure 3.5. This section begins with the moneywork lifecycle; in turn this literature helps to unpack the social security payment systems by outlining its activities across time. At this point, I can leverage the moneywork lifecycle to understand the regular routines, behaviors, and interactions between public officer-to-public officers and public officer-to-insured persons, along with their interactions with the technical infrastructure involved.

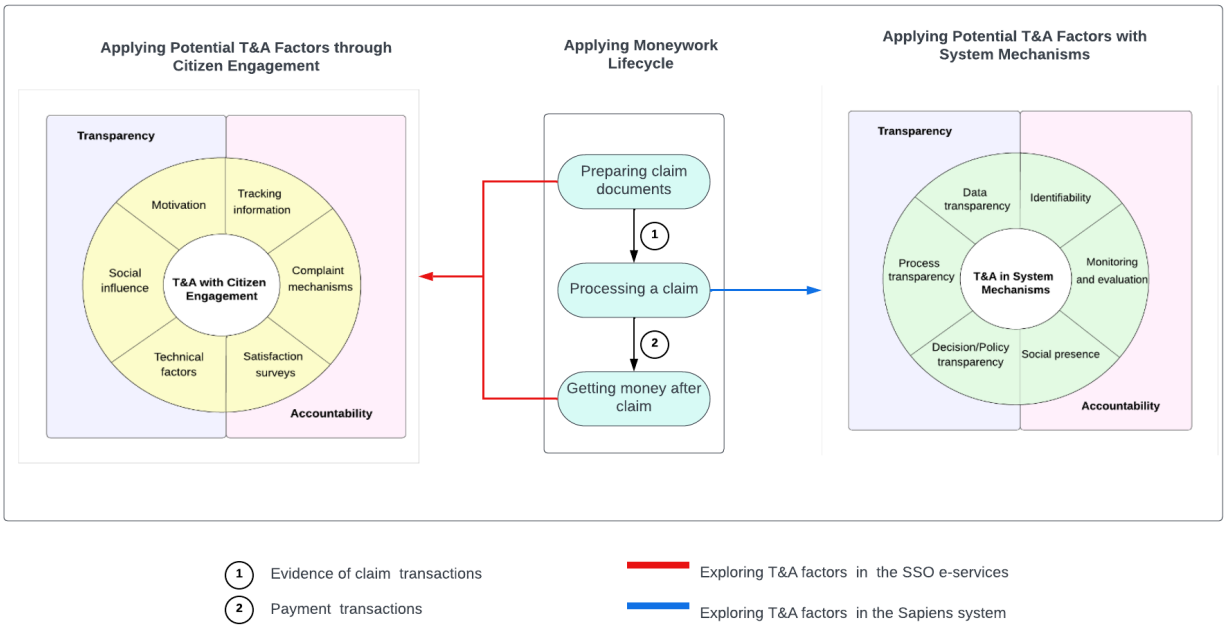

Figure 3.5: Applying Moneywork and T&A Factors to Investigate T&A in the SSO Payment Systems

As noted in Section 3.6.1, payments can be classified as pre-, at-, and post-transactional. To compare with the financial transactions of the SSO context, ‘pre-transactions’ relates to ‘preparing claim documents’, ‘at-transactions’ relates to ‘processing a claim’, and ‘post-transactions’ relates to ‘getting money after a claim’, as shown in Figure 3.5. The stage of ‘preparing claim documents’ delivers evidence of claim transections labeled as number 1 in Figure 3.5 to the ‘processing a claim’ stage. At this stage, a benefits officer assesses the evidence and makes decisions regarding the amount of benefit payment. After all, payment transaction labeled as number 2 in Figure 3.5 transfers to the process of ‘getting money after a claim’ in which financial information is disseminated to the public through the SSO e-services (see details in Section 4.3). By clearly identifying the benefit payment processes, it is possible to understand the steps, conditions, and responsibilities of officials. Consequently, studying workflow systems contributes to the understanding of how workers attempt to integrate their work into the systems, or devise workarounds, or disregard them (Ciolfi et al., 2023).

Figure 3.5 also connects the moneywork lifecycle to T&A factors. The red line symbol shows the connection in the stages of ‘preparing claim documents’ and ‘getting money after a claim’ to explore T&A with the citizen engagement concept. These two stages involve the front-office system known as SSO e-services, which facilitates public engagement and information dissemination. By exploring T&A factors with citizen engagement initiatives, it becomes possible to collect valuable insights on T&A practices directly from citizens. This is particularly evident within the context of the SSO, where citizens actively utilize the front-office interface to monitor social security benefit (SSB) information, track its progress, and monitor and advocate for service improvement.

As mentioned before, IT center personnel at the SSO headquarters is responsible for organizing the SSO e-services, which uses the SSO website and SSO Connect Mobile to prepare claim documents and track money after a claim. Nevertheless, the tools facilitating citizen interaction with officials may extend beyond SSO e-services. In cases where these systems are unavailable, citizens can resort to alternative channels, such as social media, which is offered by an external provider (refer to Chapter 5 for more information).

Finally, the blue line symbol in Figure 3.5 shows the relationships between ‘process a claim’ to explore T&A factors in system mechanisms. These focus on exploring and investigating T&A, focusing on diagnosing claim processes and public officer behaviors while working within the system. Within the SSO context, these system mechanisms refer to the Sapiens system, which serves as a back-office system exclusively operated by public officers for processing claims.

Figure 5.3 illustrates the interconnected data relationships within the benefit payment transaction cycle, indicating the interdependence between stages. Accurate evidence of claim information can potentially contribute to reducing errors in the diagnosis process, thereby enhancing the accuracy and reliability of financial information disseminated to external systems. As noted by Matheus et al. (2021), the design principle for digital transparency in government systems could begin with fostering transparency within internal operations. This internal transparency, in turn, impacts the functionality of external systems, creating data-driven transparency aimed at enhancing government accountability and fostering increased citizen engagement. This occurs when the government actively promotes the disclosure of accurate data, acknowledges citizen feedback, and respects citizens’ data privacy.

To enhance T&A throughout the SSO payment systems, researchers need to investigate T&A in both the back-office and front-office systems, drawing on knowledge of T&A in system mechanisms and citizen engagement. By exploring T&A across the entirety of government payment operations—both internal and external—a holistic comprehension of the payment process emerges. This approach allows for a comprehensive understanding of the entire payment process, identifying potential areas for improvement, mitigating risks of fraud or errors, and fostering a culture of accountability across all system levels.

3.7 Collecting Narrative Data

As mentioned in Section 3.4.3, this thesis employs the moneywork cycle to understand the participants' experiences with claims ranging from the back to the front-office system. This procedure involves discussions with government officials and citizens about how government payment transparency and accountability (T&A) operate under the potential T&A factors. To do this, the narrative approach through interview is well suited for the studies 1 and 2 because its approach can focus on deeply personal stories and experiences, enabling the construction of meaning through the stories or narratives shared by participants (Muylaert et al., 2014). Additionally, narrative interviews can help researchers to capture the nuanced changes in narratives over time, thus facilitating the tracking of story evolution (McKibben and Breheny, 2023). By using this technique in this study, we can collect personal and organizational narratives through interviews, giving participants the opportunity to reflect on their in-depth individual experiences with their own word in private environment. To understand the data collection of this thesis, I present the concepts about organization and personal narratives, gathering data with interviews, selecting participants, and how to collect data in this section.

3.7.1 Consideration of Organizational and Personal Narratives

This section investigates the connections between different forms of narrative identity that can enhance our comprehension of narrative operations and objectives. Here, I draw on the organizational and personal narrative concepts to apply in this thesis. These narratives connect the stories and present detailed information on benefit claims in chronological order. To select representatives who can convey the experiences of the benefit payment process, I recruited organizational and personal narratives by recruiting SSO officers and SSO claimants as participants for this thesis.

Organizational narratives are formed by people within organizations that include **policy reflection, practical experience, and public policy narratives.** Gathering information about organizational narratives can help identify organizational procedures and services under the institutional public policy and involve clients (Loseke, 2007, Friedland and Alford, 1991). Hence, various organizational identity

narratives address various types of social services problems (Swidler, 1986, Loseke, 2007). Loseke (2007) argues that each organization has distinct roles and services, along with the client's recognition of the individuals involved, which is influenced by age, financial status, or health problems.

When using the narrative approach, researchers not only collect data at the organizational level but also prioritize listening to personal perspectives. Thus, this study explores personal narratives, which facilitate **the integration of *"reconstructed past, perceived present and anticipated futures"*** (McAdams, 1996) to link individual good and bad stories in terms of beginnings, middles, and endings of life events (Loseke, 2007). By using these narratives as resources, researchers can connect diverse life events to form meaningful and unified wholes.

To apply the narrative approach focusing on the organizational narratives, I collected stories from public officers working at the SSO as participants telling their organizational narratives because they understood the regulations of the Social Security System (SSS) and had experience with paying benefits. These participants can answer questions such as: *"What is the work of the claiming benefits narratives? What are their client's problems and need? What are the relationships between claiming benefits narratives of identity and the personal narratives of unique people receiving the SSO services?"* (adapted from Loseke, 2007). Additionally, I selected insured persons as the participants to share their personal narratives because they have experiences in benefit payment services that can honestly reflect the good and bad experiences of the benefit payment process. The questions about collective identity, such as: *"What kinds of stories can insured persons tell about themselves? What are the relationships between insured persons tell and the characteristics of the surrounding socially circulating stories?"* (adapted from Loseke, 2007). Collecting data from both public officers and insured persons is a way to verify the accuracy of information from each other to prevent misinformation from either party, a process known as triangulation (Carter et al., 2014). Triangulation is particularly beneficial in academic research, such as when conducting a thesis, as it ensures the data's reliability and validity by cross-referencing multiple perspectives (ibid.).

Using organizational alongside with personal narratives can offer a well-rounded view that balances the institution's perspective with individual experiences of the same phenomena. To collect different narrative sources in this thesis, we can leverage the concept of triangulation to reduce both intentional and unintentional bias, enhance validity, and uncover deeper insights that reflect the thoughts of various groups (Fusch et al., 2018), which might be overlooked when relying on a single data source.

3.7.2 Collecting Narratives through Interviews

Interviews are a qualitative research technique involving in-depth individual discussions with a small set of participants to explore their perspectives on a situation, particular idea, or program (Boyce and Neale, 2006). Qu and Dumay (2011) classify three different types of interviews: structured, unstructured, or semi-structured. The structured interview follows a series of questions that will be presented to all interviewees in a particular order. Conversely, the unstructured interview lacks a planned list of questions and is often conducted in casual circumstances. Because the questions differ for each person, the data analysis could be more difficult, resulting in less accurate outcomes compared to the structured interview (Qu and Dumay, 2011). Nevertheless, the disadvantages of the structured interview may restrict the exploration of the participants' views (Boyce and Neale, 2006). The semi-structured interview includes structured and unstructured questions that assist the interview rather than dictate its direction. Some key questions allow the interviewer to retain focus while leaving the option to ask additional questions to clarify points mentioned by the interviewee (Bold, 2011). Thus, the analysis and interpretation begin as the interview progresses, with the interviewer forming assessments of the character and content of the conversation as it proceeds (ibid.).

Traditionally, interviews were done in face-to-face, but the shift to a digital environment and the need for social distancing have led to more online interviews and discussions about their methods in qualitative research (Deakin and Wakefield, 2014, Keen et al., 2022). Despite this shift, the main interview techniques, from semi-structured interviews to more specific methods, have not changed much online (Keen et al., 2022). As a consequence, online interviews can enhance or replace face-to-face interviews (Deakin and Wakefield, 2014). As communication technology continues to

advance, the benefits of online interviews become increasingly apparent, including the addition of instant messaging and screen-sharing capabilities, as well as recordings that encompass both audio and video (Keen et al., 2022). The interview schedule can be more flexible, and transportation costs are no longer important factors. However, online interviews may exclude persons who lack technological competency or access. Body language is less visible, and individuals may become tired faster or confront home distractions (ibid.). To accomplish interviews, the researcher must be attentive during the recruitment and access phase to determine whether the participant feels ready to conduct online interviews.

3.7.3 Selecting Participants for Narrative Interviews

Quantitative and qualitative research differ in that quantitative research emphasizes random sampling, aiming to select individuals who are representative of the population and draw general conclusions (Creswell, 2012). On the other hand, qualitative research prioritizes gaining insights and knowledge from individuals with the goal of understanding their experiences and perspectives (ibid.). Sampling methods are generally categorized into two types: probability and non-probability sampling (Merriam and Tisdell, 2015). Nonprobability sampling chooses participants with rich information, while probability sampling utilizes randomization techniques to apply findings to the broader population (Patton, 1990). This randomization technique facilitates the comprehension that all populations have an equitable probability of being chosen for the sample. Non-probability sampling is widely used in qualitative research (Merriam and Tisdell, 2015). Indeed, this thesis focuses on non-probability sampling methods on non-random selection. This implies that not all components of a population require equal consideration for selection (Blumberg et al., 2014, Groves et al., 2009).

Non-probability sampling approaches encompass several techniques, including judgmental sampling, opportunity sampling, and snowball sampling (Merriam and Tisdell, 2015, Groves et al., 2009). According to Alghamdi (2017), opportunity sampling, also known as convenience sampling, enables researchers to gather data from people who are both interested in participating and easily accessible. Alghamdi also stated snowball sampling, which involves collecting data from a small number of

people who match the study's requirements and then using those initial subjects to find additional participants. If the subjects are limited in number and hard to reach, this technique is a suitable selection method (Saunders et al., 2009, Babbie, 2014). Another non-probability sampling technique is judgmental sampling, (also known as purposive sampling or authoritative sampling, Alghamdi, 2017, Merriam and Tisdell, 2015), and occurs when sample participants are selected only on the basis of the knowledge and judgment of the researcher (Babbie, 2014, Alghamdi, 2017). However, when choosing an individual who meets the criteria and objectives of the research, the subjects are typically selected from a narrow group (Babbie, 2014, Merriam and Tisdell, 2015). These sampling approaches can be used to collect data for a variety of reasons while performing research, depending on the conditions, such as background, aims, and limitations (Alghamdi, 2017).

This thesis does not incorporate randomization and requires participants with specific characteristics who can provide relevant insights into the research questions and employs non-probability sampling techniques to collect data. The types of non-probability sampling techniques will be discussed in the next section.

3.7.4 Applying Narrative Approach for Collecting Data

Interview narratives are detailed and feature-rich information, drawing from personal life stories to speak freely about significant life events and the surrounding social environment (Muylaert et al., 2014). During the narrative interviews, the interviewee can discuss current events during the narration, linking the present, past, and future. This allows them to envision future experiences and actions, and to reinterpret and narrate past experiences (ibid.). Applying the narrative interview approach for collecting qualitative data involves careful planning. This process includes selecting the interview structure, designing questions, and using techniques for choosing and collecting data from the target participants.

By following these steps, I used semi-structured interviews to gather narrative data for my two studies. This method is flexible and allows for the collection of specific data, such as procedures about benefit payments and the potential transparency and accountability (T&A) factors. It enables the interviewer to start with a set of

predetermined questions while also allowing the conversation to flow naturally when the interviewee brings up relevant topics (Lazar et al., 2017).

To apply narrative approach in Study 1's interview questions, I organized the structure based on the progression of the benefit payment lifecycle, aligning it with the ideas of the moneywork lifecycle. To address the question in Study 2, I outlined its scope based on the potential T&A factors. Nonetheless, there are interview questions that are not pre-determined, as they are intended to be open-ended and adjustable to the specific circumstances of the interview in an unstructured format. For instance, there are questions that give participants the freedom to express their opinions, whether in a positive or negative manner, and also provide an opportunity to suggest ways to enhance T&A in the SSO services.

Another point of concern is the COVID-19 pandemic, which has made conducting interviews difficult due to social distancing and travel restrictions preventing participants from attending in person. To handle these circumstances, I conducted online interviews for both studies. This approach is similar to offline interviews but utilizes computer-mediated communication. By using online interviews, I can gather valuable narrative data from participants about their experiences with claims and T&A in the payment systems of the SSO, which is sufficient to proceed with the next steps of analysis.

To select suitable interview participants, the snowball and judgmental sampling methods are appropriate alternatives for this thesis, as they allow the researcher to gain insights and understand the phenomenon. The judgmental strategy involved identifying key participants who closely aligned with the established criteria for participation in both Studies 1 and 2. This approach was particularly useful for recruiting SSO public officers (see details in Sections 4.2.2 and 5.2.1). Snowball sampling was another strategy used in Studies 1 and 2 for selecting insured persons (see details in Sections 4.2.1 and 5.2.2). I conducted interviews with these initial key insured persons and subsequently requested each individual to recommend additional participants, except for insured persons in Study 2 who required both strategies (judgmental and snowball sampling). These two approaches were necessary because analyzing the behavior and experiences of insured persons demands a diversity of

perspectives (snowball sampling), and participants needed to have experience using the SSO e-service (judgmental sampling) for interviews in Study 2.

3.8 Analyzing Narrative Data

The investigation into payment systems and T&A within the public sector, specifically focusing on the operations of the SSO, generates a wide range of information due to the varied perspectives of the participants. This diversity occurs from the participants' personal experiences and their individual interpretations of those experiences. Such varied perspectives can make it challenging for researchers to fully understand their collaborative work and the use of digital technology within payment systems. As a result of this focus, the diverse array of data collected lends itself particularly well to thematic analysis for focusing on understanding the characteristics of a specific technology, and how people use, think about, and feel about it in their daily lives (Khairuddin, 2019).

To gain more clarity about applying thematic analysis, this section outlines the principles and reasoning behind utilizing the thematic analysis to analyse narrative data from interview transcripts and the procedural steps involved and illustrates how to apply the thematic analysis in this study. By using thematic analysis, it offers deeper insights into the multifaceted nature of various T&A factors in uncovering recurring patterns, themes, and underlying meanings within the narrative data.

3.8.1 Thematic Analysis of Narrative Data

Thematic analysis comprises two key elements: firstly, the researcher's objective of identifying and examining themes within personal experience shared by participants as a narrative data, and secondly, the recognition that experiences are typically shaped by the interplay between individuals and their surrounding contexts (Bold, 2011). This format of analysis can be appropriate for HCI studies seeking to gather data related to the interaction between users and the contextual aspects of computer usage. Furthermore, thematic analysis enables researchers to theorize across several cases and identify trends across individuals (Vough et al., 2015). It offers a versatile

and adaptable technique for examining narratives and gaining insights into the topic under investigation. Based on the previously mentioned rationales, I employ thematic analysis as an approach for analyzing the data obtained from specific interview questions (further details can be found in Sections 4.2 and 5.2) because it can give a detailed view into participants' SSO claim experiences, segment the transcripts of the interviews, and recognize patterns or themes within those narratives. Accordingly, thematic analysis can provide the identification of moneywork and T&A themes, as I will discuss in the next parts (Section 3.8.3).

3.8.2 Analytical Procedure with Thematic Analysis

In qualitative research, where hypotheses are not required to be determined at the beginning of the study (Khairuddin, 2019), thematic analysis emerges as a common and widely utilized method of analysis (Rois-Díaz et al., 2018), allowing researchers to uncover underlying meanings and insights without the constraints of predefined hypotheses.

To effectively analyze qualitative data sets, it is essential to begin with thorough transcription and coding. This coding process draws upon the steps outlined by Braun and Clarke, utilizing their six-phase approach for conducting thematic analysis (Braun and Clarke, 2006). This method ensures that themes and patterns within the data are identified and interpreted systematically, thereby facilitating a comprehensive understanding of the underlying narratives and insights contained within the data. This involves:

1) Getting to know your data by reading the transcripts many times and jotting down initial thoughts or ideas.
2) Creating the first set of codes by carefully looking through the whole dataset and identifying interesting parts, matching them to each code.
3) Looking for themes by grouping these codes into possible themes for deeper analysis.
4) Reviewing the themes to see if they fit well with the data and create a thematic map for your analysis.

5) Identifying and describing the themes by refining them and the overall narrative repeatedly, making sure each theme has a clear name and description.
6) Writing the report, which is your last chance to make any changes, using compelling examples to show the themes, and composing the report.

Thematic analysis can be done in two ways: inductively or deductively, to find themes in the data. In inductive thematic analysis, themes naturally come out of the data as researchers look for patterns or themes in the narratives, while deductive thematic analysis uses predetermines themes based on existing literature or theoretical frameworks (D'Amore et al., 2021, Tafazoli and Meihami, 2023). Consequently, employing deductive thematic analysis can enhance a deeper understanding of the phenomenon under investigation by using prior knowledge as a starting guide. Researchers can also combine deductive and inductive approaches, known as a hybrid approach (Fereday and Muir-Cochrane, 2006). This method draws on the use of an existing theory or framework for deductive coding, then after the initial deductive coding process, researchers employ inductive coding, which allows for discovering new ideas and perspectives from the data itself. Following this procedure, themes were reviewed and refined with the PhD supervisory team on a weekly basis. In these meetings, themes were presented as an initial draft of findings to the supervisory team. The team then engaged in detailed discussions, questioning the interpretation of these themes based on previous research. Finally, themes, sub-themes, and newly identified themes were documented as presented in this thesis.

3.8.3 Limitations and Developments of Thematic Analysis

Researchers widely recognize thematic analysis for its ability to find, examine, and reveal patterns in qualitative data, uncovering the meanings, patterns, and themes that exist in raw data (Braun and Clarke, 2006). This method is useful for analyzing subjective experiences, and understandings, which can lead to trustworthy and insightful findings (Vaismoradi et al., 2013). It is flexible and offers ease of understanding, especially for those with little or no experience in qualitative research (Braun and Clarke, 2006). However, there are still disadvantages that necessitate researchers to understand the limitations before applying thematic analysis, which are

presented in this section. I also highlight ongoing developments in thematic analysis approaches, comparing them with the inductive and deductive thematic analysis used in this research.

Despite its advantages, thematic analysis is recognized to face some obstacles in its application. Its flexibility can sometimes make it challenging to set clear rules for in-depth analysis, leaving researchers unsure about which data aspects to focus on (Braun and Clarke, 2006). Additionally, thematic analysis lacks clear boundaries and definitions, which can lead to confusion and inconsistent application (Vaismoradi et al., 2013). For example, in government, transparency might mean that the public can easily access records (Musa, 2019), while in business, it can involve clear and honest communication with stakeholders (Fairbanks et al., 2007). Therefore, the differences between agencies or organizations result in varying definitions and objectives for studying transparency. In addition, different groups, like employees, customers, investors, and citizens, may have different expectations about what transparency and accountability should include, causing inconsistencies (Szoke-Burke et al., 2021).

Because of these problems, this study initially focuses on T&A (transparency and accountability) by reviewing literature related to T&A in computer systems. Afterward, I developed a clear framework (see Figure 3.3 and Figure 3.4) to prevent confusion during the analysis. This study's scope is well-defined by using T&A in system mechanisms to gather information and understand T&A in the SSO from the viewpoint of public officers. T&A in citizen engagement mainly explores T&A from the data of insured persons. These frameworks are created in this research to ensure consistency in collecting and analyzing T&A from different stakeholders, such as public officers and insured persons.

Without an underlying theoretical framework, thematic analysis tends to operate on a basic descriptive level, as pointed out by Braun and Clarke (2006). As a result, the development of more complex and insightful thematic categories can become a challenging task. These issues highlight the need for careful and skilled application to make the most of this method, and a variety of variations and adaptions have been developed. For example, some researchers use codebook thematic analysis to analyze data to overcome limitations like unclear boundaries. This approach involves

developing themes before the analytical process (Braun and Clarke, 2022, Byrne, 2022), which helps ensure that the data analysis is not interpreted too broadly or keep track of the analytic process (Oliveira, 2023).

The rise in popularity of thematic analysis has stimulated a broader range of methodologies within qualitative research. Braun and Clarke (2019) have identified variations in this evolution by categorizing and defining coding methods as *'reliability,' 'codebook,'* and *'reflexive'* approaches, which have emerged critical advancements in thematic analysis. In the reliability TA method, the first of this reliability is about trying to ensure that the coding in thematic analysis is consistency and accuracy. This is done by identifying predetermined themes and reducing subjectivity (Braun and Clarke, 2021b). This method uses multiple coders and develops themes from data collection questions or through familiarization with the data (Braun and Clarke, 2019). Codebook thematic analysis (codebook TA) involves creating a well-defined and structured codebook to guide the coding process, including definitions and examples for each code (Braun and Clarke, 2021b, Braun and Clarke, 2022). These codes are usually based on existing concepts, theories, and prior knowledge to analyze qualitative data for a specific project (Oliveira, 2023). Reflexive thematic analysis (reflexive TA) involves the researchers reflecting on their biases, assumptions, and interpretations during the analysis process (Braun and Clarke, 2019). In this approach, themes are not predetermined to guide the search for codes. Instead, themes are generated by organizing codes around a central concept or core commonality that the researcher identifies from the raw data (Braun and Clarke, 2019, Braun and Clarke, 2021b, Byrne, 2022).

To compare with deductive and inductive thematic analysis in Section 8.3.1, the analysis in this thesis aligns closely with the codebook and reflexive TA. Byrne (2022) states that a researcher using a *'deductive'* or theory-driven method might create codes based on *'a predefined conceptual framework or codebook'*. This type of analysis is analyst-driven, relying on the researcher's theoretical interpretation. On the other hand, a researcher using an *'inductive'* or data-driven method might develop codes that directly *'reflect the data's content without any prior theory or framework'*. This technique does not use a pre-set list of codes; instead, it uses open coding to

best capture the meanings shared by the participants (Braun and Clarke, 2006, Braun and Clarke, 2013).

This thesis uses an inductive approach, where data is open-coded, emphasizing the participants' meanings as discussed in Sections 4.2.3 and 5.2.3. However, some deductive analysis is also applied to ensure the open coding helps create themes that are meaningful and relevant to the research questions (Byrne, 2022). I also draw on deductive approach because it can offer an analysis of specific aspects of the dataset, examining them through the lens of a particular theory (Braun and Clarke, 2021a). To apply the deductive approach in this study, I use a predefined framework, as outlined in Sections 3.6.1 and 3.6.2., including studies on moneywork and T&A in the government context. Therefore, the analysis results will be able to answer my research questions correctly according to generally accepted academic principles.

3.8.4 Data Analysis for Each Phase of This Study

The study of HCI in money and digital transfer in the government sector is a complex issue with different chronologies, multiple people involved, and across social contexts. To determine the direction of the analysis in accordance with the research objectives, it is necessary for this study to identify the framework's underlying theories and concepts, as well as the framework's themes. This is because T&A definitions cover a broad area and present several factors that enhance T&A, as elucidated in the literature. To provide clarity on the knowledge of T&A, this thesis delineates potential factors of T&A within the fields of computer sciences and IS, which helps us set a research scope of T&A to answer research questions. Alongside this, the participant's narratives may provide new information beyond the established theme, which is an essential detail leading to new knowledge.

For this reason, I chose to utilize a hybrid thematic analysis method to analyze the data in each study. This approach provides a flexible and comprehensive framework that effectively incorporates participants' diverse narratives, integrating their experiences and multiple perspectives on T&A. One notable characteristic of this method is its ability to distinctly analyze the classification and interpretation processes. It achieves this by structuring themes based on pre-defined existing knowledge drawn

from the literature while remaining open to unexpected findings that may emerge during the analysis process. This dual approach enhances the efficacy of data analysis within the thematic analysis paradigm, ensuring a thorough exploration of potential T&A factors in each study.

Table 3.1: Overview of Studies Conducted in This Thesis

Study topics	**To understand the payment systems in the SSO**		**To explore and evaluate T&A in payment systems for the SSO**	
Research studies	1		2	
Research questions	**RQ1.** How do participants interact with payment systems of the SSO?		**RQ2.** What are the influences that enable transparency and accountability in the SSO payment systems?	
Research philosophy	Interpretive		Interpretive	
Participants	Insured persons (15)	Public officers (14)	Public officers (10)	Insured persons (12)
Participation selection	Snowball sampling	Judgmental sampling	Judgmental sampling	• Judgmental sampling • Snowball sampling
Data collection method	Online interview		Online interview	
Data analysis techniques	Hybrid approach: Inductive and deductive thematic analysis		Hybrid approach: Inductive and deductive thematic analysis	

As depicted in Table 3.1, which provides a methodology of the studies, I employed a hybrid thematic analysis due to the varied nature of my data analysis. Specifically, for Study 1, I utilized the moneywork cycle as a main theme, and for Study 2, I focused on potential T&A factors, organizing interview data into pre-themes through a

deductive technique. In contrast, the remaining unexpected theme underwent analysis directly from the interview transcripts, allowing for the generation of subthemes for Study 1 and new themes for Study 2 through an inductive technique (details in Chapters 4 and 5).

3.9 Chapter Summary

This chapter reviews the research paradigms, methods, and approaches used in the thesis. In my thesis, I have utilized an interpretive paradigm because it allows me to interpret the complex and subjective aspects of benefit payment in the SSO context. The qualitative method is selected for this study because it is associated with interpretive theory (Oseni, 2017), which centers on understanding the meanings of behavior and the complex experiences of participants.

I elaborate on the use of narrative in qualitative research for further understanding. I discuss the significance of narratives obtained through interviews, as they provide extensive contextual data to enhance the understanding of complex phenomena. Hence, this study's narrative approach is chosen to delve deeply into the benefit payment process. This approach allows for exploring the participants' experiences across time, encompassing the past, present, and future. Because of being unable to have an in-person interview due to the COVID-19 pandemic, an online interview process was selected. By employing snowball sampling, I recruited participants with diverse experiences, resulting in a comprehensive range of information on both positive and negative attitudes. Judgmental sampling was also used to select participants who closely participated in the benefit payment processes, which aimed at verifying the trustworthiness of data obtained from a participant.

This thesis employs thematic analysis to examine narrative data with a hybrid approach combining deductive and inductive reasoning. I draw on this approach by using existing principles and frameworks (such as the moneywork lifecycle and potential T&A factors) and exploring new themes that emerged from the interview data. By doing this, a hybrid approach allows for a detailed thematic description and assists in comprehending and interpreting the narrative data.

Chapter 4: Collaborative Work of G2P Payments

4.1 Introduction

In Chapter 3, the research methodology was discussed, including the research paradigm adopted with qualitative data in my study, drawing on a narrative approach for data collection. Following Chapter 3, this thesis is divided into two studies: 1) understanding financial transactional activities in claim procedures and 2) investigating transparency and accountability (T&A) in the SSO payment systems. These two studies are intended to provide a comprehensive account of the claims process (i.e., benefit payment receipt) and examine the influences that impact the benefit payment systems to enhance T&A in the back-office and the front-office system interacting with citizen engagement.

The purpose of Chapter 4 is to present the findings of Study 1 which related to the RQ1: how do participants interact with the payment systems of the Social Security Office (SSO)? In the light of HCI and CSCW, this chapter draws on money and moneywork in HCI (see Section 2.2), and collaborative work within payment systems (see Section 2.4.2). As explained earlier in Section 2.4.2, the benefit payment system in the SSO involves a large number of people and multiple working processes. The researcher should gain a deep understanding of the impacts of socio-technological aspects, such as organizational structure, claim procedures, participants' experiences, the SSO payment systems, and e-services. This understanding is essential to grasp participants' behaviours and attitudes toward the money and payment methods discussed in this chapter.

Chapter 4 will present, discuss, and analyze the data collected from public officers and insured persons in Thailand (i.e. Thai citizens). It will examine organizational and personal experiences from Thailand's small, medium, and major provinces, providing diversity of access to cash, digital transfers, and human-human and human-computer collaborations in the use of technologies.

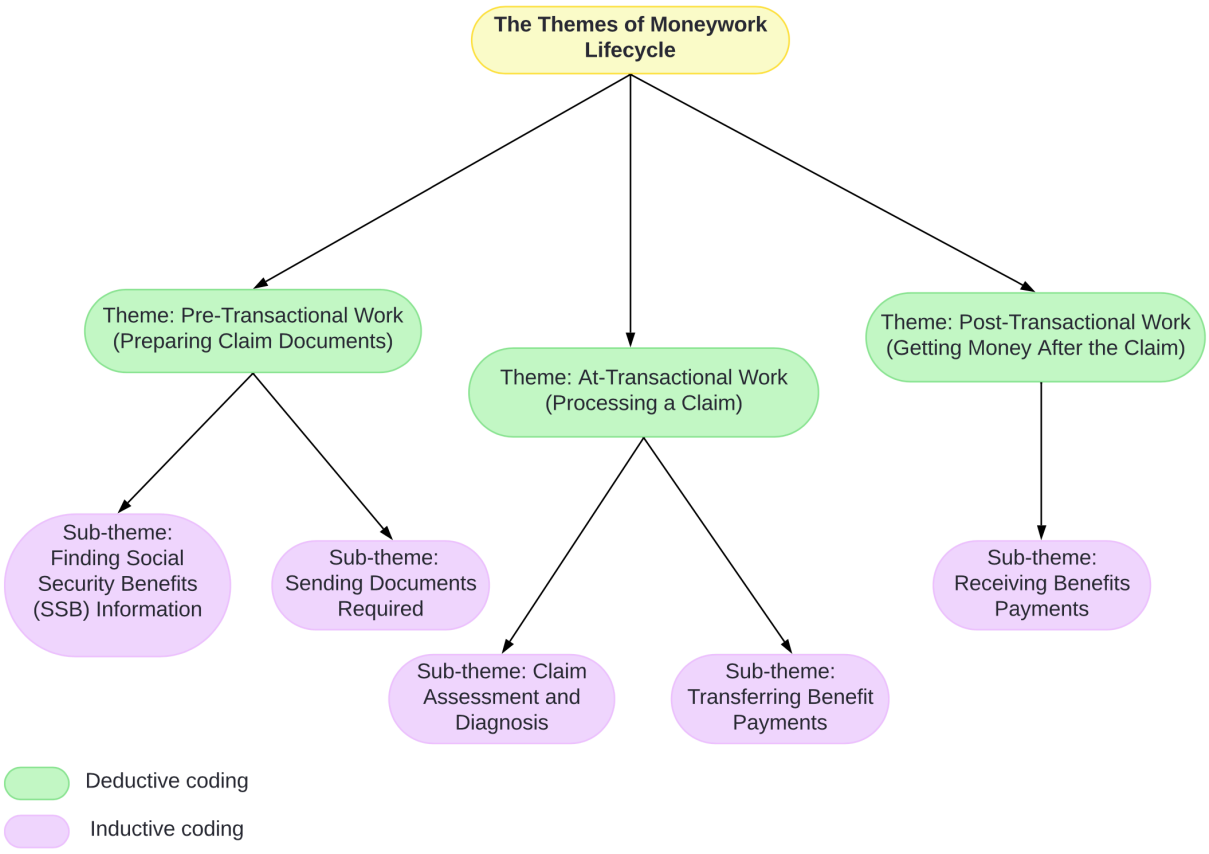

Figure 4.1 : Thematic Map of Moneywork Lifecycle

This study employed a thematic analysis approach to examine both organizational and personal claims experiences (see Section 4.2.3). Based on the interview, these experiences were first derived deductively into three main themes and further coded inductively into five sub-themes, as illustrated in Figure 4.1.

4.2 Research Question and Approach of Study 1

Study1 interviewed 29 participants via the Line videoconferencing app (https://line.me). Participants (only public officers) took photographs as an additional data source to provide supplemental detail. Before the interviews, ethics approval was obtained, and consent forms were delivered to the gatekeepers and participants. All participants took part in a 40–90-minute interview which was conducted between October 2020 and April 2021. The audio from these interviews was carefully recorded and transcribed for analysis. Participants were separated into two groups (insured persons and public officers), and both interviews employed semi-structured interviews. The following participant codes appear in Table 4.1 and 4.2: <IP> identifies an insured person, <PO> identifies a public officer, and <1> denotes Study 1, with the serial number serving as a unique personal identifier.

4.2.1 Participants of Study 1: Insured Persons

The first group consisted of 15 insured persons who had previously claimed SSB in Thailand. These interviews were obtained through personal connections (n = 4) and snowball sampling (n = 11). Participants ranged in age from 26 to 66 years old, with 6 men and 9 women participating. The participants held a variety of occupations and received different monthly salaries (USD$ 1: 36.46 baht). Most participants were employed; however, 2 were unemployed and 2 were retired, as shown in Table 4.1.

Using a diverse group of participants in this study, we can better understand various aspects of technology use, especially in relation to payment systems. This diversity helps to clarify different behaviours, challenges, and experiences with the SSO payment system. Additionally, including participants from different backgrounds ensures a broad view of how various characteristics can influence the use and perception of technology.

Table 4.1: Insured Persons Codes and Details of Study 1

Code	Gender	Age	Occupation	Status	Monthly Salary
IP101	M	37	IT consultant	Employed	$1,919.91
IP102	F	26	Kitchen Administrator	Unemployed	$287.99
IP103	M	26	Programmer	Employed	$822.82
IP104	F	43	Gold salesman	Employed	$329.13
IP105	F	42	Lecturer	Employed	$1,508.50
IP106	M	32	Software engineer	Employed	$1,097.09
IP107	M	36	Academia researcher	Employed	$1,151.95
IP108	M	32	Web developer	Employed	$1,371.37
IP109	F	31	Lawyer	Employed	$959.96
IP110	F	38	Lecturer	Employed	$1,206.80
IP111	F	31	Flight attendant	Unemployed	$205.70
IP112	F	35	Kindergarten teacher	Employed	$274.27
IP113	F	50	House rental owner	Employed	$1,782.78
IP114	F	66	Marketing manager	Retired	$88.45
IP115	M	65	Sales manager	Retired	$100.66

A range of questions were asked to the participants to collect narrative data within a specific period to represent the participants' experiences at all stages of receiving SSB payments. In the stage of finding SSB information, the citizen participants were asked questions such as: *"how do you search the SSB information?", "how do you learn to receive benefits from others?"* and *"how do you communicate with government officials?"*. They were also asked about sending documents required: *"which media channels do you utilize when searching out information on making claims?", "why do you use this channel?",* and *"what challenges do you encounter when submitting a claim?"*. However, public officers were asked to describe the narrative in claims assessment and diagnosis and transferring benefit payments to citizens (see Section 4.2.2). At the stage of money receipt, the participants were asked: *"what is your rationale for using online or offline payment?", "what are the benefits and drawbacks of receiving digital versus analog money?"* and *"which procedures of benefit payments do you want to see improved?".* When an interviewee was interviewed about claim experiences that happened spanning several years, I did not only simply inquire regarding their past experiences and personal narratives: I also requested a recent example from them. To provide a variety of timelines of information, data was collected from the past, as well as the latest situation they had experienced, including the expectations they wanted to occur in the benefit payment systems. Hence, further

questions were asked to ascertain the source of any disconnect for the interviewee such as: *"could you please tell me about your last experience about this?"* or *"what is your personal opinion on this issue?".* (see appendix VI for the full set of interview questions)

4.2.2 Participants of Study 1: Public Officers

The second group consisted of 14 public officers who worked at the SSO in Thailand. These were identified by a gatekeeper (the head of provincial social security), who assisted in selecting participants with detailed knowledge of the claims process, working practices surrounding decision-making in making payments, and experience with problem identification and claims resolution. The participants were selected from the Benefits Department and the Financial and Accounting department because both departments are involved in the benefit payment process (see Table 4.2). Each public officer heads the department, overseeing approximately ten subordinates. They review decisions, approve payments, guide, and closely supervise their teams.

Table 4.2: Public Officers Codes and Details of Study 1

Code	Gender	Age	Department
PO116	F	44	Financial and Accounting
PO117	F	56	Benefits
PO118	F	55	Financial and Accounting
PO119	F	51	Benefits
PO120	M	58	Financial and Accounting
PO121	F	52	Benefits
PO122	F	57	Financial and Accounting
PO123	F	54	Benefits
PO124	F	53	Financial and Accounting
PO125	F	55	Benefits
PO126	F	57	Financial and Accounting
PO127	F	55	Benefits
PO128	F	49	Financial and Accounting
PO129	M	47	Benefits

Consequently, the heads of these departments are valuable for the thesis because they have firsthand experience and deep insights into the benefit payment processes and their challenges. Their direct involvement in internal management and acting as representatives to communicate with the citizens provides detailed and practical

information. This helps to understand problems and identify areas for improvement within the SSO at every stage from the administrators' perspectives.

The Benefits department oversees verifying claim evidence, determining benefit payments, and authorizing the opening order of payments. This department is responsible for other aspects of benefit payment, such as training, consulting, and handling complaints. The Financial and Accounting department is a department that facilitates collaboration with the benefits department by approving benefit payments. The money will be transferred to citizens in various formats (see Section 4.7); the decision-making of payment formats depends on the benefits officer's consideration. In addition, this department also performs the duties of managing the central government's budget preparing, and auditing income and expenses transactions of the SSO.

This group consisted of 2 men and 12 women between the ages of 44 and 58; this overabundance of females in the dataset was representative of the workforce gender balance, described by gatekeepers as a result of the patience and thoroughness required for the role, which women were believed to be able to provide. There were 7 participants from the Benefits department, and 7 from the Financial and Accounting department. The head of the Benefits department is responsible for inspecting and supervising the work of benefits officers, from checking the completeness of required documents and conducting claim diagnosis until approval of payment orders. The head of the Financial and Accounting is in charge of authorizing payments (i.e., clearing payment orders transferred from the Benefits department), as well as controlling and managing the Social Security Fund (SSF)'s income and expenses. The management of SSF is not included in the study because it is unrelated to the context of G2P payment.

Similar to insured person interviews, interview questions were focused on the claim phases. However, only public officers were asked questions concerning diagnosing benefits and transferring benefit payments because those officials could provide accurate responses. In this study, the heads of Benefits departments from several SSO provinces were asked questions about their claims assessment experiences such as: *"what are your responses or actions when insured persons*

inquire about SSB information?", "which digital technologies are utilized to disseminate SSB information?", "what difficulty do you encounter when receiving evidence of claims?" and *" how do you improve the procedure for receiving evidence of claims?"*. The study also explored the participants' experiences regarding the diagnosis of claims: *"what is the problem with the diagnosis of the claims?", "how do you communicate with insured persons to ensure they comprehend the claimed diagnosis?"* and *"what suggestions do you have for improving claimed diagnosis?"*. The heads of Financial and Accounting departments shared their experiences of transferring benefit payments through the questions such as: *"how do you determine the appropriate form of payment for each insured person?"* and *"why do you think these payments are suitable for them?".* (see appendix VI for the full set of interview questions)

4.2.3 Data Analysis

The transcripts of participants' stories were analyzed using deductive-inductive coding as a hybrid process of both techniques (Fereday and Muir-Cochrane, 2006, Kucirkova et al., 2015). The research used thematic analysis when the research questions aimed to explain certain phenomena and explore new areas (Tafazoli and Meihami, 2023). As a result, a hybrid approach was suitable for this study because this approach to thematic analysis combines broad deductively generated codes to home in on the data, followed by inductive coding to investigate it in more detail (Rivas, 2012, Kucirkova et al., 2015). Initially, I created codes for three main transactional groups using a deductive method, relating to the HCI and CSCW literature on moneywork: pre-, at-, and post- transactional work (Perry and Ferreira, 2018, Kameswaran and Hulikal Muralidhar, 2019). After reducing the data into these three broad categories, an inductive method was applied to create more detailed, data-driven codes, which were then examined to identify underlying themes (Boyatzis, 1998, D'Amore et al., 2021). The deductive coding was derived from the grouping of interviewee data under the concept of moneywork, namely finding SSB information, submitting claim documents, claims assessment and diagnosis, transferring benefit payments, and receiving benefit payments to relate this analysis solidly to the financial transactional work in the SSO.

4.3 The Moneywork Overview Diagram

I divided the interviews into two groups based on the narratives of SSO workers and insured persons. These groups helped to explain the steps of the claim process, their impressions, and the problems and barriers they encountered while claiming benefits with the SSO. To understand a sequential description of the claim activities and cooperation relationship involved, I present the moneywork diagram in Figure 4.2. The transactional processes in this diagram are categorized into three phases that correspond to the claim events. Each stage illustrates the process's key elements and the relationships between government officer to citizen while making a claim. After presenting an overview of claiming, the following topics discuss the details of the benefit payments processes (see in 4.4 – 4.8)

Based on the main research question of Chapter 4, I focus on how insured persons collaborate with public officers for receiving benefit payments and address on payment and the social security claims procedure rather than the identification of the reasons for the need for a claim. I begin my analysis with the process of initiating a social security claim by entering the financial lifecycle in Figure 4.2. To do so, I introduce an overview of the claiming benefits by order of events ranging from preparing claim documents, processing a claim, and getting money after a claim. These events represent five sub-events of claim processes: finding SSB information, submitting claim documents, claims assessment and diagnosis, transferring benefit payments, and receiving benefit payments. In the diagram, arrow symbols connect the occurrence relationships. These symbols illustrate potential pathways within the cycle and the sequence in which participants recognized interactions between public officers and insured persons.

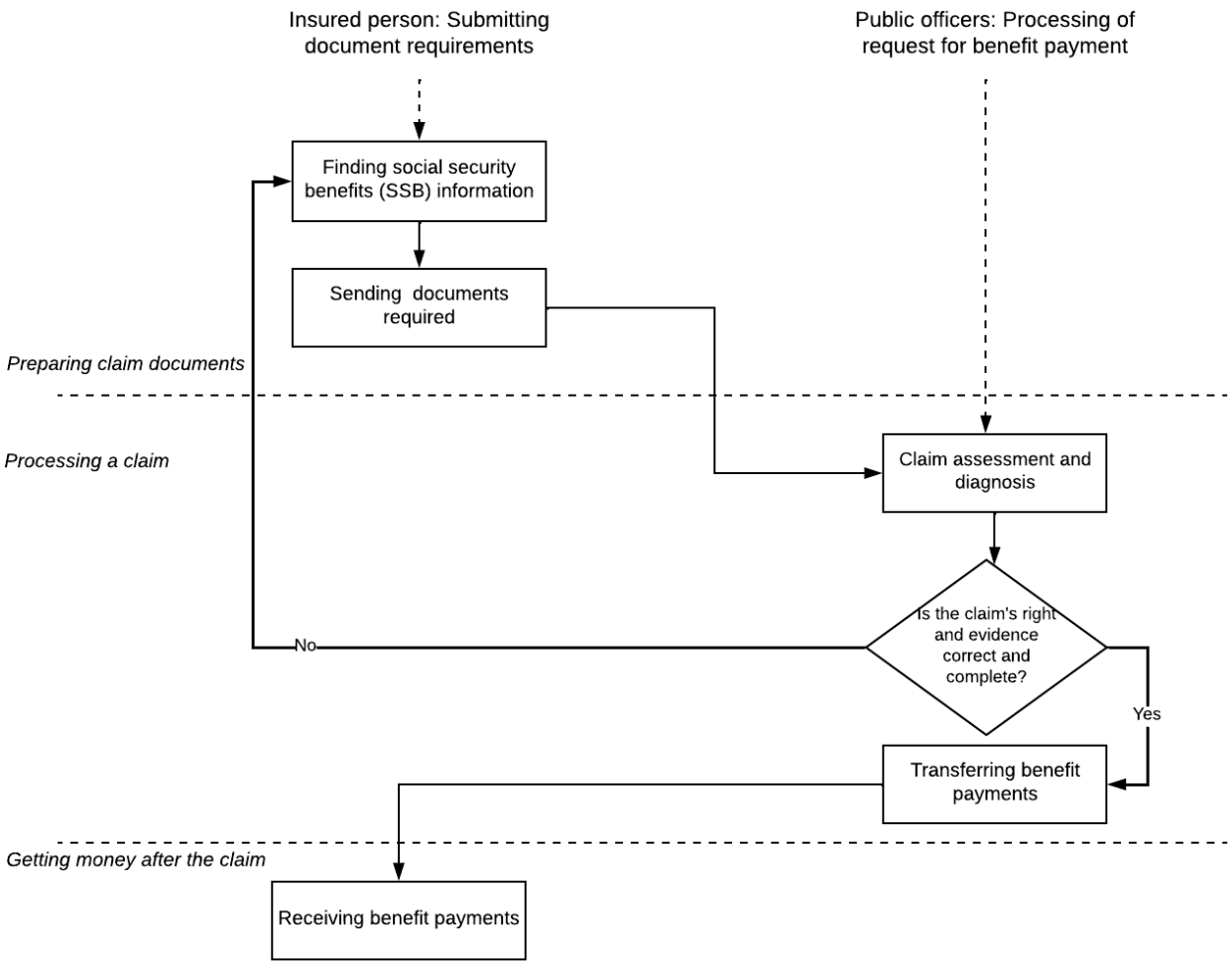

Figure 4.2 : Process Flow for Social Security Benefit Payments

Figure 4.2 shows the process flow of claiming benefits. Beginning with preparing claim documents, an insured person prepares documents by searching for SSB information. Participants always seek assistance through social connections, but some participants prefer to be self-sufficient. After obtaining the necessary information and when they complete preparing evidence of claim, these documents are sent to the public officer by several approaches (see Sections 4.4 and 4.5 for details). When a public officer receives all of the documents, the benefits officer double-checks them, and if all documents are complete, the diagnostic process can begin. However, if proof of an error is found (e.g., the insured person lacks a medical certificate), the benefits officer will reject the claim and request additional required documents from the insured

person. In the diagnostic process, the benefits officer evaluates whether the claim is valid and whether the supporting evidence is correct and complete. If public officers deem the evidence and results of the diagnosis to be accurate, they will be transmitted to the process of transferring benefit payments, where the benefits officer will determine the appropriate money forms and payment types for the insured person in each case. However, if the claim is not approved, it means that the claim will be denied. These rejected details will be communicated to the insured person so that he/she can be informed (see details in Sections 4.6 and 4.7). Finally, payment information will be sent to financial officers to authorize digital or physical forms of money to the insured person (see Section 4.8 for details).

This empirically developed life cycle study is not designed to provide a comprehensive picture of the transactional work that goes into G2P payment but rather is assisted in examining and explaining the interactional patterns revealed by participants' narratives. The next sections describe the participants' collaboration by representing these tasks, analyzing the connections and interdependencies among the several phases, and explaining why they chose to handle financial interactions in this way.

4.4 Finding SSB Information

Several citizen participants reported conducting preliminary research on SSB information before submitting documents through the proper channels. Due to the detail and complexity of official SSB information, these participants' search approaches focused on obtaining reputable, concise, and easily understandable sources of information. Sources of knowledge included people close to them who had dealt with a claim, directly questioning public officers, and searching for information on the internet from trustworthy sources, and we discuss these below.

4.4.1 Social Information Seeking

Each participant had a unique entry point for investigating SSB information through various resources and social contexts. Importantly, social relationships with others significantly impacted the initiation of claims. Some participants began by questioning

family members about the claim procedure because it made them feel more relaxed than consulting with someone from the outside. Additionally, some relatives advised helpful information to claimants because they were concerned for them, even when participants did not ask for assistance. For example, IP108 revealed assistance from his elder brother (IP101) with healthcare reimbursement information when he observed IP108's recurring dental issues: *"My brother wishes [me] to save money on this expense. Even if none of these things have ever got my attention".* IP101 was highly aware of the importance of protecting the claimant's rights and was determined to keep them despite his younger brother's disregarding of the SSO system. IP101 not only shared his claims experiences with his family, but he also obtained useful information from other family members: *"I enquired of my relative who was familiar with maternity and child allowance benefits. I asked about document preparation till I understood, as I had to submit all the documents on behalf of my wife."* In this case, IP101 did not have previous experience with the claim of maternity and child allowance benefits. Because of that, he needed to thoroughly inquire about these benefits information to avoid errors in submitting documents and gain his right to claim the benefits fully.

Some participants stated that human resource (HR) employees assisted them in learning how to claim benefits and their right to do so. However, if their colleagues have had these kinds of experiences, some participants chose to consult with them, rather than HR specialists to prepare evidence for a claim:

> *"If it's an old-age pension, I'll ask retired seniors how to obtain money as soon as possible. [...] I submitted my documents a year in advance. For example, if I become 60 next year, I must submit documents from this year, which is 59 years old, because I will already be receiving money when I turn 60"* - IP114

When claiming benefits was complicated and finding someone who could answer their queries was considered difficult, some participants consulted social security officials directly, although several participants described contacting SSO staff as being difficult. This may explain why many participants chose to be self-reliant by searching for

information on the internet to avoid making errors in the document submission process, a process that I document below.

4.4.2 Dealing with Diverse Online Information

In several cases, interviewees pushed for self-reliance in exploring the procedure of requesting financial assistance by searching for information on the internet because they considered that word-of-mouth inquiries could be delivering inaccurate information. Participants emphasized the advantages of digital content as being quick and easy to access, saving time in contacting public officers, verifying who uploaded the information for reliability, and when it was changed to determine whether it was still current. The main issue that participants described encountering was judging if the web information retrieved was accurate or relevant to their specific circumstance. IP110 described his information gathering techniques to explain the problems he encountered: *"I have compared information at least three data sources before making the decision by primarily searching for information from search engines like Google".* It is interesting to note that the participant explored information via a search engine rather than directly linking to an official website; this action cannot confirm whether the selected website is accurate or fulfils his requirements, but this triangulation of three data sources suggests that the individual is attempting to cross-check the information uncovered. Similarly, establishing the credibility of information on the Internet was reported by IP111 to be a persistent issue requiring careful study: *"When I search with Google, I will look at the data from the top first, but I don't believe all of the above information [...] I look at multiple links based on how credible the source is. […] I make a decision by using [Google as a] a way to view comments from social media".* Again here, a search engine such as Google is used as a starting point for social media search, but the participant needs to discern and evaluate the information encountered, comparing different sources to see if the posts related to their cases were accurate or up to date.

In addition, some participants found social media posts to be rich and valuable content sources concerning the process, obstacles, and problem resolution in presenting their claims. Online communities (for example, Pantip.com, a popular Thai community site) and social media platforms (for example, Facebook and YouTube) were frequently

used to determine what others had verbally told them about applying SSB claims. If they needed a definitive or application-specific answer, some participants compared this information against the SSO's website content, which was considered the authoritative source of information on the SSO application process despite significant and varied difficulties in using it:

> *"The Social Security Handbook took me a long time and effort to read [...] the best thing is [about social media] that I can receive more specific information and apply what I've learned into practice. But it doesn't say how long did you pay social security contributions? How long did you work? How much money did you receive? and what proof is required? The SSO manual, while difficult to read in detail, offers all the information you need"* -IP109

This excerpt demonstrates that both social media and official sources are crucial information sources for claimants but serve very distinct purposes. While social media can be an accessible and motivating way to learn more, it is not always exhaustive or accurate. These findings suggest that participants expanded their knowledge by cross-referencing and extending their understanding through more reliable sources such as official social security sources.

4.5 Submitting Claim Documents

Typically, an insured person submits all required documents directly to a public officer at the service desk, who then verifies all claim evidence (see details of pre-assessment in section 4.6). If all documents are complete, the benefits officer will enter the information into the SSO database and calculate the payout time, which will be approximately three working days. However, if any documents are incomplete, the benefits officer will send a letter to the insured person notifying them of the problem and providing a deadline for resubmitting the required documents that day. Those unable to transmit documents directly to the SSO may do so via fax, mail, email, or the Line application:

> *"During the COVID-19 pandemic, I submitted documentation to the SSO directly to receive sickness benefits. However, the public officer stated that her work was extremely busy at the time. Because she works in shifts, she doesn't have a lot of free time. So, she requested me to take a photo and upload my evidence via the Line app […]"* -IP104

SSO officers found it important to have access to technology in resolving SSO application difficulties, giving faster and more efficient processing of paperwork. However, technology was perceived to have a disadvantage in that these interactions lacked support. Consequently, PO121 stated that *"the insured persons always wait for the staff to help because they feel familiar and confident when they send and talk with us".* Indeed, PO204 and PO206 provided further examples that insured persons who lack technology readiness and older people, can need exceptional help from public officers, such as how to use SSO e-service via a mobile application. Death, sickness, and invalidity are other reasons for delivering documents directly to authorities. In these instances, the diagnostic procedure involves more in-depth questioning of the insured person than in other circumstances, such as when the informant has experienced a significant medical condition:

> *"By appointment, I call first before walking in at noon […] the public officers need to check up on my health and treatment frequently since I was in the hospital until now. [...] they asked me about my current health difficulties and the suggestions of preparing important documents for future claims"* - IP113

According to the findings of IP113, close communication with government officials influences citizens' perception and confidence in managing documentation in the claims process: *"I was impressed and relieved to get good advice, and I thought my problem would be resolved".*

However, when claimants are requested to provide further evidence, they attempt to return home in order to retrieve the missing document. This circumstance could lead them to start a new queue. As a result, they have to face the problem of slow queues and longer waits than before (see Figure 4.3).

Figure 4.3: Queuing Environment

Figure 4.4: Receiving Documents

In light of this, several public officials proposed that the SSO implements electronic submission to process claimant documentation online. While the SSO presently uses an e-form system, this only allows for the recording of benefits (the web-based *'SSO e-service'*) and does not permit users to upload supporting documentation, which must be manually submitted and processed. This indicates that insured persons typically maintain multiple copies of evidence that could be lost during document processing (see Figure 4.4) and that public officers must manually copy the insured persons' documents (see Figure 4.5).

Figure 4.5: Copying Claim Evidence

When insured persons are geographically distant or need to provide information as proof of claim diagnosis, public officials have to await the receipt of faxed documents (see Figure 4.6) before they can progress a claim.

Figure 4.6: Confirming a Fax Document

4.6 Claims Assessment and Diagnosis

After an insured person submits the required documents, the benefits officer is responsible for a preliminary document review, known as pre-assessment validation. In this process, not only are documents examined, but personal interviews are also required. If there is no error in the case's verification, it will proceed to the diagnosis stage. This process relies on the insured person's evidence from previous step, the public officer's experience, and SSO regulations, along with the insured person's information from the SSO database. It involves two key steps, described below:

4.6.1 Pre-Assessment Validation

Before initiating any assessments around a prospective claim, the benefits officer needs to validate the insured person's identity, including their ID card number, phone number, and SSO account number during document processing at the service desk. They then need to compare these to the insured person's registration details stored in the Sapiens system. Data is manually checked by officers who compare the digital and physical documentation. Checking data between physical and digital data ensures

that payments are made to the correct bank accounts and to minimize fraudulent claims (PO117).

If the personal data of insured person in the Sapiens system matched with the submitted documents, and the benefits officer assumed that no problems are identified, the benefits officer then needs to determine whether the insured person is entitled to compensation. They do this by mapping the claim against the claimant's social security contributions' payment period, which is listed in the Sapiens system (contributions need to be paid every month to remain eligible for benefits). PO127 described how benefits officers must not only reference information in the system but also check these with the claimant, for example asking *"Are you a member of this company's staff? Is the salary correct?"* to ensure that the insured person's response is consistent with the system's information. It can confirm that these persons are actual employees and have paid correct monthly contributions. If they can identify that the claimant is not an employee or has not paid their contributions in full, the benefits officer will need to formally *"reject in writing that you can't get the benefit payments"* (PO121) and explain the reasons for this decision.

4.6.2 Information Integration

If the insured person passes the validation checks, the benefits officer will initiate a diagnostic process to assess the merits of the claim and calculate any payments due by looking in detail at the insured person's evidence for the claim and the Sapiens system's record of any prior claims:

> *"[…] in case of illness, I have to look at the past medical history to see whether it is an ongoing treatment case. If so, the insured person only brings a medical certificate […] I will not create a new case but will continue diagnosing in the current one. If the sickness is a new occurrence, I will gather the new proofs"* - PO123

Such decisions were often complex as the documentation provided was not generated with a social security benefit claim in mind, and some officers expressed concern about making inappropriate compensation judgments due to their lack of medical expertise in interpreting this as evidence for a claim. In addition to checking medical records to assess the claimant's eligibility, where the insured person had required

hospitalization, public officers also needed inquire whether they had been treated at an eligible hospital. For instance, PO119 and PO125 described manually comparing a patient's hospital documents to the Sapiens system which indicated its ineligibility, so they would not receive reimbursement for these medical expenses unless they faced an accident or emergency case. In such cases, PO127 stated that *"officials must write a memo of a factual transcript explaining why this insured person wasn't admitted to an eligible hospital."* For the insured person to be able to make a claim in these situations, they would have to submit additional medical documentation and satisfactorily answer more questions with the public officer. If a claim is rejected, the benefits officer will send a clarification letter to the claimant explaining why they are not eligible for compensation.

Due to rapid growth in the use of the system and the enormous increase in the volume and size of data submitted, and because the Sapiens system's database was not designed to cope with this, there were frequently long processing delays on the system. As PO118 explained, simultaneous access to a client's records was not possible: "*I was unable to access the insured persons' data when the head office of SSO was retrieving the reports from the Sapiens system"*. Additionally, many common functions, such as calculating the number of months of social security contributions paid by employers were not automated on the system and required manual workarounds. Some of these were surprisingly basic, as for example PO119 described how she manually resolved this by counting the months on her fingers. These officers were understandably concerned about the potential for human error in this.

Delays in diagnosis were not only caused by the computer system, but also by employers that had not paid their workers' social security contributions for some months or by citizens reporting fabricated or erroneous information when making claims. In those circumstances, the public officers often required more time to recheck information with the insured person. Moreover, in some cases of medical cost estimation, the provincial benefits officers lacked the necessary knowledge and skills to do so. Consequently, PO125 suggested the SSO headquarters should be in charge of this process to ensure the accuracy of the compensation for medical treatment was based on a medical professional's opinion.

4.7 Transferring Benefit Payments

After an SSB payment has been approved, the benefits officer will submit a case diagnosis memo to the SSO financial officer who will need to check the insured person's identification record links to their payment details and can then authorize a payment transaction through the SSO's system. Payment methods fall into four types, namely online banking, cash, cheque, and postal order, the choice of which requires further diagnostic attention, depending on the SSO's legal responsibilities and the insured person's particular needs.

4.7.1 Digital Payment

When an insured person requests a benefit payment for the first time, the public officer will attempt to make a transfer via online banking. Hence, the payment point at the SSO serves as a trigger for identifying any payment problems, for example, if a public officer records an incorrect bank account number for the claimant. Where such problems occur, claimants typically contact the SSO to find out what went wrong and how to resolve it, or travel to pick up their money in person.

Most insured persons commented that the use of online banking for SSO payments was faster, more convenient (especially avoiding long queues), and considered this as more secure than being paid in cash. Public officers noted that this reduced the need for ensuring sufficient cash was held at the SSO, and helped to prevent fraud and accusations of fraud, as well as saving time writing cheques out, all of which acted to reduce heavy workloads:

> *"Having a digital payment method will help to decrease the financial and accounting division's workload. [...] We don't have to waste time preparing cash, cheque, or postal order at our office. [...] payment is a delicate task. In contrast, our division has a small number of workers. So, we may be in trouble if there isn't digital payment option"* - PO118

However, problems with getting the wrong number of an insured person's bank account did regularly occur, the majority of which were caused by out-of-date account

numbers, resulting in failed money transfers. All of these needed to be manually resolved, and as can be seen, required communications between SSO officers and claimants. These frequently required delicate collaborative work between the parties to ensure that security and confidentiality breaches did not occur:

> *"Some SSB is already transferred from the SSO payment systems, but it doesn't go through the insured person's account. Thus, this money will be returned to the SSO. [...] I have to request a new account from the insured person, who can send the account number via Line app or Fax on whatever channel is convenient for repayment"* - PO122

While these problems could be caused by an insured person's data entry errors, they could also result from closed banks or bank branches, and the public officer would need to request a new bank number for re-payment. If any of these processes fails or is identified as being problematic, payment would shift from digital to a paper-based medium.

4.7.2 Analog Payments

SSB payments in paper form include cash, cheques, and postal orders. However, making payments through these payment media added additional levels of complexity to their use because of anticorruption protocols and the communications processes involved in ensuring that recipients can receive payments via these media. This often requires a backward and forward process of checking and rechecking between different SSO departments, SSO officers, and the insured persons themselves.

For cash/cheque payments, the insured person can receive their money through the provincial office of the SSO. Unless the insured person is unable to travel, officers will typically offer to pay in postal orders via a post office near the beneficiary's home. Cash payment will be used when benefit payments are below 5,000 baht (approx. USD$137). Although government agencies encourage online payments, public officers commented that cash payments are necessary for insured persons that cannot receive money via online banking. This includes alleviating the needs of insured persons who urgently need money or do not want to have to borrow to pay off

their debts. These individuals require immediate cash from the SSO because the digital transfer takes roughly three days to process. However, the limitations of paying with physical cash include the risk of losing money due to human error, corruption of public officers, and the practical difficulties of carrying, handing over, collecting receipts (and so on) with physical currency. Because these concerns have been recognized as problematic, a policy is in place that if a claim must pay more than 5,000 baht, the SSO requires payment by cheque with a multi-step approval process; while this is more complex and time consuming, SSO officers also recognize that this makes them less liable for sanction if there are questions raised about incorrect payments later:

> *"I feel more confident than paying with cash because cheque payments are verifiable [...] in the SSO, two staff have nominated to sign a cheque and then propose to the head of the provincial SSO to confirm again"* - PO124

Cheques can be used as an alternative to cash and offer additional security benefits for payment because only the payee's name specified on the cheque can receive money (see also Vines et al. (2012)). Furthermore, multi-stage approvals make it more difficult for fraud to arise. However, it takes additional time and labor to prepare, print, and post cheques. Although postal orders are less frequently used as bank branches increase their reach in rural areas, public officers continue to utilize them because some insured persons do not have a bank account (e.g. migrant workers, elderly people, people with access disabilities), although they may live near a post office. However, some participants were concerned about the ineffectiveness of some post offices in mail delivery due to lost mails. As a result, some insured persons did not receive mail, including diagnostic information and payment by postal order. For such lost letters, public officers would need to conduct more work, such as a manual postal order cancellation, and either reissue the postal order or determine a suitable alternative payment method for insured persons.

4.8 Receiving Benefit Payments

Most insured persons preferred to receive money via online banking over other payment methods. A common reason given for this was that all financial transactions were recorded online, and this protected the public from theft and corruption by public officers, illustrating how confidence and security concerns were a key aspect of the SSO's payment process's credibility among citizens. In the following sections, I explore moneywork issues and concerns relating to the receipt of benefit payments drawn from my analysis.

4.8.1 Trust in Receiving Digital Money

While the SSO had several payment methods to serve insured persons, online banking formed the largest proportion of use by most of participants. Participants' trust in the system contributed to the selection and use of this, illustrated by IP109 who stated that *"I trust large and reputable banks"*; this level of trust in the actions of a large commercial institution over a government system is instructive in the context of a commensurate lack of trust in government institutions. As noted by van Esterik-Plasmeijer and Van Raaij (2017), a bank's continuity, scale, and stability, as well as it's transparency by allowing customers to verify their information offers a sense of trust in these systems, as can be seen in the following quote:

> *"If the public officer makes a mistake in transferring the social security benefit, I can notice any irregularities using my smartphone [....] to follow the repayment of my benefit."* - IP101

Likewise, as IP104 and IP114 explained, the ability to check their financial information online allowed them to keep track of their financial transactions anytime and anywhere, making them feel comfortable and safe about their financial circumstances. The use of online banking also saved time and money when communicating with public officers:

> *"I think the advantages of receiving benefit payment via the online system are convenience, speed, the ability to track the money movement, and also saving on travel time and money because I*

don't have to pay for phone calls to ask the public officer when the benefits would be deposited to my account" - IP107

Social security benefit payments in the form of digital money were trusted in reducing fraud because the participants understood that the Sapiens computer system automatically and directly debited benefit payments to individuals from the social security fund. Public officers themselves would not need to carry cash or take money in advance prior to payment. PO127, for example explained how public officers would only be able to transfer money if the insured person's name and surname matched the information in the SSO's system–preventing public officers from digitally transferring money to themselves. However, in contrast to this trust in digital banking reducing fraud, some participants did worry about digital money transfer errors, or payments to the wrong account names, as well as hacking caused by the banking system's cybersecurity weaknesses. For these people, analog methods of payment were considered too small for the attention of cybercriminals: *"If a theft occurs, the thief wouldn't focus on a small amount of money. So, I think there is a low risk of losing money to compare with cash or cheque"* (IP108). Although digital payment cannot be completely secure due to the risk of hacking or viruses, participants understood that the SSO's system did protect them from crime, but they did not discount the external risks caused by people close to them or problems in the wider banking system.

4.8.2 Payments in Analog Forms of Money

As noted, the current SSO policy actively encourages the use of digital payment for claims, and as a result, the use of cash, cheques and postal orders has decreased. However, non-digital solutions are still available to meet insured persons' individual needs and their differential access to digital media and services. Some participants described their experience receiving Social Security Benefits (SSB) in cash. This method allowed them to access the money immediately, without needing to visit a bank or wait for processing. They reported no difficulties in using the cash for their needs. However, and illustrating a disadvantage of cash, both IP104 and IP107 were worried that cash could be stolen or lost on travelling back from the SSO, on top of the inconvenience of travelling to the SSO to pick it up.

> *“I was informed by the public officers to pick up the cash at the SSO which was far from my home and workplace. [...] I got lost because I was unfamiliar with the route. [...] Even if getting real cash, this method is tricky.”* -IP114

Analog media were not considered to be identical in their use, and their levels of trust in them as payment media also differed. When comparing cash and cheques, a cheque was considered as more secure payment media than cash because the recipient's first and last name is required for cashing it in. However, while IP105 described it as being ‘safer’ than cash, she stated that she did not have time to cash a cheque making this problematic in a different way. The reason for this is that the cheque’s recipient may have to waste time traveling two journeys, one to the SSO to pick up the cheque, and then to take the cheque to a bank, leading to some participants being anxious around the receipt of cheques. Similarity, when receiving benefits via postal orders, participants did not want to travel to the post office to cash these out:

> *“In fact, I preferred not to receive benefit payments via the post office, but I had a necessary condition that I really couldn't find my bank book. As a result, I had to wait several days to receive my postal order and take it to the post office, which I’m not comfortable traveling there.”*– IP110

The issues surrounding payment preferences and experiences among people using analog and digital methods are complex. They are shaped by trust, convenience, and practical reasons, which influence how individuals perceive and use different payment alternatives. The examples provided highlight the trade-offs public officers and participants face when deciding between alternative payment methods, comparing aspects such as security and convenience against the time and possibly inconvenience involved with every choice.

4.9 Chapter Summary

This empirical study investigated the interaction between public officers and insured persons within the SSB claims process that explored their practices of use around digital technology in government-to-person (G2P) payments. The processes of financial transactions in claiming benefits are finding SSB information, sending documents required, claim assessment and diagnosis, transferring benefit payments, and receiving benefit payments. These findings allow us to understand the role of communication and collaboration in order to make claims. To enable citizens to trust the government payment process, transparency and accountability (T&A) in both the back office and front office of services are crucial features of the system. However, if we do not understand how G2P payments are made, discussing T&A in claiming benefits is not easy. Hence, in the next Chapter 5, the study on exploring T&A practices in benefit payments will be reported.

Chapter 5: Transparency and Accountability Practices in Benefit Payments

5.1 Introduction

Chapter 4 showed how public officers, and insured persons collaborate around benefit payment systems, supported by their social relationships and communications with digital technologies. Simultaneously, an overview of payment information is provided via the SSO e-services system, demonstrating the SSO's commitment to transparency in information disclosure, allowing the public to verify their own financial information in Chapter 5. The engagement of citizens in the government's activities and decisions of officials, such as through the monitoring of government operations, serves to build public trust in their performance (Bertot et al., 2012, Hogan et al., 2017, Purwanto et al., 2020). These examples show how understanding the claim process from Chapter 4 aids in exploring data from Chapter 5 by identifying and analyzing participant activities and behaviors that enhance transparency and accountability (T&A) in benefit payment processes.

Chapter 5 will present the experiential narrative for each participant's claim in a different form from Chapter 4. In Chapter 5, the analysis data does not focus on the chronological events of a claim as in Chapter 4; Chapter 5 uses a conceptual narrative approach to investigate the deep details through the *'whole story'* of participants' experiences, exploring how they engage with and understand the practices of using money. In the case of the SSO, the analysis will narrow down participants' experiences regarding their engagement with T&A in the claim procedures (e.g., sharing financial information, task responsibility, and responding to user's feedback). In this manner, I will explore the constraints and recommendations for establishing T&A guidelines for the SSO's benefit payment, covering both the SSO back-office system (Sapiens system) and the front-office system (SSO e-services).

This chapter's purpose is to present the findings of Study 2, which relate to exploring the influences that enable T&A in payment systems focusing on how digital technologies and citizen engagement activities can enhance T&A in payment systems for the SSO. Twenty-two participants participated in this study through semi-structured interviews.

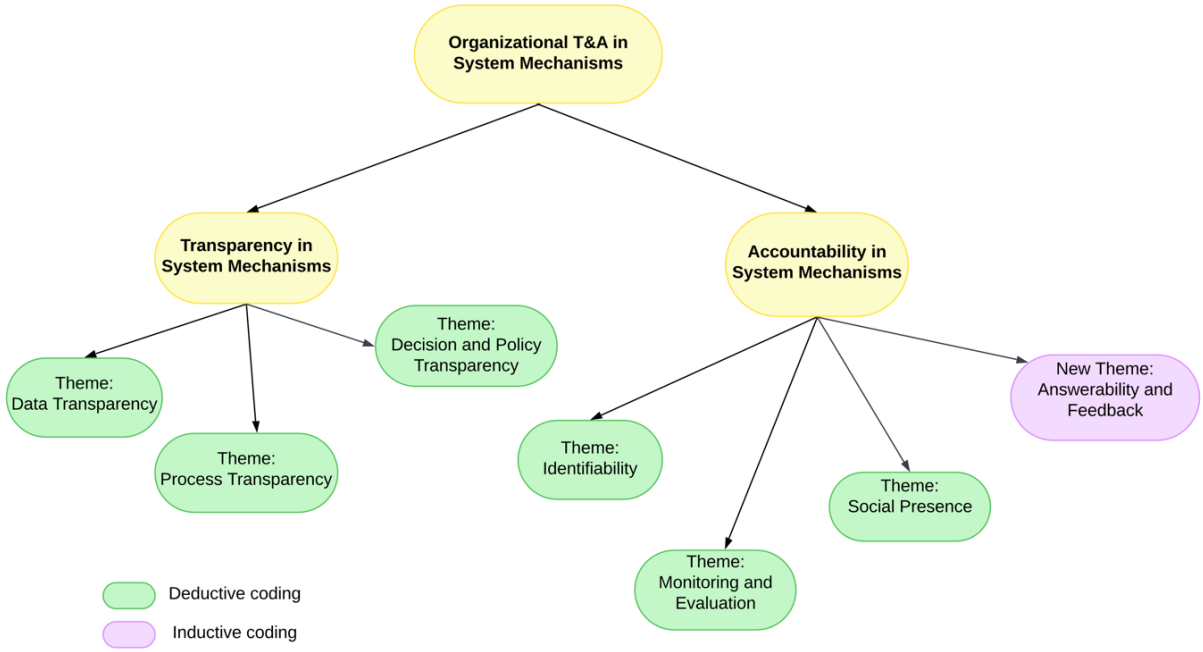

Figure 5.1: Thematic Map of T&A in System Mechanisms

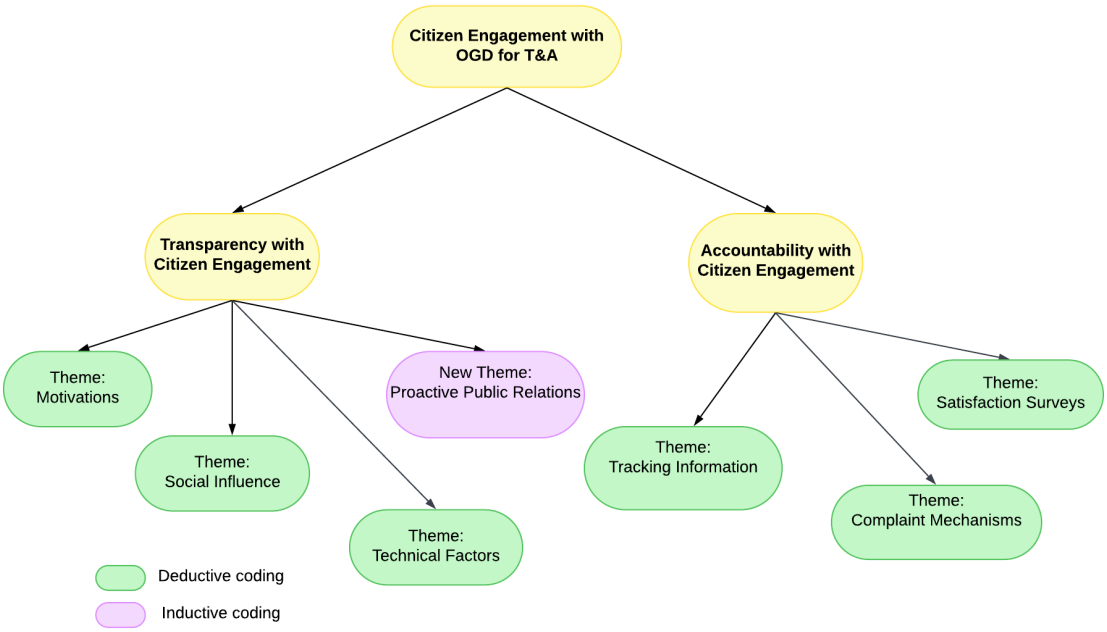

Figure 5.2: Thematic Map of T&A in Citizen Engagement

As in Chapter 4, thematic analysis was employed to uncover participants' perspectives on T&A (see Section 5.2.3). Drawing from the interviews, these perspectives were initially categorized deductively into 12 themes and subsequently coded inductively into two additional themes, as depicted in Figures 5.1 and 5.2.

5.2 Research Question and Approach of Study 2

Interviews with participants in Chapter 4 revealed that some insured persons lack sophisticated computer skills. They did not have experience and avoided utilizing SSO e-services, including learning about SSB information through online channels. To gather more informed data for this research, I chose new participants both insured persons and public officers in Chapter 5. However, some insured persons have taken part in both studies (codes IP216 = IP108, IP219 = IP101, and IP222 = IP103). I still use these participants because they can explain the issues that arise with computer systems and highlight the features around the use of the SSO e-service. They also provide recommendations for enhancing the SSO services, such as delivering a short message alert (IP216), enabling proactive communication (IP219), and improving the functionality of the SSO official website (IP222). These examples show how to increase transparency in data inspections and motivate officials to take responsibility for their actions.

In Chapter 5, participants were selected based on more specific qualifications than Chapter 4. For example, each insured person had prior experience with SSO e-services, ensuring they could understand related questions about them. Additionally, I included public officers from different professional and operational roles to reflect T&A across the work process. This approach aims to clarify and understand the problems in order to enhance T&A within the SSO's payment system from different public officers' activities and responsibilities in the SSO.

To investigate T&A in the benefits payments system and e-services, detailed online semi-structured interviews were conducted with public officers and insured persons in the SSO of Thailand via the Line videoconferencing application (Line app) as in Chapter 4. Data was collected about their understanding and use of the SSO back-

office and front-office systems between June to September 2022, each interview lasting, on average, around 45 minutes. The details of participants are shown in Table 5.1 and 5.2 below; the participant codes use the same structure as in Chapter 4: <IP> identifies an insured person, <PO> identifies a public officer, and <2> denotes Study 2, with the serial number serving as a unique personal identifier.

5.2.1 Participants of Study 2: Public Officers

For public officers (see Table 5.1), I used a judgmental sampling approach to select 10 participants who are responsible for operating the benefit payment systems with 5 persons from *'Benefits department'* and 5 persons from *'Financial and Accounting department'* in different level (see Table 5.1) to share their knowledge and experience of this system. Participant ages ranged from 30-59 years old. They were composed of 2 men and 8 women. As noted in Chapter 4, gatekeepers explained that there are a larger proportion of female officers than male officers (in a 10:1 female to male ratio) is a common occurrence for officers in the SSO of Thailand. Through these interviews, I managed to recruit 5 operational-level staff with 2-5 years of experience and 5 professional-level staff with 20-29 years of experience.

Table 5.1: Public Officers Codes and Details of Study 2

Code	Gender	Age	Position	Years of Experience	Level
PO201	M	38	Benefits officer	3	Operational
PO202	F	42	Benefits officer	3	Operational
PO203	F	36	Financial and accounting officer	3	Operational
PO204	F	30	Financial and accounting officer	5	Operational
PO205	F	55	Benefits officer	29	Professional
PO206	F	50	Financial and accounting officer	20	Professional
PO207	F	54	Benefits officer	28	Professional
PO208	M	59	Financial and accounting officer	29	Professional
PO209	F	52	Benefits officer	2	Operational
PO210	F	52	Financial and accounting officer	24	Professional

The findings of Chapter 4 focused on the perspectives of department heads regarding the benefit payment processes. These participants were the starting point for studying the SSO payment systems from the administrative viewpoint. Through this perspective, I gained knowledge into how benefits were paid and utilized overall,

making it easier to study at the initial stages. However, Chapter 5 recognized public officers' diverse work experiences from the subordinates' viewpoint. This perspective highlighted in-depth details about the payment processes for verifying the information's accuracy and those involved to investigate T&A in the Sapiens system.

In Chapter 5, the participants' narrative could represent several viewpoints of work, spanning both operational and professional aspects. At the operational level, public officers regularly have a variety of work experience ranging from 2-5 years, whereas professional officers generally have a far higher amount of experience, within the range of 20-29 years. Additionally, their roles within the Sapiens system, such as approval authority, are different responsibilities (see findings 5.3.1). Hence, this study can collect a wide variety of perspectives and experiences regarding the SSO back-office system for benefit payments.

The questions of transparency in system mechanisms discussed with public officers included data transparency: *"when do you find some problems, how do you know who is responsible for them?"* and *"is the SSB data used up to date or not?"*; process transparency: *"how do you know the transaction is progressing, or if it is completed?"* and *"how can all transactions ever made in the system be traced or rechecked?";* decision and policy transparency: *"during diagnosis regarding claiming benefits and do you make a decision by yourselves or using computer assistant decisions? How?"* (see Appendix VII: Interview Guide for Study 2).

Based on the proposed the potential factors (see Chapter 2 Section 2.3.5) of accountability as system mechanisms, I developed interview questions to ask public officers consisting of identifiability: *"how do you prove a person is authorized to do something in the e-payment systems?"* and *"do you share your login detail (User ID) with other users who work in the same network?";* monitoring and evaluation: *"does the login screen notify the user that their actions in the system will be recorded? If so, please share your experiences.", "can you click to monitor a history of all your system activity?"* and *"how do you keep a positive impression in the eyes of others to avoid negative evaluations?"*; social presence: *"how do you feel if your behavior is visible to others in the system? Can you illustrate your case?"* (see Appendix VII: Interview Guide for Study 2).

5.2.2 Participants of Study 2: Insured Persons

The second group of interviews consisted of 12 insured persons, all of whom had utilized the SSO e-services to engage with OGD. I employed the techniques of judgmental and snowball sampling with an online interview with 3 individuals who then connected to 9 other claimants with experience of the SSO's benefit payment systems. Participants ranged in age from 27-51 years old, (2 did not disclose their age), with 5 men and 7 women participating. Their occupations came from varied of backgrounds to interview and received different monthly salaries (USD$ 1: 36.46 baht). Of the 12 participants, 11 were employed. However, one participant was unemployed, as indicated in Table 5.2.

Table 5.2: Insured Persons Codes and Details of Study 2

Code	Gender	Age	Occupation	Status	Monthly Salary
IP211	M	35	University staff	employed	$992.87
IP212	F	Prefer not to say	Hotel staff	unemployed	$274.27
IP213	F	34	Pharmacist	employed	$1,371.37
IP214	M	34	Factory worker	employed	$1,042.24
IP215	F	33	Project developer	employed	$2,111.90
IP216	M	33	Senior full stack developer	employed	$1,919.91
IP217	F	29	Purchasing staff	employed	$905.10
IP218	F	27	Marketing staff	employed	$658.26
IP219	M	40	IT Manager	employed	$3,291.28
IP220	F	Prefer not to say	Product owner	employed	$1,234.23
IP221	F	51	Farmer	employed	$411.41
IP222	M	28	Programmer	employed	$959.96

Insured persons were asked to describe narratives, including the events around using the SSO e-services, all characters involved, good and bad emotions, and perspectives expressed. The narrative was elicited by posing questions regarding the perspective of promoting transparency through citizen engagement, beginning with motivation: *"what factors influenced your decision to participate in SSO e-services?"* and *"can you describe a specific instance in which you were motivated to engage in this activity?"*; social influence: *"whom do you trust or value most when evaluating claims? Why?"* and *"how do they support your intention to use SSO e-services"*; technical factors: *"is the data (content, format, etc.) clear and understandable? If not, what type of data do*

you require?", "is the data regularly updated?" and *"how do you access the SSO e-services?"* (see Appendix VII: Interview Guide for Study 2).

In order to collect the phenomenon about the accountability of the SSO through citizen engagement activities, I designed questions from the participants' perspectives with topics related to tracking information: *"why do you use the tracking information services"* and *"what other information (exclude the history of claims) do you want to track? Why? Please show me your examples"*; complaint mechanisms: *"which channel do you choose to complain?"* and *"what is your expectation about the officer's action"*; satisfaction surveys: *"do you think satisfaction surveys impact public performance in the SSO? Why?"* and *"what type of assessment model would you like to have? (e.g., via counter service, email, mobile app)? Why?"* (see Appendix VII: Interview Guide for Study 2).

5.2.3 Data Analysis

I used a hybrid method to analyse the data, which were evaluated both using the potential T&A factors through a process of deductive thematic analysis. I also used inductive thematic analysis to reveal previously underdeveloped themes arising from the interview data. Reviewing numerous HCI and CSCW kinds of literature, I did not discover any articles that were particularly relevant to this thesis. Therefore, T&A factors as deductive themes in this study drew on a wide range of academic literature, including social science, political science, and computer science (see Section 2.3 Table 2.1 and Table 2.2). By doing this, I can populate the potential T&A factors as theory-driven codes with six themes for system mechanisms and six themes for citizen engagement. I scope the analysis with the participant's behaviour and the environment surrounding their claims to delimit the scope only to cover issues of T&A related to the SSO. Initially, the 22 interview audio recordings were transcribed and coded using the NVivo software application. I then applied an inductive approach to render 107 codes. Finally, these inductive codes were merged with deductive codes that aligned with a framework of T&A themes (see Figures 5.1 and 5.2). However, some codes cannot combine those themes; these were divided into new themes.

5.3 Organizational Transparency in System Mechanisms

The primary responsibilities of public officers involved in the benefit payments took place in two departments: the Benefits department, and the Finance and Accounting department (see details in Chapter 4 Section 4.2.2). These officers are crucial in promoting transparency within the payment systems, given that they work with *'data'* from the insured person's personal information, employment history, and claim transactions; *'process'* in diagnosing benefits and payment process; and *'decision and policy'* around the approval of benefit payments and money transfers to citizens.

5.3.1 Data Transparency

The judgment of data transparency entails an investigation of its sources, ownership, and primary purposes of use. Moreover, it considered the authority of the individuals or entities with access to this information and the potential impact of the accessible data on stakeholders' privacy (Hosseini et al., 2018, Batubara et al., 2019, Conradie and Choenni, 2014). Promoting data transparency can be as simple as allowing citizens to search for information themselves on the internet (Bannister and Connolly, 2011). Alternatively, it can be more complex for government officers. For example, the SSO establishes an unequal authorization for public officers to access information in the Sapiens system, as they are required to be aware of security and prevent personal data from unauthorized disclosure or use when accessing information from government agencies. Thus, access to the Sapiens data varies between public officers based on their roles and responsibilities within the organizational structure, so for instance, registration officers are not authorized to access information in the Benefits department. This apparent separation of duties allows employees to do their duties effectively based on their experience and expertise. As explained by PO203, "*in the case of refunds approval to the insured person, if the amount exceeds 100,000 baht (approx. USD$2,743), an officer with professional level authority is required. However, if the amount is less than 100,000 baht, the operational level can handle it*".

Each public officer in the SSO has a unique user identification (User ID), verified at login into Sapiens and the scope of the user's responsibility is checked. If a public officer tries to act beyond his/her authority the *"Sapiens system will present a*

notification that you cannot approve since your authority has been exceeded" (PO209). User ID makes it easy to identify ownership and contact for more information when other public officers face accusations of suspicious information or data entry errors. One participant explained that the financial officer has to validate the insured person's personal information, diagnosis results, and benefit payments amount before making payment. If they find any manual data entry errors in the Sapiens system, for example, that the insured person's sick leave differed from the number of days recorded on the medical certificate, then this could be tracked backwards:

> *"The financial officer accessed the inquiry menu by entering the citizen ID number. The system then presented the name and last name of the benefits officer who was responsible for this case in order to report this problem to that benefits officer."* - PO205

Thus, if financial officers discovered an error like the one described above, they could utilize the insured person's citizen ID number to search for the benefits officer to identify who handled this problem. Here, benefit payment accuracy is improved by rechecking data between both departments. This verification facilitates the creation of transparent and accurate diagnostic information, as any data entry or benefit calculation mistakes can be corrected before paying money to the insured person.

Another critical element in making data transparent within the Sapiens system is to provide up-to-date information, as regularly updated data directly impacts the reliability of the diagnostic process. For instance, some participants recalled that incorrect initial data had resulted in incorrect diagnoses, such as the amount of benefit payment, leading to their distrust of the disseminated information.

Updating data in the Sapiens system occurs in two stages: the system is updated in accordance with SSO policy; for example, *"the contribution rate reduction announcement began on May 1; on that day, the reduction was automatically applied, allowing me to observe the rate change during diagnosis and calculate benefits"* (PO206). The remaining part involves the insured persons updating data regarding their personal information. Indeed, most participants had discovered that the in data, including name and surname, phone number, bank account number, and

contributions collected amount, was frequently out of date. "*If the insured person does not contact us about the details of the change in personal data, the registrar officer will not update anything"* (PO203). As a result, un-updated information will impact the payment of benefits. For example, this could mean being unable to contact the payee, calculating the incorrect benefit payment amount, or failing to transfer money to the insured person's account because the old account has been closed.

5.3.2 Process Transparency

In the Sapiens system, a public officer can observe how the transaction is progressing while it is ongoing and predict when it will be completed. In this way, each processing step shows a letter code as its status. PO205 gave an example that *"when the benefits officer has completed recording the data, the screen displays the letter 'O' and then the information is sent to the head of department, at which point the screen changes to the letter 'A' when he/she approves this claim".* This authorization is then transferred to the financial officer responsible for approving the payment:

> *"I fill in data like the cheque number, amount, and the insured person's book bank number. After that, I approve by entering my username and password, and the screen will display the letter 'Y' when the transaction has been completed."* - PO210

However, if the financial officer discovers a data error, such as misidentifying the month:

> *"I log in, fix the month, and press Enter. The screen then displays a 'Y' symbol, I know immediately that the data has been stored."* - PO204

As shown, decisions made by public officers in the claim process are recorded and linked into a chain of prior decisions. Every step provides data for traceability because the Sapiens system keeps a record of all transactions, accessed via an *'inquire'* menu. In order to monitor the behavior of personnel involved in the benefit payment process, SSO headquarters need to validate their actions at various process steps:

> *"If someone looks at the same company's information frequently or accesses several companies strangely in one day. In that case, Headquarters IT center personnel will report the situation to the head of the provincial SSO to decide whether your public officer is likely to be corrupt or misuse, such as selling data to third parties."* - PO201

In this way, the SSO considers the security of the insured person's information and has an established procedure to monitor the public officer's behavior, reflecting process transparency that can be validated at every stage of data processing.

5.3.3 Decision and Policy Transparency

Decisions around benefit payments are required to follow the SSO policy as the condition for advancing each step in the process. The rules and requirements are systematically stored in the Sapiens system, which tracks their progression. As a result, it would be complicated for the public officer to change the regulations or avoid the requirements in this manner. However, practically, the system cannot make all of the decisions, so sometimes decisions will depend on interaction between human judgment, known rules, and policy documents. In such instances, public officers need to use extreme caution when making decisions, particularly regarding complex medical expenses:

> *"I have to review the medical record to help me decide to assess the cost of treatment, room, board, and so on. So, I need to attend training in reading medical records first to see if that case is eligible for a claim or not."* - PO202

As a result, augmenting the public officer's knowledge is critical at this stage, such as through receiving information via the Line app (a free communication program):

> *"I regularly access the SSO's Line app group across the country to see what has changed or if other provinces have any problems. So how do they solve the problem?"* - PO209

This quote shows that public officers can develop their understanding of policies

through conversations with others. The release of new or changed legislation may cause complexity, raising concerns about how the regulations will be applied in practice. To address the issue, public officers used the Line app to post inquiries regarding the issues at hand. Public officers with legal expertise or those who had dealt with similar issues in the past would answer these questions from diverse perspectives. This online community serves as a resource for adding knowledge to public officers quickly and conveniently because *"there are questions and answers by many the SSO officials and social security news updated every day"* (PO205). This collaborative effort is the bridge to close the gap between public officers working in different local areas by allowing them to share experiences and solve problems together via online communication.

Elsewhere in the payments process, the Financial and Accounting department's decisions are based mainly on rules and policy documents. Although the system shows claim approval information from the Benefits department, the financial officers are unable to pay anything to the insured person until they have reviewed those documents. At this stage in the money payment process, financial officers are directly involved at the service counter with insured persons. As PO206 explained, *"I focus on safety first and try not to pay cash at the counter, but I pay by bank transfer. Except in some cases, such as the elderly people, I will use my discretion to pay in cash."* The SSO has a policy requiring its staff to make payments using digital transfers via Internet banking. This policy enhances transparency by clearly disclosing financial transactions through bank transfer notifications sent to the insured persons' mobile systems, allowing them to verify each payment transaction.

Nonetheless, some citizens informed public officers that they did not have a bank account, blocking them from accepting digital payments, particularly the elderly people. So, although analog payment choices do not appear to support anti-corruption policy or enhancing transparency in benefit payments, they do assist in addressing the issue of banking inaccessibility for some groups of citizens.

5.4 Accountability on Performance in System Mechanisms

In terms of a causal relationship, accountability is commonly associated with transparency, where being more transparent results in more accountability (Fox, 2007, Marshall et al., 2016). Thus, if the benefit payments system can provide transparent data throughout all government operations, these system mechanisms can also support the SSO's accountable actions. By doing this, the SSO can *explain* why public officers take these actions in this process and whether their actions are appropriate so that they can be evaluated under SSO procedures and regulations. According to the literature review (see details in Section 2.3.5), three themes indicate system mechanisms for raising accountability in the SSO payment systems: 1) identifiability, 2) monitoring and evaluation, and 3) social presence. Each section of interview responses was coded and merged into these relevant themes. While analysing the data, I found actions involving accountability when the SSO responded inquiring and received feedback from insured persons or involved parties. I, therefore, created a new, inductively derived coding theme: *'answerability and feedback'*, which presents public officers' narratives regarding the significance of answerability and feedback for enhancing accountability in the back-office of the payment systems.

5.4.1 Identifiability

When public officials engage in publically visible acts, they are more likely to participate in careful thought to reach optimal outputs from the Sapiens system and to be aware of their responsibility for those transactions. The responsible action aims to ensure that an individual performs behaviours willing to take accountability for his/her performance. In other words, when someone (public officer) behaves responsibly, they are prepared to be accountable for their actions and the results of those actions. In contrast, if someone is not identified, they are less inclined to engage in deliberation and accept responsibility for their actions (Vance et al., 2013). All participants emphasized that the SSO action policy requires the use of password-based authentication in every officer position to identify users when logging in to the Sapiens functionality. For instance, before submitting an authentication request to the Information and Communication Technology Bureau (ICTB) at the SSO headquarters, the head of the provincial SSO initially evaluates the authority and responsibility of that

public officer. In that duty, the head of the provincial SSO has to determine the scope of limitations and functions in the Sapiens system when the user logs in to a personal computer. In addition, determining this system's access level depends on their employment status:

> *"Financial and Accounting department provides the government with only the government official who can approve the payment transaction […] non-public employees, such as permanent employees, cannot access the approval system because government officers have superior knowledge and a lower risk to be the one who sells personal data."* - PO210

This approval system is designed to reduce the risk of unauthorized access to SSO information. Only government officials who have been carefully selected and trained are allowed to approve payment transactions because they are deemed more trustworthy than other employees.

The case of selling data to third parties is a good example of how process transparency and accountability linked together with identifiability. If the SSO require transparency into the benefit payment process, they can track back public officials' behaviors in the Sapiens system using an employee's User ID. Another example (see detail in 5.3.2) that demonstrates how process transparency connects to identifiability is that the registration officer had to report monthly on how many insured persons or employers' personal transactions each official accessed by tracking his/her User ID, as described by PO205 *"if the registration office found that public officer changed his/her behavior searching the claims normally 100 cases to increase 1,000 cases, they must explain their reasoning to the head of the provincial SSO".* Similarly, PO207 indicated that *"the Sapiens system interface not only showed the public officer's User ID but also identified his/her real username and surname, resulting in easier monitoring"* (see detail in 5.4.2). Accordingly, identifiability is essential for accountability since it enables individuals to trace their actions back to themselves and take responsibility for those actions (Lerner and Tetlock, 1999).

When transferring a position within the office or crossing to another province, the User ID and password will be changed. Some public officers explained the SSO access

policy that the head of the provincial SSO sends a request to cancel a transferring officer's authorization (User ID and password) to the ICTB. These changes placed new responsibilities on the public officer to prevent fraud, as illustrated by PO206 *"Assume I transfer from Benefits to Financial and Accounting department, my previous User ID has been deleted, and I receive a new one to log in on behalf of the financial officer...access permissions to financial system functions depending on your work position and responsibilities".* Because of this, the public officer cannot use the same User ID and password to access non-related official duties.

5.4.2 Monitoring and Evaluation

As shown in Section 5.3.2, the Sapiens system has a transparent process by showing a letter code to inform the officer regarding the claim's status and providing an inquiry menu to track the details of a claim. Therefore, the public officers in the same network are able to monitor the progress of ongoing and completed transactions leading to evaluation of the public officer's responsibility in each step of the claim via his/her User ID. Furthermore, monitoring also resulted in data transparency because past decision-making information was tracked, and the performance of a relevant public officer could be assessed:

> *"[...] the Sapiens system has a mechanism for reporting accrued benefits paid. I clicked on that report to see who had not been received the benefit and what process was pending [...] I examined the notes to determine why. The reason was often that the public officer was unable to reach the insured person, or the insured person owed contributions tax [...] The amount owed will also affect my evaluation of performance."* - PO209

PO209 needed to clear these transactions as soon as possible by contacting the insured persons and informing them of the reason why they were not paid. By doing so, she can avoid a negative impact on her annual job performance evaluation. In case she was unable to contact the insured person, PO208 suggested, *"I called the insured person directly or a person with a similar last name because they might be a relative".*

This is sometimes the result of the database containing out-of-date insured person's personal data, as some insured persons do not inform the registrar of any changes.

Since every decision was monitored and traced, it was straightforward to hold particular benefits officers accountable for particular decisions. Because of that, one person's actions might affect all decisions made throughout the benefit payment process's chain. As an example, if public officers tried to access to the Sapiens system with unclear operational objectives, *"the ICTB can determine who accessed the system, what system interface was utilized, what information was retrieved, and the date and time of the login"* to find out who is responsible for this action, as revealed by PO202. To make someone aware of evaluation, he/she must first be aware that others may directly or indirectly monitor his/her performance or behaviors, which is the reason why evaluation is frequently coupled with monitoring (Vance et al., 2013). PO210 supported this point, *"we should only work according to our authority and scope of work as we have been assigned because our every action can be traced"*. To maintain a good impression, it is considered important to avoid negative evaluations that could harm self-presentation (Baumeister, 1982, Vance et al., 2013). An example of a practice that should be avoided during work include *"giving a password for other officers to work on behalf"* (PO203), because if someone else used a public officer's User ID for personal purposes, such as *"accessing the internet with our User ID to search external data while at work […] we could not deny responsibility*" (PO206). This is because SSO User ID will be recorded in the system and then displayed on the screen as evidence of actions.

5.4.3 Social Presence

As noted by Vance et al. (2013, p.271), social presence *"implies likely interaction, a person must be constantly prepared to react and respond to any changes in the social environment"*. This explanation is similar to the SSO benefit payment process, as public officers are also continually prepared to react and respond to colleagues' monitoring and evaluation. In this section, I emphasize the work processes of transferring benefit payments because this process illustrates the interpersonal relationships between benefits officers and financial and accounting officers that every payment decision must be approved by the parties involve participating in the system

(see details in Section 4.7). These interactions clearly represent how their social environment influences colleagues' behavior inside and outside their own departments and how accountabilities are distributed throughout the benefit payment systems. As a result, anyone who is part of the SSO system needs to understand that their choices can impact others within the benefit payment process; indeed, concealing their actions will be difficult.

As an example of social presence in benefits transfers, I use the case of a benefit payment cut-off transaction by a benefits officer. In this case, a financial officer was informed about the benefit payment orders made by a benefits officer: here, a benefits officer had clicked the button 'F', affecting the financial officer's screen by displaying a list of cases pending payment (PO202). At that time, a financial officer checked the beneficiary's personal information, such as identification number, amount, and account number. The double-checking of transactions before cut-off payments (i.e., transfer of money to an insured person) by the financial officer indicated that a Financial and Accounting department aids in monitoring the Benefits department's work performance to ensure fewer errors. Suppose, however, that the benefits officer approved the claim but forgot to click the 'F' button to transfer the transaction to a financial officer. In this circumstance, the financial officer will not see a pending payment status. As a result, they would be unaware that some payments needed to be transferred to the insured person. Accordingly, the benefits officer must check the report system to determine whether payment approval and cut-off payment transactions match, as errors affect not only the financial officer's work but also the citizens who would receive their benefit payments late.

Financial officers need to be extremely cautious in their work performance, especially when spending money. To increase security in the payments, the head of Financial and Accounting department must review every payment transaction every day:

> *"I'm in charge of examining reports when the cashier prints out the daily payment report from the Sapiens system. In the case of child allowance as an example, I examined the amount of payment by*

cash and cheque transactions before sending the report to the head of the Financial and Accounting department for signature" - PO204

As the preceding example demonstrates, the involvement of another person in the process strengthens trust in the processing of transferring benefit payments by requiring relevant public officers to monitor each other's behaviours. This increases accountability, decreases any likely intention to violate the SSO procedures, and according to interviewees, frequently prevents socially unacceptable behaviours.

Notably, most participants stated that they did not feel pressured if their actions in the Sapiens system were visible to others in the same network. On the contrary, they had a positive opinion, as revealed by PO210, *"I like having someone help me examine my work like a double check. It's better than working alone without anyone checking on us because sometimes we don't know when we've done something wrong".* Likewise, the PO204 expanded on the advantages of having someone help you inspect because it noticed and fixed errors faster, leading to the completion of our work within one day. As a result, surveillance of public officers' behaviour by colleagues or supervisors was considered to reduce fraud during paid benefits. Moreover, social presence influences public officers so that they have to operate with integrity (PO205) because they are held socially accountable for errors committed based on the User ID recorded in the Sapiens system. They also cannot be accused if they are visibly not corrupt, or if someone else has made the incorrect decision.

5.4.4 Answerability and Feedback

During the claims investigation between public officers and others working in the SSO back-office system, addressing social presence facilitated accountable behavior. In the meantime, the SSO emphasized the importance of promoting accountability through communicating with citizens as an *'answerability'* mechanism and receiving *'feedback'* to evaluate the public officers' performance. Answerability refers to the availability of system that produces information to answer about institutional behavior (Marshall et al., 2016, Kroll, 2020). In claiming benefits, answerability is an inquiring process in which public officers provide relevant SSB information, such as responding to inquiries, justifying actions, and making decisions. But answerability also involves citizen participation. Some public officers described that they did not only answer

inquiries from the public, but also listened to public feedback at the same time. The feedback process encourages citizens to express their opinions, concerns, and suggestions about public policies, applications, and services back into the SSO. In this respect, the SSO enacts an accountability mechanism by engaging with answerability and feedback procedures for improving service systems to meet citizens' needs. To achieve this, the provincial SSO currently engages with multi-channel publicity media, such as phone calls, Line app, and Facebook, so that citizens can access as many communication channels with officials as available.

The main reason why many insured persons utilized telephone services was due to it offering a two-way communication: *"they got a quick answer that summed up the main points right away and talking to the staff gave them peace of mind instead of using the computers, which can't support how they feel"* (PO207). Although some public officers stated that receiving a phone call was advantageous in efficient problem solving, they had to sacrifice their time to assist an insured person who presented themselves at the service desk. PO207 and PO208 clarify this situation, that every public officer already has regular responsibilities (e.g., receiving and checking required documents or paying monetary benefits). Simultaneously, it is time-consuming to address some public questions because SSO has not directly appoint employees to answer inquiries.

As mentioned above, another channel for answering and receiving citizen's feedback is that the Line app. This app is used by village headman, teachers, and employer representatives (called this group's name in the Thai language *'Ba Worn')*. This online community's objective is to encourage Line group members to share SSB information with insured persons. In addition, the advantage of utilizing the Line app is that multiple public officers who are experts on the issue can help concurrently respond to answers. While consultation via phone call is suitable for a case-specific problem, the insured person will only receive a response from the perspective of a single agent. Nonetheless, some public officers noted that speaking over the phone allowed them to process more inquiries than reading a message in the Line app, as Line messages were frequently brief and unclear, whereas phone calls provided more detailed information when inquiring. As a result, if the insured person has a hard query or needs a lengthy explanation response from a public officer, phone calls deliver more explicit answerability than utilizing the Line app.

In terms of Facebook usage, PO208 stated, *"Facebook is used more as a public relations channel than to answer public inquiries. Furthermore, I communicated via Facebook rather infrequently, partly due to a lack of setting direct responsibility".* Indeed, most public officers concentrated their time on addressing queries over the phone and via Line app rather than Facebook (PO207). Nonetheless, a few participants argued that the source of the service problem is not only a lack of officers appointed to answer queries but also a shortage of manpower, which means that the workload exceeds the number of officers.

The Sapiens system is not designed to log inquiries or user feedback from insured persons. Therefore, the public officers keep inquiry records from insured persons with handwritten notes. By recording problems, queries, and feedback from insured persons on paper, the SSO is unable to compile precise statistics from the provincial SSO on which types of problems insured persons are facing. This can impact especially on awareness of performance indicators, as explained by PO205, *"we did not know the level of satisfaction about our work. There were no obvious performance indicators unless an unsatisfactory level of public service resulted in a complaint about the officials' performance"*. Such complaints are handled formally when the SSO hold a monthly executive-level online conference to determine if there are provinces where citizens are dissatisfied with the services for reasons such as communication issues:

> *"The ministry's inspector went to follow up, expedite and instruct to see who was the one spoke disrespectfully to the public and was complained many times. This issue must report to the Human Resource Management Division [...] both the individual and overall performance of this provincial SSO will share responsibility"* - PO205

In this case above, the answerability process ensures that organizations or individuals can be held responsible for the results of their actions or the actions of the tools they use (Kroll, 2020). In other words, responsibility is what links acts or outcomes to how the SSO performed. For example, if the SSO payment systems have an efficient, transparent back-office system that can check and answer questions about financial information at every step. In that case, it will influence matters concerning responsible

actions of officials to be more cautious in their visible work because they need to prevent negative feedback from the citizens.

The back-office system answerability process incorporates the idea that public officers must be willing to take responsibility for their actions and face the consequences of feedback, which will *"provide information to the organization by connecting the outputs to the inputs to either confirm the system's functioning or signal that corrections are needed"* (Pilon and Brouard, 2023, p.426). Furthermore, *'answerability and feedback'* not only involves the back-office part of the payment systems, it also relevant to citizen engagement activities, which enhance T&A that I will describe to the next sections.

5.5 Incentives for Citizens to Engage with OGD as a Tool for Transparency

Citizen engagement is essential to the successful and sustainable implementation of OGD, which involves multiple activities that relate to retrieving and transferring data into OGD-based applications. The SSO has developed and implemented these tools, consisting of, 1) SSO website, which discloses information about the SSO news, conditions for receiving benefits, insured person's registration report, the SSO annual performance report, and the insured person's claims history, and 2) the SSO Connect Mobile app, which provides an insured person with information such as important news, hospital for treatment, and historical claims.

This mobile application disseminates information beneficial in deciding on a convenient medical facility and updating citizens' knowledge on the benefits of social security. However, government entities have acknowledged a lack of understanding of what motivates citizens to participate in OGD activities (Lněnička et al., 2021), allowing them to miss out on critical benefits and social security information. Motivation is the starting point for being interested in using social security rights. For this reason, insured persons have an incentive to study social security information and e-services from their surrounding society, including discussions on the issues and challenges associated with employing digital technology.

By analyzing narratives about the experience of using SSO e-services, I coded and merged this on three themes in accordance with the transparency literature review (see details in 2.3.5): motivation, social influence, and technical factors. Furthermore, I have identified a new theme, which is referred to as *'proactive communications'*. This new element can additionally clarify how insured persons utilize the SSO digital services to enhance transparency.

5.5.1 Motivations

All participants were extrinsically motivated, with the primary motivators being to determine the type of benefits to be involved, money to be received, and the need to learn more about the relevant regulations to use the SSO e-services through the official SSO website and SSO mobile application. One participant remarked that the SSS offers citizens a safer living, health insurance, and a place to recover from illness:

> "*I always get a toothache because it wears down with time as we get older. But at least I can reimburse this treatment […] I save 900 baht (approx. USD$24.66) a year, even if it's a small amount."* - IP221

In this study, legal sanction does not relate to the extrinsic motivations to engage with OGD:

> "*If I ignore to get money following the rules, I'm at a loss benefit by myself and not be punished from the SSO."* - IP219

I did not find other common intrinsic motivations such as fun, enjoyment, and contributing to society to be a driving factor for OGD, as some participants were mainly concerned in how much money they could receive from the SSO.

Another aspect of increasing motivation was the insured person's need to expand the SSO public relations through social media channels to enhance motivation for searching government data because many people often used social media for communications, as it was considered to be easy to access. Moreover, IP220 stated that "*I've worked for many companies; however, the HR staff never informed me on orientation day about fundamental social welfare, including our rights and conditions*

on how to claim". This finding implies that explaining the fundamentals of the SSB on the first day of employment is a reasonable moment for employees to learn about their benefits. Moreover, this is a good chance to inquire about the claims process from HR or coworkers who may have had prior experience with claims.

5.5.2 Social Influence

The social influence of participants mainly comes from their workplace, important persons, or influences on their behaviour such as family members, friends, colleagues, and internet communities that share the common interest of SSB. In this study, family members influenced some participants, but not everyone consulted with their family in the use of OGD. For example, after having their first child, some participants became concerned with understanding SSB from various sources by consulting with family members, colleagues, and HR staff, as well as searching on the internet. During this time, family and friends often assisted participants in gaining a basic understanding, such as what child allowance benefits were available and what documents or evidence were required, and then confirmed the accuracy of this information by using the SSO e-services. Some participants' experiences indicated that families did not contribute to their access to SSB data because none of the family members had any previous claims experience. In addition, family members could also provide ambiguous information:

> *"My relatives gave me unclear answers […] I asked the questions about sickness benefit to my company's HR staff again. Then, I got my answer."* - IP217

When family members provide ambiguous responses, social acquaintances become the preferred choice of participants. One participant noted that colleagues have the greatest impact on participants' SSB comprehension:

> "*I often discuss problems with my senior at work […] she is my close friend and I feel comfortable when talk with her [...] she once told me about the experience of using SSO mobile app and how useful it is."* - IP222

Friendship circles may not only be limited to the workplace, but they also extend to online communities comprising individuals interested in similar issues, as well as relevant organizations seeking to disseminate information through these channels.

Thus, another choice of SSB information for insure person is the internet communities. Some participants mentioned the benefits of social media, such as Facebook and YouTube, in sharing SSB information with friends and the SSO staff. Although this content is short and usually easy to understand, such information on regulations may too generic so that insured persons need to review additional details on the SSO website or mobile app, which have completer and more current SSB information.

5.5.3 Technical Factors

Most citizen participants expressed using SSO e-services (e.g., the SSO website and SSO Connect Mobile) for several reasons. For example, participants trusted data reliability since the information was supplied by the SSO, an entity that verified information before its public release. Given its ubiquitous presence, some participants appreciated the ease of searching for information on it because they carried mobile phones everywhere. If there are no internet signal issues, this is a convenient way to access the SSO Connect Mobile. However, the SSO mobile application frequently fails, forcing users to switch to the website instead. Barriers to accessing OGD are not only due to system failures or the unavailability of digital devices, but also what was generally referred to by participants as age constraints. Some participants were concerned about the elderly people due to their unfamiliarity with computers and lack of computer skills. For instance, one participant described this situation based on her experience:

> *“They can’t register to login into the mobile app or government website [...] even if they can, they wouldn't dare use it on their own”*
> - IP217

Another obstacle was the formal language of the policy wording, which was described as difficult to comprehend and interpret. Some participants resolved the issue by calling the public officer to further explain. The SSO is aware of this and has created

an infographic to describe the process of submitting a claim for each form of benefit, which has received a positive response from the insured persons, for example:

> *"I like a visual communication because it is easy to understand [...] I am more knowledgeable about the procedure of preparing documentation for a claim."* - IP212

Information on the SSO e-services was regularly updated with social security news and information in the claim history section; most insured persons had no trouble retrieving their claim history in which they could search for information on receiving benefit payments from every previous claim. However, if a claim was still pending, the insured person would not be able to track the claim's status, because the *"mobile app doesn't show the progress status. I don't know where my required documents are, HR didn't send them, or the public officer lost them. Finally, I didn't receive the money for the accident reimbursement at that time"* (IP217). This is a major gap in supporting technical transparency. Finally, security was a concern to some participants as a technical factor, with IP215 concerned that personal information may be leaked, including their medical care information.

5.5.4 Proactive Public Relations

Proactive public relations involve creating communication channels for sharing SSB information to meet the needs of insured persons. This approach aims to address potential issues and mitigate negative outcomes. As an illustration, some participants expressed an interest to know what rights they would be granted upon making a claim, ways of preserving their own benefits, and possible difficulties that could result in the loss of claimed benefits. Currently, the use of computer-mediated transparency to proactively share information is becoming more common, and this trend has been positively associated with how citizens view the performance of the public sector (Porumbescu, 2017). Nevertheless, one participant shared that proactive public relations were insufficient, as the service still relied on citizens contacting authorities to obtain information first. Consequently, most insured persons still did not know thoroughly about the detailed procedures of the benefits-claiming process:

> *"Personally, I've never received proactively communicated to me. I mean, the SSO never informs folks ahead of time, like after they get married, what kind of benefits does the government offer? [...] I think the SSO should disseminate a list of available channels to citizens searching for SSB information. Not only does this become necessary with the SSO, but every government agency should provide the public relations list."* -IP219

These comments are consistent with the opinion of some participants that public relations should inform the public about their fundamental social security rights because they have trust in the information announced by the SSO which owns the information. As a result, they expect the SSO to prepare a list of information sources so that people can learn the rules and procedures before making claims. However, some insured persons did not know that the SSO provided online services. They were unaware, for instance, that the SSO had developed its own e-services to provide citizens with information via mobile phones. A few people had discovered SSO Connect Mobile via an app marketplace, such as the App Store (IP211), or found the public relations about how to use this app by coincidence while playing on their mobile phones (IP222).

In the interviews, some participants suggested promoting the availability of SSO e-services from several perspectives. For example, the SSO could put a link to the program on the first page of the SSO official website because this would allow the general public to be both informed and not have to worry about being a fake link (IP222). The SSO could also add public relations by using social media platforms like Facebook, as they are easy for people to access. In addition, Facebook is a popular communication channel for teenagers and working people rather than e-mail or advertising on television (IP215). While social media has captured the attention of young generation, this does not imply that the SSO should cease public relations efforts through e-mail and television (IP211). This is because these channels can reach a broader audience and target individuals who may not have access to SSB information via social media.

5.6 Accountability with Public Services and Measurement

As shown in Section 5.5, citizen engagement can promote transparency by utilizing social media and online platforms to disseminate government data. Furthermore, this can also enable individuals to actively engage in the processes of making claims to increase the SSO accountable actions. By allowing citizen engagement in government agencies, citizens can access government information and also have the opportunity to provide feedback and voice their opinions (Havaeji and Albadvi, 2019, Kinyondo and Pelizzo, 2019). As noted by Waddington et al. (2019), when citizens take an active role in shaping policies and programs, they often feel more responsible for the outcomes and become more engaged in monitoring and evaluating government performance. In order to examine the accountability of SSO performances and services, this section will illustrate citizen engagement activities that are undertaken to actively involve insured persons in the process of recognizing and addressing challenges when making claims with three key components: tracking information, complaint mechanisms, and satisfaction surveys. This allows public officers to be informed of any inaccuracies and discover potential solutions to improve accountability for their actions and decisions.

5.6.1 Tracking Information

When the flow of benefit payment transactions is recorded and tracked, it is possible for the SSO to keep public officers accountable for their operations and payment transaction decisions. Furthermore, tracking information promotes transparency because financial activities' openness allows every insured person to confirm that their rights and funds are being used safely and appropriately. The ability to track information channels by insured persons were given as reasons for choosing either the SSO official website or SSO Connect Mobile. For example, IP212 commented, *"I prefer to track my historical claim transactions via SSO official website because this way isn't only tracking my information, I can follow others information such as revenues, expenditures including the investment of the SSO. These financial transactions will affect the ability of the Social Security Fund management and readiness to pay old age pensions to every insured person in the future".* On the other hand, IP213 said, "*I decide to use SSO Connect Mobile because I always have my*

phone with me. Using this app makes it easy to get SSB information and is very convenient". Some insured persons thought that an advantage of using the information tracking functionality via SSO e-services was that they could review their benefit disbursement history at any time, thereby saving time compared to e-mail or telephone inquiries. Most participants said that the information tracking function adequately fulfilled their needs. However, some participants suggested adding a notification system for making overdue monthly contribution payments. They recommended that the SSO should directly inform the insured person of this case:

> "*I discovered that my boss never paid social security contributions, so I didn't get any unemployment pay when I left. If an employer's social security payments have been late for three consecutive months, I want the SSO to have a system that sends me a notification via SSO Connect Mobile or a short message alert via my phone*" - IP216

A notification system can be used not only to alert of anomalous benefit payments but also to notify if the insured person still has further rights to the claim remaining, such as reimbursement for dental work. In this case, "*the SSO should send a message how much money is still available and when the right to submit a claim will expire, not waiting for the insured person to search for information by himself/herself*" (IP219). Another suggestion given was to use tracking number status to communicate the status of a claim in order to identity what stage the benefits claim was currently in:

> "*Have the officials received the required documents? Has a case of claim been approved? And when will the money be transferred? Because the information that showed in the tracking function was the amount that the insured person received in the past, but they hadn't ever seen the progress of the present claiming benefits status*" (IP217).

This quote implies that the tracking system needs to be improved in order to offer real-time information regarding the current status of benefits claims. By doing so,

insured persons can decrease their worries about missing documents and have a clearly defined time frame to receive money for financial planning.

5.6.2 Complaint Mechanisms

Complaint mechanisms hold great importance in social accountability, as they serve as a vital tool in building governmental responsibility. By offering citizens a platform to express their grievances, these mechanisms can facilitate the demand for public officer accountability or other related persons such as employers, hospitals, and clinics. The complaints process is a crucial component of the feedback loop, facilitating the transmission of issues arising from citizen information back into the benefit payment process, thereby improving the SSO services. In the interviews, a few participants had encountered difficulties with their claims and subsequently lodged complaints to the SSO. These individuals expressed the perception that the compensation amount offered was relatively insignificant, and thus deeming the act of filing a complaint as not worth the perceived value of the compensation. In these cases, they can also use other forms of life insurance as a substitute, except for one participant whose employer had failed to pay his monthly social security contributions:

> *"In the past, I hadn't been able to communicate well through the official SSO page. Because I had a lot of trouble keeping in touch. For example, I got a text message that said, "Hello, what kind of help do you need?" that was the last time I heard from the e-service system. I'd had problems like this more than ten times. So, I called the hotline instead and then carried the necessary documents straight to the SSO"* - IP216

IP216 explained why he submitted a complaint at the office because he was confident that the problems that had occurred with the SSO had already been acknowledged and would be resolved swiftly. In addition, he felt that face-to-face communication would explain the cause of the situation more clearly. Similarly, in IP221's experience, she complained about an error in medical care and requested medical compensation via all available channels, including the website, hotline, and e-mail. However, she received no communication from the

SSO regarding the progress of the complaint. This action made her feel the public officer's response appeared to be delayed. Because of that, she submitted a complaint to the media through television so that society would be widely aware of the incident and hoped that social trends would pressure this hospital to show responsibility. She additionally wished for the SSO to act as an intermediate in claiming treatment fees from the hospital. By doing so, the SSO was able to contact her directly to ask questions and contribute to solutions.

Interestingly, one participant proposed adding the complaint menu to the SSO Connect Mobile features to help citizens study past issues and provide more ways for them to file complaints. IP211 shared his ideas that the SSO Connect Mobile should have more functions as *'a one-stop service'*. He thought that a one-stop service would encourage citizens to participate in SSO activities by adding features such as reporting complaints about government services and providing the documentation required related to complaints, making complaints more convenient for the insured persons' engagement.

5.6.3 Satisfaction Surveys

Satisfaction surveys serve as instruments of accountability within the context of SSO benefit payment, as they assist in pinpointing areas for improvement in service delivery to align with the expectations of insured persons. The SSO's satisfaction surveys are currently administered in a paper format, with no provision for online assessment. At the SSO workplace, a random sample of insured persons who utilize the SSO's services and complete all procedures in a single day will be selected and asked for complete a paper-based satisfaction survey to assess the SSO's work performance. The satisfaction survey questionnaire evaluates various aspects of the staff's service, including their communication etiquette, the efficiency of the office service system, the user experience of the SSO website and mobile app, and any suggestions to improve the SSO services. This survey assesses an organization's satisfaction with its overall performance. One claimant interviewee held the opinion that the evaluation should reflect the individual's work rather than overall performance: *"I think it's unfair if some public officers are performing inefficiently, but the assessment results affect employees who are willing to work"* (IP216). Likewise, IP219 stated, *"employees*

should be evaluated after they complete a service". This procedure gives the impression that their performance will be assessed individually for a single service (i.e., evaluate individual performance), similar to private sector services: *"If I called the office after I finished my work, I had to evaluate an employee once. This was the fairest way because it was a specific evaluation of how this employee could improve"* (IP219). Individual performance evaluation raises an expectation that future services of such employees will develop in better ways rather than evaluating the whole picture because the participant worried that this satisfaction survey was not possible to specify that employee's responsibilities.

The fact that the SSO conducts satisfaction surveys for promoting the public's participation. These surveys can play a role in developing a better service system and lead to citizens' trust in government agencies, when their evaluation is used to improve government services. However, a few participants argued that satisfaction surveys would not affect public officers' performance:

> *"If government administrators don't pay attention and don't look at the assessment results to find the cause of the problem, [...] the information they get from the public will end with their assessment [...] it didn't contribute to improving the work of the organizations in any way"* - IP213

While satisfaction surveys might foster a cooperative association between the government and the general public, using satisfaction survey results to drive performance improvements is challenging.

5.7 Chapter Summary

I explore T&A practices in benefit payments throughout the payment process, both in the back and front office of services. Understanding the comprehensive nature of the payment systems is crucial due to the pivotal role played by the back-office system in facilitating government payment processes. The Sapiens system served as the foundation for front-office services in the provision of accurate and transparent data,

processes, decisions, and policies. I also consider the responsibilities of the staff operating within the system. This analysis found that identifiability, monitoring and evaluation, social presence, and answerability and feedback. These influences are key elements that reflect accountability of the Sapiens system because the system can be used to identify officers responsible for the work done. Consequently, the public officers directly involved were seen as more likely to take responsibility in the execution of their tasks.

The Sapiens system served as a starting point for disseminating data to the SSO e-services that provided essential financial transactions and analytical budget reporting via the front-office services. Participants emphasized the importance of the SSO promoting transparency by disclosing its own data to bolster public trust. By sharing information about its operations, finances, policies, and decision-making processes, the SSO enables stakeholders to gain insights into its workings. This transparency not only provides a clear view of the organization's activities but also allows for scrutiny and oversight by the public, and other relevant entities.

To enhance citizen engagement with OGD, motivations, social influence, technical factors, and proactive public relations were essential transparency factors driving collaborative efforts between citizens and officers in this study. This is particularly crucial for mutual learning about SSB information. Through transparency, the SSO provided a comprehensive understanding and sufficient knowledge regarding insured persons' rights and the procedures for claiming, insured persons could take their accountable actions using citizen engagement activities, such as tracking information, complaint mechanisms, and satisfaction surveys.

These findings demonstrate T&A relationships between the back- office and front-office, and in collaborative work among officials, citizens, and relevant government agencies in promoting T&A within the SSO. However, there are certain issues and challenges that require further enhancement in the Sapiens system and SSO e-services. These areas encompass various aspects, including human, technical, social, and government policy, which will be discussed in more detail in Chapter 6.

Chapter 6: Synthesis and Reflections on Transparency and Accountability in Government Payment Systems

6.1 Introduction

Chapter 4 presents the research findings that relate to the first research question: how do participants interact with payment systems of the Social Security Office?, while Chapter 5 addresses the second research questions: what are the influences that enable transparency and accountability in the SSO payment systems?, respectively. This chapter draws on the key results and discussion of both of these chapters. Moreover, two specific areas initially identified in Chapter 1 are addressed individually, namely: *'Moneywork on Benefit Payments Practices' and 'The Influences for Transparency and Accountability'*, which are key to analysing and explaining the findings of this research.

This chapter examines government payments, specifically their different forms, collaborative efforts between citizens and governmental entities, decision-making processes, selection practices, and approaches to addressing common issues within government agencies. It shows how the use of the Sapiens system and SSO e-services has influenced transparency and accountability (T&A) based on participants' experiences, in enhancing public participation. The findings are compared with existing literature and other research articles to assess consistency and identify any disparities. It also considers the influence of different social and economic environments on these findings. Finally, I focus on implications for the development of guidelines aimed at improving T&A in benefit payment systems. This discussion thoroughly examines the SSO payment process to identify potential T&A and their significant implications for future practices and designs, as demonstrated in Table 6.1. The details are explained below.

Table 6.1: The Key Findings and their Implications in this Thesis

Findings	Implications	Section Referenced
Hybrid payments combine analog and digital methods.	Public officers ensure accessibility and convenience for insured persons by accommodating various needs and circumstances.	Section 6.2.1
Collaborative activities involve in payment processes.	Collaborative activities between public officers and insured persons, or among the insured and their social communities, are essential for information exchange and decision-making via digital platforms.	Section 6.2.2
Use of information triangulation.	Policymakers can create policies to enhance communication channels within the SSO, ensuring data quality (i.e., reliability, accuracy, and comprehensiveness) for insured persons.	Section 6.2.3
Communication and technology limitations impact SSO payment systems' effectiveness.	Policymakers can develop policies to enhance the flexibility and user-friendliness of government payment systems, focusing on robust digital infrastructure and improved direct communication channels.	Sections 6.2.1, 6.2.2, 6.2.3, and 6.2.4
Use of performance indicators and user IDs to monitor and evaluate staff work	SSO administrators and IT staff can enhance system transparency and accountability through measurable criteria for performance tracking.	Section 6.3.1, 6.3.2 and 6.3.4
Strict regulation of access rights within the Sapiens system	IT security teams have to prevent unauthorized access by allowing only authorized personnel to perform specific tasks, safeguarding information integrity and security.	Section 6.3.1 and 6.3.2
Citizen engagement boosts transparency	Thai citizens can enhance system integrity and trust in the government by verifying transactions through multiple channels such as SSO e-services, online communities, and direct phone calls.	Section 6.3.3
Improvement of public relations and communications to be more proactive.	The SSO can improve service delivery and ensures that citizens' concerns and inquiries are addressed promptly.	Section 6.3.3
Enhancing data transparency in the organizational system serves as a foundation for claim processes.	The policymakers and IT department at SSO headquarters can improve accuracy and reliability in claim assessments by developing full automation of calculation functions, sharing data with Civil Registration Offices (CROs) to update personal information, and complying with data security regulations under the Thai Social Security Act to protect against unauthorized disclosure of personal information.	Section 6.4.1
Social presence and collaborative work systems are emphasized to foster	Heads of Department and public officers play a key role in strengthening the internal culture of	Section 6.4.2

Findings	Implications	Section Referenced
accountability among public officers.	responsibility and enhancing the effectiveness of communal tasks	
Development of a Feedback Management module in the Sapiens system to record citizen interactions.	IT developers and the public officers at Benefits Department and public relations unit can bolster accountability by documenting all communication, ensuring thorough follow-up and resolution.	Section 6.4.2
Proactive communication strategies, such as direct contact through various channels, address insured persons' needs effectively.	Policymakers, all SSO staff, and HR can collaboratively work to increase transparency, ensuring that citizens are well-informed about their benefits and SSO operations.	Section 6.4.3
Implementing notification systems for due contributions and claim progress enhances proactive communication.	IT developers can develop notification systems to assist insured persons in maintaining their rights, reduce uncertainties regarding their claims, and improve satisfaction with SSO services.	Section 6.4.4
Enhancing the complaint system by including online recording and tracking of responses.	IT developers and the public officers at the Benefits Department can improve the responsiveness and accountability of SSO officers, ensuring that complaints and concerns are addressed in a timely and organized manner.	Section 6.4.4

6.2 Moneywork in Benefit Payments Practices

Chapter 4 investigated the procedural sequence of SSB payments, focusing on providing a detailed account of the claim activities and technologies utilized under regular circumstances. The objective of the inquiry was to explore how participants engaged in the process of making claims and examine the connections between individuals involved in different stages and components of this process.

Analysis of the empirical data revealed five distinct activities involved in claim processing. These activities are: 1) finding SSB information, 2) submitting claim documents, 3) claims assessment and diagnosis, 4) transferring benefit payments, and 5) receiving benefit payments. The identification of the unique characteristics of each activity were accomplished by employing an interpretive framework rooted in a narrative approach to collecting data and thematic analysis techniques for analysing this narrative data. This approach facilitated categorizing each stage of the process based on the number of actions, operations, and outcomes associated with each activity.

This section explores several significant observations obtained from the first phase of research. The subsections appear in 6.2.1-6.2.2, responding to RQ1a: how do participants collaborate with one another using mixed media in the payment process? Section 6.2.3 addresses RQ1b: how do participants make payment decisions? The remainder of Section 6.2.4 describes the challenges and participants' awareness of government services that the SSO should be concerned about when attempting to improve their services.

6.2.1 Comparing Moneywork for Analog and Digital Payments

How cash and digital payments operate in monetary transactions varies significantly, primarily because of the mode of transactional work. This mode is influenced by users' physical and social interactions, both on an individual and group level (Lewis and Perry, 2019, Barros Pena et al., 2021b, Barros Pena et al., 2021a). Analog payments encompass transactions that rely on tangible forms of money, such as banknotes, coins, cheques, or postal orders, to facilitate the exchange of value for goods and

services through direct interpersonal interaction. In contrast, digital payments encompass transactions that are executed through electronic means, commonly facilitated by digital platforms or mobile devices. The transition from physical currency to electronic transfers has been driven by the integration of digital technology within large institutions responsible for facilitating financial transactions. This move has been supported by the use of payment cards, the growth of online banking, and the recent development of banking services accessible through networked mobile devices (Perry and Ferreira, 2018). The ongoing move towards digital transactions facilitates business organizations and individuals to utilize different approaches to meet various needs. The trend of digital technology adoption has also been observed in government agencies. However, they still need to be flexible and allow users to pay in cash because both cash and digital transfer methods have roles to play in payment, as seen from our participants.

- **On Analog Payments:** Non-digital payments are still available because they are used for regular daily purchases and are easier to use and access than digital technologies. As shown in the literature review (see Section 2.2.4), citizens belonging to particular groups, such as the elderly people and individuals residing in rural areas, tend to favour physical forms of money for making payments. In addition, the lack of trust and challenges associated with e-payments, especially concerns about online transaction privacy and security, contribute to why some citizens still choose analog payments (Kameswaran and Hulikal Muralidhar, 2019). Compared with our findings in Chapter 4, these reasons for using analog payments are inconsistent with the literature. For instance, some insured persons chose physical payment methods due to a lack of a bank account rather than concerns about online transaction security. The decision to use cash payments can be explained by Kameswaran and Hulikal Muralidhar (2019) and Kumar et al. (2011), as individuals are confident that they can receive and use the money immediately because the availability of cash on hand allows individuals to make immediate transactions without any delays or waiting for approvals. Previous findings of Section 4.7.2 confirm that some insured persons desire cash; as an example, they have an immediate need for cash to pay off debts with creditors. The reviews of literature Section 2.2.3, however, suggest that analog payments such as cash are

associated with concerns over personal safety and cash theft, resulting in people carrying less physical money (Kumari and Khanna, 2017). Following our results of payment decisions, the SSO encourages public officers to process benefit payments via online banking for the safety and convenience of citizens. For instance, some insured persons were worried that cash could be stolen or lost on traveling back from the SSO, on top of the inconvenience of traveling to the SSO to pick it up. Although cash can be easily accessible, keeping it organized, counting it, and accounting for it to ensure it is being legitimately paid can be labour-intensive (Kumar et al., 2011). Cash payments are, therefore, unsuitable for large amounts. This result is consistent with the findings of Chapter 4, in which it was determined that analog payments took longer for public officers to prepare cash, cheques, and postal orders than for digital transfers through banking systems.

- **On Digital Payments:** According to the literature review in Chapter 2, digital money and its payment via digital platforms have benefits for businesses and government agencies. The cost savings and transactional speed that result from e-payment adoption can be further accelerated by making process enhancements during and after the payment process (Treiblmaier et al., 2006). Reducing fraud and corruption is an important key that service providers could fix by using e-payment to avoid carrying large sums of cash (Csáki et al., 2013, Kameswaran and Hulikal Muralidhar, 2019). This is consistent with the findings in Chapter 4 from the perspective of public officers who wanted to reduce the opportunity for staff to hold cash. Meanwhile, the insured person recognized the benefits of paying with online baking in reducing fraud because it is an automatic form of payment directly into the recipient's account. Moreover, online transactions can allow users to monitor their financial transactions at any time and from any location, giving citizens a sense of security and confidence. Additionally, this transparency enables SSO officers to feel protected and accountable for their actions. Similar to Kemal (2019), the majority of our SSO payment beneficiaries trust the banking system to be secure as a result of the bank validating the PIN and confirming their identities via biometric checks. While participants were also concerned about the prevalence of cybercrimes, they accepted that the SSO has no control over such

circumstances. From the interviews in Chapter 4, the participants did not emphasize the drawbacks of digital transfer usage. This is likely because online banking payments are commonly used by users for regular banking activities, such as receiving payroll and dividends from investments. It is important to note, however, that there are limitations in accessing government services in digital form, as mentioned in Section 6.2.4. The choice of payment is apparent in Chapter 4, which shows that digital transfers via the banking system was the preference among insured persons because of their convenience which provides them with more flexibility in terms of when, where, and how they collect their benefits and pensions.

Despite the government's encouragement for government agencies to adopt e-payments, they continue to rely on paper-based forms of payment depending on the specific needs of citizens (Csáki et al., 2013). Providing multiple payment options (i.e., hybrid payments) can make government services more convenient and accessible for citizens (Russo et al., 2014). In a similar way, the SSO serves different forms of payment, and its participants collaborate on tasks involving many procedures, systems, and stakeholders who need to receive the SSO benefits in different ways, as detailed in the following section.

6.2.2 Payment as Collaborative Activity

Collaboration spans face-to-face interactions in physical spaces and extends seamlessly into the digital sphere, utilizing diverse technological tools to support user communication and cooperation in their work. As Chapter 4 has shown through the moneywork cycle in the SSO, the process of making benefit claims involves a connected sequence of tasks that are completed through a complex set of physical and digital infrastructures. Both the front- and back-office benefit payment systems are connected through paper-based and digital processes to enable information exchange between different stakeholders. For example, the benefits officer requires proof of payment, including a receipt and medical certificate in document form. Nevertheless, when COVID-19 occurred, the SSO permitted insured persons to submit their documents through online applications and receive payments via online banking. The Thai government managed to handle the COVID-19 pandemic effectively through a

well-transformed digital transition (Ponsree, 2024), as government agencies have been responding to the Thailand 4.0 policy for many years to automate back-office operations (Sagarik et al., 2018). Moreover, they have provided 'citizen-centric' open data platforms to meet the needs of citizens proactively (ibid.). For example, the SSO collaborated with the IT department to develop the SSO website that simplified the document submission process, allowed communication with SSO staff via the Line app and online conferences, and responded to insured persons via social media. However, transactions on online platforms may cause some citizens to feel nervous about using technology, especially when entering detailed information into the online system. Accordingly, some people avoid contacting others through online activities, such as online banking. As mentioned by participant C6 from Vitak et al. (2018, p.12) *"Everything will have to be done on credit cards, which makes you vulnerable at everyone's disposal. Somebody could hit a button and destroy your entire life".* These comments emphasize how participants' negative attitudes, anxiety, and uncertainty about using digital payments act as barriers to technology adoption. Contrary to the case of the SSO, our participants were not concerned when benefit payments were paid via online banking because they continued to trust the reliability of the banking system. For instance, insured persons can easily receive notification messages regarding SSB payment transfers to their bank accounts. However, some insured persons remain anxious about elderly people's unwillingness to learn to use the SSO e-services, as expressed by participant IP217 (See Section 5.5.3). As a result, this elderly people's behavior may obstruct their access to vital benefits and services the government provides through digital platforms, although we have no direct evidence of this occurring in our data.

To address individuals' concerns about digital transactions and unfamiliar technology, collaborative activities are instrumental in both individuals and organizations. These activities can involve exchanging information, allocating resources, and delegating responsibilities across different entities, enabling them to collectively strategize, implement, and evaluate the necessary tasks (Zhong et al., 2015). For example, Section 4.4 described those insured persons who relied on advice from family members, colleagues, or public officers when making a claim. This social information-seeking process is often essential to the claim procedure, helping individuals navigate

the complex system and understand their rights and responsibilities. In Section 4.5, another example was the submission of claim documentation. Here, an insured person submitted every necessary document to a public officer at the service desk, who then verified all claims proof. If any documents were missing or incomplete, the benefits officer notified the insured person in writing and provide a deadline for resubmitting the missing documents. As previously stated, the process supports the shared purpose of ensuring the timely and accurate submission of all essential documents: this is a dynamic and collaborative exercise of working together.

Using digital technology facilitates open communication between officials and the general public to acknowledge and accept the common goals of the operations. As noted by Vyas and Dillahunt (2017), some people used technology to learn about various government services, personal objectives, and the use of technology to find jobs, places to live, and contact friends via mobile phones. The findings in Section 4.4 also showed that insured persons utilized search engines, social media platforms, and official websites, to evaluate the credibility of online information. This example illustrates that technology serves as an intermediary for communication among individuals and connected community groups by sharing and discussing how benefits are paid. Nevertheless, users should consider the importance of data quality on public sites when selecting data relevant to the conditions or crucial evidence supporting the claiming benefits they intend to identify or resolve.

6.2.3 Data Quality Decision Making

This thesis draws on the moneywork lifecycle as a guide to explain and interpret the hidden work within cash and digital payment (Perry and Ferreira, 2018) to understand the rationale for public officers' and insured persons' decision-making regarding the different forms of payment. The claim activities from data analysis in these moneywork transaction sequences (see Figure 4.3) makes the nature of collaboration involved in government-to-person (G2P) payments more apparent. The findings of Chapter 4 show that the SSO's benefit payments are integrated with complex socio-technical systems because these payment systems interact with many people and involves many organizations, legislation, and technical components. As a result, participants need to understand and use the SSB information carefully. How users choose to

submit information in making a claim can be influenced by their social environment. To ensure information accuracy, participants frequently employ triangulation of information sources to check content before making a decision. We identify important forms of this below:

- **Calling on social resources in making financial claims:** When preparing and submitting documentation for a claim, several participants noted that they or others (especially those not interested in technology or more elderly people) had often sought assistance from within their social circle. For example, participants frequently received SSB information and support in preliminary preparation of documents from family members and colleagues, as well as sharing knowledge about general money-saving opportunities (c.f., Snow et al., 2017). As with the study by Kameswaran and Hulikal Muralidhar (2019), participants did not report that trust played a substantial factor in determining whom they contacted for assistance, although they present concerns for privacy and security when using online transactions. Likewise, the findings in Chapter 4, on the awareness of privacy and security of personal information led to some participants seeking support from those closest to them. On the other hand, participants expressing self-reliance tend to seek knowledge from diverse sources to support their decision-making processes because they did not believe that all online information was accurate.

- **Triangulation of information sources:** Where claims were complex, insured persons usually called the SSO staff directly to try to understand or collectively resolve matters; nevertheless, the phoneline was frequently busy, resulting in long waiting times or disconnection. As a consequence, many participants chose to be self-reliant and search out SSB information on the internet, including social media channels. To obtain reliable information, the participants revealed they carefully assessed the guidelines for claiming benefits by consulting multiple information sources. In general, participants relied on online platforms and trusted individuals to acquire general information about SSB, and then they double-checked the accuracy of more specific details by referring to SSO staff or e-services. In addition, inter-personal discussion and searching the Internet were also factors

promoting T&A in benefit payment systems, which is consistent with the literature review in Section 2.3.5 (see Table 2.2 regarding *'social influence'* and *'technological factors')*, which will be discussed in Section 6.3. Importantly, this study also finds that public officers, as the key decision-makers of benefit payments, must first consider legal regulations. For example, suppose an insured person has economic, social, or technological limitations that affect their ability to make a claim. In that case, public officers may switch between digital and analog transactions in the most beneficial way for the insured person. This must be done under the condition that this decision must not conflict with legal regulations and limitations of the SSO's services.

The insured person can ensure data quality (i.e., reliability, accuracy, and comprehensiveness of information) by leveraging multiple information sources such as social networks, general online platforms, official SSO websites, and consultations with SSO staff. By doing this, the insured person can receive information that is trustworthy, complete, and free from bias. This data triangulation helps reduce confusion and aids in making well-informed decisions regarding the claim process.

6.2.4 Challenges and Awareness of Government Payment Services

In Chapter 4, some critical challenges were found from studying the participants' behaviour when interacting with the SSO payment systems to find accurate and reliable SSB information, or from limitations in communication between government officials and the public, such as barriers to contacting officials for asking questions about benefit payments. This study did not only explore and analyse problems from the citizens' perspective; the SSO staff as service providers also faced obstacles. For instance, public officers encountered difficulty contacting some insured persons when they needed to inform them about their document errors. Occasionally, issues with benefit payments arose not from internal operations within the SSO but from external factors that the SSO could not control, such as bank branch closures. As a result, government agencies' services need to be flexible in response to shifts in broader socio-technological systems.

Despite the availability of online service channels, some insured persons preferred to communicate directly with officials via phone calls. The fundamental issue preventing access, however, is that the line is often crowded. As a result of this, requested assistance from others was usually sought (Section 4.4). However, several insured persons stated that the SSB information did not match their needs because advisers' experience (e.g., SSO staff, friends, family members) in claiming benefits differed. Accordingly, some participants searched for information on claiming benefits through government online services. Nonetheless, the problem for citizens looking for help lies in finding information sources that are accurate and relevant to what they require. Importantly, some insured persons needed to know both their rights and what are trustworthy sources. For example, if the insured person understands their rights and difficulties, they will know who to contact, how to ask inquiries, and where to find information in a more information way.

Furthermore, limitations in computer skills and age-related barriers (e.g., physical limitations and unfavourable attitudes toward technology) were identified as significant challenges to claiming benefits in this study. These challenges led some participants to avoid conducting claims transactions through a computer or mobile service, and instead relying on others at work or contacting the SSO personally at the office. Due to this, government agencies have had to consider accessibility issues for individuals with restricted financial resources and those with inadequate educational backgrounds, as they face challenges in accessing digital devices or the internet. Following this line of thought, Islam and Kabir (2015) recommended that for digital devices such as computers, basic or smart mobile phones, public access points can provide support services to these groups of people. In terms of practical support, every SSO in Thailand has a service unit called *'Public Relations'* at provincial offices to provide basic face-to-face advice to the public on SSB information to promote the public's convenience in contacting or learning about the claims process. However, in Thailand the public relations unit do not support insured persons by providing devices (e.g., personal computers, notebooks, tablets, and smartphones), and mobile application services, making this process less well-supported than it could be.

Participants emphasized a service challenge as a delay in processing claims, which occurred during the submission of claim documents and claims diagnosis. These

issues became increasingly obvious when COVID-19 occurred, resulting in large numbers of insured persons making claims such as unemployment. In order to provide more capacity for access to services, the SSO has set up channels for filling out information through e-forms, faxing papers, or submitting documents by e-mail. However, some public officers reported that many insured persons desired more direct communication with officials because if problems were found, they could be resolved quickly. Sometimes, payment delays resulted from diagnostic procedures that detected an insured person's name, surname, or bank account number in the Sapiens database that did not match the information in the submitted documents, causing delayed payments. Notably, some insured persons did not notify the SSO when their phone number was changed. As a result, the public officer could not inform them, especially when refusing payments. Public officers need, therefore, to communicate with citizens to ensure they understand and receive diagnosis results to facilitate payments.

After completing the diagnostic process, the benefits officer must determine how to transfer the benefit payment to the insured person. Driven by the Thailand 4.0 policy, the SSO policy prioritizes SSB payments via digital banking in response to this directive, which is aimed at enhancing digital infrastructure across government services, including cashless payments. Consequently, the Thailand 4.0 policy has encouraged government institutions to adopt e-payments and transition from cash to digital transactions (Sagarik, 2021). Of course, it is not just political issues that have pushed the rise of digital payment channels, but also shifts in contemporary human behaviour. In the findings of Section 4.7, most participants had bank accounts and were familiar with receiving money transfers from government agencies via online banking, through which they can check their history of SSB payments. Furthermore, the increased reach of banking and payment technologies into rural and low-income populations, and access to ATMs and POS terminals practical in small towns (Klapper and Singer, 2017) has increased the adoption of digital banking and payments. The extensive adoption of digital banking and payment systems has significantly contributed to enhancing transparency within the banking system. Through the disclosure of financial information, this adoption ensures that records are not only up to date but also include their owner's transaction data, providing a comprehensive

overview of financial transactions. The implementation of digital transfers, therefore, enhances accountability, and when complemented by timestamp features, this introduces a further level of transparency to the payment process. The timestamp functionality further enables individuals to scrutinize and verify the precise amount transferred, as well as to track the timing and sequence of these historical transactions (see details in Section 2.3.4). However, the findings also showed that adoption of digital banking and online accounts was uneven. This study's results uncovered payment errors from bank transfers when the insured persons provided an incorrect account number, and difficulties when users bank branches closed (increasingly common in rural areas, Keates et al., 2000). As the results have shown, while analog payments (cash, check, and postal order) are a less common choice and do not promote as effective forms of T&A, unlike digital payment, analog payments continue to serve the citizens' needs because of these challenges they address.

To understand the collaborative work on claim activities between citizens and officers, various transactors need to adopt processes specifically tailored to the unique needs of each stakeholder. This point drives us to study the practices and actions of participants in financial decisions that encompass both physical and digital transactional work. By examining both aspects, we can gain insights into how participants navigate the complexities of financial transactions. Although these actions are becoming more digitized, they remain fundamentally social practices. Therefore, to design and improve systems for G2P payments that effectively serve their users, designers need to consider the social relationships and knowledge-sharing activities within the broad socio-technical systems involved in benefit payments.

6.3 The Influences for Transparency and Accountability

Establishing public trust in government payment systems is crucial for government agencies to enhance the transparency of financial information. This will strengthen citizens' confidence in the trustworthy management of public funds, as they can actively monitor the execution of allocations and expenditures. To do so, government institutions often try to empower citizens through learning activities and feedback

channels (Russo et al., 2014). The second research question in the thesis addresses this concern, and the findings in Chapter 5, highlight seven influences for enhancing transparency, and seven influences for enhancing accountability of benefit payments in the SSO.

Based on our findings, it is essential to establish clear protocols and mechanisms to ensure traceability and accountability for all actions within the SSO payment system. This approach can enhance the accuracy, reliability, and trustworthiness of digital transactions. Notably, fostering T&A should not solely focus on technology; citizen engagement is equally important. As discussed in Chapter 5, citizen engagement can boost T&A by enabling citizens to verify their financial information, track transaction progress, and provide feedback or raise complaints through official channels, thereby fostering public trust in digital payment systems.

Returning to RQ2, this section examines the results of Chapter 5. To begin, sections 6.3.1-6.3.2 address sub-research question 2a: *how can digital technology enhance organizational transparency and accountability in the SSO payment systems?* Section 6.3.3-6.3.4 replies to the sub-research question of 2b: *how can activities of citizen engagement enhance social transparency and accountability in the SSO payment systems?* This part provides for a more in-depth exploration of what these findings mean, as well as comparisons with existing works of literature.

6.3.1 Awareness of Organizational Transparency

Creating digital transparency is not restricted to technical challenges involved with system development, but also requires an awareness of organizational conditions for digital transparency (Matheus et al., 2021). Based on the results of Section 5.3.1, we can see that organizational and technological factors impact the back-office payment systems' design requirements. The organizational structure of government agencies means that (as organizational factors) each public officer has unique roles, responsibilities, and authorizations. This analysis revealed that the SSO has adequate data transparency in place because the benefit payment systems can answer questions from the public officers regarding who is involved, when and where data processing happens, and what information is required at the various points of

processing a claim (c.f. Batubara et al., 2019, Bannister and Connolly, 2011). Additionally, the SSO's awareness of the segregation of duties between public officers also helps to manage monitoring and controlling activities. For instance, this can be seen where the financial and benefits officers conducted a collaborative audit of financial transactions regarding benefit payments with paper-based and data in the Sapiens system as noted in Section 5.3.1. Here, the system's process transparency allows participants to track all previous transactions (Batubara et al., 2019).

Another form of transparency awareness can be seen in how the system discloses data outside the organization, as the results in Chapter 5 show that the SSO system shares data with a hospital. If public officers require additional medical evidence, the insured person does not need to waste time traveling to send these documents at the SSO. Importantly, for reasons of citizen privacy, access to medical records should not be provided to all public officers and should be limited to only those involved in the claim process. According to a global challenges for social security report by the International Social Security Association (2019) sharing individual data between public agencies is necessary for implementing more efficient and proactive public services. However, to achieve this, policy challenges must be overcome, such as establishing a balance between privacy and openness.

Whenever the SSO implements changes in processes or policies, it is imperative that these changes are thoroughly documented. This is a practice that government agencies can adopt when making policy changes to increase transparency and clarity in their operations (Matheus et al., 2021). Furthermore, they should be openly discussed among public officers, for example, through an online community platform (as seen in Section 5.3.3). Explanations for these changes should also be made available to the public to enhance transparency in decision-making and policy implementation (Hosseini et al., 2018). However, it is important to note that adjustments in policies and regulations inevitably impact the benefit payment systems. Consequently, some insured persons may contact public officers during such periods because they may not fully comprehend or be accustomed to the new practices.

After completing a claim, the IT department at the SSO headquarters is responsible for data storage. Typically, a database administrator is responsible for system

governance to provide a suitable level of transparency. People holding this role will need to be familiar with the relevant privacy legislation: they must have knowledge, training, and experience in managing data and metadata quality (Matheus et al., 2021) to ensure that they can oversee organizational transparency. Similarly, the literature review in Section 2.4.3 emphasizes the significance of disclosing personal information. It underscores that public officers must prioritize security and privacy awareness, as citizens' personal information may be disseminated to unauthorized individuals. Therefore, government agencies need to be aware of identifying the public officer's responsibilities, behavioural assessments, and observing their activities, which are crucial aspects of ensuring T&A exists in the payment process while each officer is active in the system.

6.3.2 Identifying Responsibility and Answerability

The development and application of performance indicators, which provide measurable criteria for evaluating the performance of individuals and teams, can promote accountability in the back-office of the payment systems. Monitoring and evaluating staff work has the advantage of identifying responsibility and concern about social presence, which means officers are held accountable for their actions and work practices in the eyes of the public or relevant stakeholders by ensuring that individuals or groups are answerable for their behaviors and work practices to citizens and other stakeholders.

As discussed in Section 6.3.1, the organizational structure supports precisely identifying officials' tasks: each public official has unique duties, responsibilities, and authorizations for claims transactions. For example, each public officer's access rights to the Sapiens system, such as recording, editing, and approval, vary depending on their role and responsibilities. In government, there is usually guidance that an access policy must be utilized so that only authorized organizations or persons can act in pre-defined roles (Graglia and Mellon, 2018, Batubara et al., 2019). As a result, identifying information, such as user IDs, can play an important role in assisting the government in tracking officers' obligations, trust within their own authority, and accountability for their actions. This assurance can help officers to be more accountable and more motivated to fulfill their daily responsibilities effectively.

Setting the User ID for SSO staff serves multiple purposes. It enables the head of SSO to allocate human resources effectively and define areas of responsibility. However, it is essential that access rights also adhere to the verification process of the Information and Communication Technology Bureau (ICTB) agency. This process ensures that access privileges to the system are certified appropriately. The ICTB review procedure approves permissions for usage within the Sapiens system, following a step-by-step approach that considers not only the head of the provincial SSO's permission but also ICTB agency guidelines. The importance of this process lies in its connection to the responsibilities of officials, which emphasizes the principle of answerability in governance. Before setting a UserID, the consideration of system access rights from multiple parties helps in selecting appropriate SSO staff who are capable of handling specific data within the Sapiens system. Additional qualities include understanding their roles, accepting their responsibilities, and possessing the ability to answer various questions related to benefit payments, thus enhancing answerability.

When faced with failure, a natural human response is to identify the source, express responsibility to an individual or group, and establish a connection between that responsibility and the ensuing consequences; this essentially entails holding someone accountable for the failure (Kroll, 2020). In the case of diagnosing SSO claims, some cases were still pending because the public officer has an obligation to investigate the evidence (Section 5.4.2). As we saw, PO209 explained that if there are pending benefit payment transactions that have not yet been resolved in the system, this may indicate a duty deficiency, which could affect her work performance scores. In this situation, public officers can verify past transactions in the report system, inquire using the Sapiens system's query menu, or call for a discussion with the insured person. However, the first part of a monitoring officials' work involves collaboration with other officers to verify each other's work as seen in Sections 5.4.2. The tracking procedures can be especially beneficial for law enforcement agencies, where officers' activities must be continuously observed to ensure that they retain public trust (Bradford and Quinton, 2014). Thai government agencies need to adhere to Thailand's Personal Data Protection Act (PDPA), which follows the trend of The European Union (EU) data protection, especially, the General Data Protection Regulations (GDPR) (Naparat, 2020). This law oversees the legal acquisition, utilization, or disclosure of personal

data that has the ability to directly or indirectly determine the identity of a person (Greenleaf and Suriyawongkul, 2019). Thus, the SSO staff need to be extremely careful about the security and dissemination of personal information of insured persons. For this reason, every public officer must be aware of the social presence outlined in Section 5.4.3, specifically regarding the implications of personal information access during system interactions related to benefit transfers. This interaction involves many users in the claim process, such as benefits officers, financial officers, or IT staff, who can monitor and evaluate their actions at every payment process step. If unusual events occur, like excessive access to employer information, the head of the department promptly inquiries about the reason from the subordinates and addresses issues. Hence, SSO staff should behave responsibly in a working system by being mindful of social presence to create accountability.

Monitoring the behavior of public officers within the organization is utilized not just as an indicator to evaluate officials' performance but also by those outside the workplace by citizens and service users. These people provide feedback on the efficiency and abilities of workers to answer queries. Thus, this thesis highlights a new theme, *'answerability and feedback'*, which is presented in Section 5.4.4, regarding public officers' narratives in the significance of answerability and feedback as valuable input data in the back-office of the payment systems. In practical terms, the SSO staff provide answers to inquiries that are guided by the payment regulations outlined in the social security law. Consistent with the conclusions drawn by Romzek (2000) and Rahman (2018), the principles governing responses to inquiries are rooted in legal regulations, guaranteeing equal answers and guidance for all individuals. Currently, there is a process in place to address a multitude of inquiries and resolutions within the SSO using many channels, such as phone calls, the Line app, and social media. Within the SSO media systems for answering queries and communicating with insured persons, phone calls are a common approach because they can provide quick responses and can offer longer interactions to explain in detail than other media. However, several public officers have stated that Facebook is gaining popularity for this. Unfortunately, there are still difficulties in answering questions due to the delay in public officer responses. As Rahman (2018) indicated, online petitioning sites can

create a large volume of contact requests that must be serviced, diminishing the ability of officers to react in a timely way to requests.

In summary, answerability and feedback in the back-office system can encourage public officers to take responsibility for their actions, address citizen feedback, and answer any questions, creating vital input data for the SSO payment system. To achieve accountability with *'answerability and feedback'* theme, the SSO can use the SSO media systems as a communication tool to provide information between the SSO and citizens. However, if the SSO needs to seek more feedback to improve the payment service system, they may prioritize enhancing the service feedback systems, which will be discussed further in the next section (Section 6.3.4).

6.3.3 SSB Information Becoming Visible through OGD

Increased citizen participation holds the potential to foster T&A, leading to mutually beneficial outcomes (Hilgers and Ihl, 2010). Citizen engagement serves as a channel for individuals to express their opinions on government policies and decisions that directly affect them. Moreover, transparency reinforces democratic principles by motivating government officials to prioritize the welfare of citizens (Bannister and Connolly, 2011). Consequently, the drive for greater citizen participation necessitates understanding the influence factors that motivate citizens to engage with and utilize available government information.

This study underscores the significance of motivation in driving citizen interest in accessing SSB information for future planning. de Souza et al. (2022) and Hutter et al. (2011) emphasize the critical role of motivation, suggesting that it should be a primary focus for HCI designers, as it is a key driver in encouraging citizens to access SSB information through OGD platforms. This heightened visibility of SSB information enables participants within the system to observe each other's actions, thus facilitating greater transparency and understanding (Erickson and Kellogg, 2000). Furthermore, the findings presented in Section 5.5 show that social influence, technical factors, and proactive public relations efforts also play significant roles in shaping citizen engagement with OGD.

Based on the findings outlined in section 5.5.1, it became evident that insured persons were cognizant of extrinsic motivators, particularly the impact of financial benefits. Consequently, amount received from the SSO is the potential influence to motivate insured persons to actively use the SSO e-services. This empowerment allows them to assert their rights to benefit payments and utilize open data portals effectively. Through these initiatives, insured persons become more confident and capable of using e-services to claim their benefits and access essential SSB information. Another practical approach to encourage the use of OGD is to recognize the role of user education. Some government agencies have acknowledged its importance and taken proactive measures, such as providing Frequently Asked Questions (FAQs) sections on open data portals, as the SSO has done via their official website. These FAQs serve as a valuable resource, addressing common queries regarding eligibility criteria, necessary documentation, and pertinent policy updates (Hogan et al., 2017). Presenting such information not only addresses the immediate concerns of insured persons but also facilitates their access to benefits, ensures compliance with regulatory requirements, and helps them adapt to policy revisions.

In the findings of Section 5.5.2, it was shown that workplace colleagues had the most significant influence on our participants' interest in learning about government data. This was attributed to their accessibility and the ease with which participants could seek consultation from them. Other influential figures included family members, HR staff, and friends within online communities. Participants commonly utilized digital media platforms such as YouTube, Facebook, and Line app to search for information, occasionally receiving posts from friends through these channels. Relatedly, Zuiderwijk et al. (2015) suggested that convincing influential individuals close to the user about the utility of open data could bolster the adoption and acceptance of open data technologies, underscoring not only the importance of improving open data technologies but also the significance of nurturing social relationships. For instance, the SSO could share success stories or important information with citizens, enabling them to disseminate this information within their online communities. This approach could effectively leverage social networks to enhance the dissemination and acceptance of open data technologies for our participants.

The SSO website and SSO Connect Mobile were the primary open data portals used by participants in this thesis. They described how the two services operate, remarking that their functions were uncomplicated. They did not discuss user interface design issues in considerable detail. However, some participants mentioned the dissemination of SSO information used highly legal language, making it difficult to understand and enact. Another barrier to access was around pending claims. In this situation, the SSO e-services on the website and mobile phone could not display progress, making it impossible for the insured person to track any status. As a suggestion to make the process transparent by Carlo Bertot et al. (2012), the government could allow citizens to track the ongoing progress of their government services, to ensure efficiency, and provide reasonable processing times for various services, documents, and resources. Allowing citizens to track the ongoing progress of their government services means providing them with real-time updates and information about where their requests or applications stand in the processing pipeline. This transparency would enable citizens to monitor the status of their requests and identify any delays or bottlenecks in the process. By having visibility into the process, citizens could better understand how long it takes for their requests to be fulfilled and whether any actions are required on their part. Additionally, by setting and adhering to reasonable processing times for various services, documents, and resources, the government could further enhance transparency and efficiency in service delivery, fostering greater trust and satisfaction among citizens.

There are many channels though which insured persons can contract public officers, such as using SSO e-services, online communities, and direct phone calls. As shown in Section 2.3.3, the Thai government has adopted digital technology to help facilitate citizens in contacting them. Its purpose is to allow citizens and oversight bodies to review government actions and allow citizens to know their rights and privileges. However, some participants expressed the view that public relations need to be more proactive. For example, a few participants were only aware of the SSO e-services app once they discovered it by chance from the App Store or suggested this app from other websites. Because of this, several participants expressed a desire that the SSO enhance its publicity to reach more insured persons, such as on the SSO website's home page, or via e-mail and television (see Section 5.5.4). Related to this point,

Sounthornwiboon (2019) was aware of proactive public relations used by Thai government agencies; he advised using the Line application to improve proactive public relations, which helped to strengthen an organization's image and brand by communications media. As shown in Section 5.4.4, the Line app is already utilized by SSO officers to share SSB information with representative groups or community leaders. It serves as a medium through which the SSO in each province endeavours to disseminate information to Line group members, with the expectation that they will further inform a larger number of people within their networks.

To enhance the visibility of SSB information for the public, the SSO can take proactive steps to encourage insured persons about the significance of SSB. This encouragement relies on various factors, including motivation, social influence, technical factors, and proactive public relations efforts, as highlighted in Section 5.5. These efforts aim to stimulate citizen engagement with SSO activities and promote understanding of SSB information. As a result of this promotion, citizens are encouraged to actively seek out information rather than passively waiting for it to be provided. Implementing proactive public relations initiatives can improve the accessibility of SSB information through OGD platforms, thereby enhancing transparency by sharing government data. Transparent information plays a crucial role in fostering accountability within government agencies, providing citizens and oversight bodies with insight into SSO operations and decision-making processes.

6.3.4 Promoting Social Accountability through Trackability

The availability of visible data not only enhances government performance through tracking and inspection but can also promotes a culture of responsibility among citizens. Promoting civic participation is crucial in effectively engaging citizens and ensuring informed participation in government services, particularly as modern public sector approaches prioritize delivering services based on citizens' needs rather than serving internal government structures (Chongthammakun and Jackson, 2010). However, officials may sometimes struggle to align their tasks with citizens' needs, leading to operational stress when internal work procedures do not match external practices (Ciolfi et al., 2023). To address these challenges, organizations can seek to adapt their work methods or improve systems through new forms of social

accountability, such as citizen engagement, to enhance work performance (Rahman, 2018). Governments are increasingly leveraging ICT-enabled tools to transform both internal and external processes, facilitating information exchange and improving organizational performance. Section 5.6 findings highlight how insured persons can track their historical benefit payments and evaluate SSO performance through complaint mechanisms and satisfaction surveys, illustrating the importance of citizen involvement in monitoring and improving government services.

The literature highlights the advantages of utilizing e-payment systems for tracking financial transactions, particularly in banking system. Likewise, the SSO also have e-payment benefits transfers through this system. With this setup, insured persons gain the ability not only to monitor ongoing e-payment transactions but also to track historical benefit payments through SSO e-services. This ensures that government funds are transferred securely and accurately, as reflected in their banking system transactions. The SSO website and SSO Connect Mobile serve as primary channels for insured persons to access their previous benefit payment records. For example, insured persons can view their total claimed amount and remaining entitlements within the system. However, there have been instances where insured persons, like IP219, have expressed the need for additional features beyond transaction tracking. In the case of IP219, they would have liked the SSO to provide alerts regarding remaining claim balances and expiration periods, as some insured persons might overlook their entitlements (see Section 5.6.1). Without such reminders, there is a risk that insured persons may miss out on their entitlements, resulting in missed opportunities to receive benefits or payments. Consequently, implementing alerts can help ensure that insured persons stay informed and maximize their allowable benefits. Cases of oversight could have significant implications for individuals, potentially resulting in financial hardships or loss of essential benefits. Incorporating alert features into the SSO system could greatly improve accessibility and ensure that insured persons are proactive in managing their benefits and rights.

Chapter 5 also revealed different behaviours and perspectives on the use of SSO e-services in both web-based services and mobile apps. Some participants stated that the SSO official website had more information and service options on the SSO official website than on SSO Connect Mobile (Section 5.6.1). However, the mobile app was

considered a more convenient way to access the service because it could be used at any time and from any location. Based on the findings, it is possible to conclude that official websites and mobile applications have advantages for the SSO services. Similarly, research by Samarasinghe et al. (2022) found numerous governments transitioning to digital platforms, primarily websites and mobile applications, particularly in light of the ongoing COVID-19 pandemic. COVID provided government agencies with an even greater incentive to respond to inquiries and disseminate vital information to the public, such as pandemic updates. In a similar effort by the SSO at that time, e-services were developed to promote public contact information service channels, including modifications to the claim procedure by enhancing channels for interacting with SSO officers, as described in Chapter 4.

Enhancing governmental accountability can be supported through complaint mechanisms, which establish a feedback loop for addressing issues raised by citizens within the benefit payment process. This thesis identifies several instances of complaints reported by participants. The findings reveal that, at the provincial level, the SSO primarily receives complaints via phone calls due to a lack of computer infrastructure for complaint acceptance. The central SSO headquarters is responsible for handling complaints nationwide through the SSO website; however, there are delays in response from SSO officers. Consequently, some insured persons resort to airing their grievances on online platforms such as Facebook (messenger) or through broadcast television to reach a wider audience. Insured persons expected SSO officials to promptly address their concerns, especially in response to public pressure and criticism of officers' roles and obligations as observed in online communities and media outlets. Similarly, literature on governmental accountability highlights the role of citizens, social organizations, communities, and news media in leveraging accountability to monitor officials' performance, policy decisions, and implementation. As such, reviewing and judging how well officials perform their duties and responsibilities (i.e., assessment work performances) are essential for the answerability and feedback aspects of accountability within the SSO, as outlined in Section 5.4.4. Complaints provide crucial data for the SSO to develop explanations or strategies to address issues in accordance with SSO regulations and the needs of complainants.

Government agencies can enhance accountability by actively seeking feedback and inquiries from individual service users, utilizing satisfaction surveys as tools to gather insights from external perspectives. One example of such surveys used in government services are Citizen Report Cards (CRCs), used to evaluate public service performance based on systematic feedback surveys from actual users of the service (Rahman, 2018). The Public Affairs Centre in Bangalore, along with the United Nations (UN), has employed CRCs to assess public satisfaction with their services, as demonstrated by Joshi (2013), who identifies two critical factors influencing the effectiveness of CRCs: firstly, the role of an active and unbiased media and proactive civil-society groups that push for accountability and changes; and secondly, the involvement of government officers who are motivated by proof of poor performance and are willing to cause reforms. By comparing the findings on enhancing accountability with the satisfaction survey in Section 5.6.3, it is evident that the neutrality of media was not mentioned as part of increasing accountability. Instead, the SSO focused on providing an overview of the performance evaluation of SSO services. However, individual service evaluations were not addressed in the SSO. Consequently, in our data, the majority of feedback from SSO users suggests providing individual evaluations so that SSO officers can be more clearly identified as responsible persons, especially in instances of communication service problems involving individual officials.

Furthermore, challenges with the evaluation include some participants' lack of confidence that the SSO would use the evaluation results to improve work performance because the SSO has not announced the provincial-level satisfaction scores for citizens' perception. Satisfaction surveys at the provincial level continue to use paper forms, which may make data collection and analysis of results difficult (e.g., wasting time, poor handwriting, counting and filling errors during data input) when comparing online surveys. To promote social accountability with trackability, this thesis proposes additional SSO e-service functionality and evaluating the SSO work performance through other tools, which will be discussed in the research implications section.

6.4 Implications for Design

By addressing the two research questions, the discussion in sections 6.2 and 6.3 provides interpretations of behaviours, attitudes, and recommendations from the participants and other scholarly literature, leading to a new understanding of T&A in the benefit payment in the SSO. This thesis particularly highlights the significance of transparency in the SSO. As a result, financial information, particularly the receipt of benefits such as claiming benefits, could be made public to ensure the insured persons can still receive money. To protect their benefits, they can provide feedback or monitor the work of SSO officers and policymakers, making the government and its officers accountable for its actions and performance.

This thesis begins with RQ1, which investigates how people use money and work with others involved in the benefit payment process. The results of RQ1 explain the relationship between public officers and insured persons in which they engage in the financial transactional work of benefits payment. By doing so, RQ1 serves as a starting point for RQ2 in defining the scope of the study, which includes specifics of participants' actions, attitudes, and expectations regarding enhancing T&A in the SSO's benefit payment. The uniqueness of this thesis can be viewed from two angles. Firstly, it focuses on improving T&A within both the back-office system (the Sapiens system) from the viewpoint of SSO staff, and the front-office system (SSO e-services) from the perspective of insured persons.

Consequently, I will examine the implications of the study findings regarding the factors influencing the improvement of T&A in system mechanisms as a view of T&A work in the operational mechanisms. In order to bolster T&A alongside citizen engagement, attention will be directed toward optimizing T&A work within front-office services, fostering collaboration between the government and its citizens. This research extensively draws on the HCI and CSCW research literature to analyse how participants use digital tools to claim benefits.

6.4.1 Transparency in System Mechanisms

The design implications for the SSO payment systems focus on enhancing transparency within the Sapiens system, building upon the mechanisms outlined in Chapter 5. This section begins by emphasizing the importance of enhancing data transparency within the organizational system, serving as the foundation for all claim assessment processes. An integral aspect of organizational structure within government agencies lies in its clear definition of duties and responsibilities. Consequently, access to the system is segmented based on individual roles and responsibilities, with the SSO headquarters tasked with systematic supervision, data collection, storage maintenance, and internal utilization. As outlined in Section 6.3.1, the IT department at the SSO headquarters is responsible for overseeing staff activities through User IDs. This oversight facilitates the monitoring of public officers' activities, ensuring appropriate access to the Sapiens system. Key questions addressed include who has access, which operating systems they utilize, and what alterations or modifications have been made to the data. Such monitoring exemplifies data transparency, (see Section 5.3.1), where IT personnel can verify the appropriateness of data management by local-level public officers.

However, one barrier to data transparency is that some personal data from citizens may not have been updated yet. As a result, the SSO could facilitate data interchange between government entities through data-sharing agreements with the Civil Registration Offices (CROs), which are responsible for recording important population data such as births, deaths, marriages, and divorces (Legal Affairs Division, 1991). Additionally, they can provide population registration information to authorized government or private agencies (ibid.). For example, CROs allow SSO staff to access their system by finding an insured person's personal information (e.g., last name, marital status, or phone number) when the SSO staff cannot contact that person. Nevertheless, issues regarding privacy and data protection were raised. Consequently, SSO officers must be knowledgeable and aware of current data security regulations. In terms of privacy and data protection, the SSO has the potential to push forward policy transparency and influence public officers' decisions to access data. As noted by Matheus et al. (2021), accessing data without awareness of whether it contains sensitive or personal information poses a disclosure risk, which could result

in public officers being punished. As a result, the SSO requires all SSO officers to follow the SSO policy under Section 100 of the Thai Social Security Act B.E. (Buddhist Era) 1990 on protection against disclosure of personal information. In conclusion, ensuring compliance with data security regulations and policies is essential for promoting transparency while safeguarding against unauthorized disclosure of personal information.

Moreover, enhancing transparency within the processing system can be achieved through full automation of calculation functions, thereby eliminating the need for manual interventions like row-counting or finger-counting methods (as discussed in Section 4.6). By automating these processes, the system ensures accuracy and reduces the risk of human error at every step. Additionally, transitioning from alphabetic progress signs to detailed notifications in the Sapiens system further enhance transparency. For example, replacing letters like ‘O’, ‘A’, and ‘Y’ with pop-up text messages could simplify the recognition process for new public officers. These pop-up warnings could serve as tracking mechanisms, identifying instances such as system malfunctions, suspicious behavior, or threshold exceedances. Clear and simple information would enable public officers to promptly understand the issue and take appropriate actions itself, contributing to greater process transparency throughout the system.

6.4.2 Accountability in System Mechanisms

In establishing accountability within the computer system, identifiability emerges as a pivotal aspect, especially concerning officers’ duties within the SSO. As personnel engage with the Sapiens system, it routinely displays and records User ID and personal details (such as first and last names). This approach is crucial in the government payment system, where enhancing accountability through clear user identification (User ID) helps track each officer's action to prevent fraudulent financial transactions (see in Section 5.4.1).

Moving on to findings in Section 5.4.2, I emphasize that public officers should refrain from sharing their User IDs with others due to the system's record-keeping practices. Such records play a crucial role in monitoring and evaluating the responsibilities of

public officers, as they serve as evidence of actions taken within the system. Failure to adhere to this guideline hampers the identification of the actual offender in cases of misconduct. As noted by Kroll (2020), it is essential to note that User ID owners cannot absolve themselves of any wrongdoing, as records must be maintained to establish a clear link between user conduct and system operation. Consequently, the SSO should establish clear guidelines regarding the responsible use of User IDs for its staff to ensure proper conduct. For instance, recorded log files from the Sapiens system can be scrutinized in cases of fraud or data misuse by officials. In such situations, all SSO staff members must acknowledge and accept responsibility for their actions, including any associated penalties or consequences.

Public officers' perceptions of accountability for their actions are not solely shaped by the threat of punishment; they must also consider their social presence to avoid causing negative impacts on others. Section 5.4.3 highlights the importance of social presence, which can be strengthened through collaborative work systems, such as communication and monitoring among coworkers. For example, the Financial and Accounting department plays a role in monitoring the performance of the Benefits department concerning benefit payment information. This collaborative effort enhances social presence within the organization, fostering accountability and ensuring that tasks are carried out effectively. The use of instant communication tools, such as messaging apps like Line and Facebook, further contributes to social presence by facilitating cooperation and knowledge sharing among officials and residents. Messages exchanged between officials and citizens demonstrate a commitment to transparency and responsiveness, building trust and accountability in the community. Overall, promoting communication with online communities and allocating SSO teams to address questions and provide information establishes a strong social presence for public officers, emphasizing their responsibility and commitment to collaboration and engagement.

The interaction between public officers and citizens through online channels underscores the importance of social presence in fostering accountability within system mechanisms. When public officers engage with citizens online, they become more visible and accessible, creating a sense of answerability, and facilitating feedback loops. Responsively addressing feedback received from insured persons is

not just a professional duty but also an acknowledgment of officers' accountability to the public they serve. Given this accountability, it becomes imperative for the SSO to invest in enhancing the knowledge and expertise of its officers to effectively interpret and apply complex legal regulations governing benefit determination and evaluation. This expertise is crucial for upholding accountability in decision-making processes, as officers must be capable of making accurate judgments and adhering to regulatory requirements. In the event of mistakes or errors in decision-making, officers cannot evade responsibility, because they are just as much a face of the SSO as the other components of the technical system.

Furthermore, the SSO is tasked with strengthening its accountability mechanisms by improving responsiveness to citizen inquiries and concerns. Currently, the SSO offers interactive services to citizens through Line app, a widely used mobile app in Thailand that many businesses utilize as their primary communication platform. However, a significant drawback of Line app is its inability to retain chat history beyond a few months. To address this issue, SSO may consider implementing an alternative system or channel capable of recording and tracking interactions. For instance, the development of Sapiens' Feedback Management module could document all communication with citizens, thereby bolstering accountability within the SSO operations. This module would automatically capture inquiries or complaints, establish a knowledge repository, and provide a collaborative space, discussing among the SSO staff regarding the perusal of citizens' inquiries and complaints. In addition, in scenarios where provincial-level SSO staff encounter challenges in resolving issues or addressing inquiries, the system can facilitate the engagement of legal experts from the SSO headquarters. This example serves as a suggestion to enhance accountability efficiency through the answerability and feedback system. It emphasizes the significance of providing insured persons with precise information via systematic decision-making by SSO experts. To facilitate this, a Restful web service could be employed as a bridge between the traditional system, the Sapiens system, and the feedback system, with data collected in JSON (JavaScript Object Notation) format to ensure seamless data transfer to future systems.

Accountability demands that officers take ownership of their actions and rectify any errors promptly and transparently. Therefore, continuous learning and knowledge-

sharing initiatives, as highlighted in Section 5.4.4, could play a vital role in enhancing accountability within the SSO. By fostering a culture of collaboration and knowledge exchange (see Sections 5.4.1 and 5.4.4), the SSO can promotes a higher level of expertise among its staff, ensuring that they can fulfill their duties responsibly and uphold accountability standards within the organization.

6.4.3 Transparency with Citizen Engagement

Financial benefits that an insured person can receive from the SSO are pivotal in encouraging engagement with the Social Security System (SSS). These benefits motivate insured persons to actively seek out SSB information using OGD platforms because money directly impacts their well-being and security. When citizens know they can access valuable financial support, they are more likely to engage with and utilize the available resources. This engagement promotes transparency in government data disclosure and helps citizens stay informed about their benefits, ensuring they can maximize the support provided by the SSS.

However, despite the availability of digital platforms regarding benefit payments, some insured persons struggle to locate SSB information, leading them to rely on social relationships to navigate the claims process. To address this challenge and enhance transparency, the SSO could collaborate with human resources (HR) representatives, who often have direct interactions with insured persons working at organizations when they face problems with claims. By leveraging these partnerships, the SSO could improve the dissemination of SSB information and ensure that citizens have access to accurate and timely information. For instance, insured persons could have the option to verify the accuracy of their social security contributions through their HR department. Subsequently, they could further corroborate these figures by cross-referencing them with the records available on the SSO e-services platform. This dual verification process offers the opportunity to enhance trust and transparency in the SSO. Such transparency serves as crucial evidence ensuring that employers fulfil their tax obligations promptly and in their entirety on behalf of insured persons.

Furthermore, proactive communications, facilitated by managing the distribution of knowledge directly to citizens, can significantly benefit the SSO. Insured persons

frequently turn to SSO services for answers, highlighting the importance of proactive engagement and communication channels. By being the first to contact insured persons and share information via various channels such as email, television, instant notification message systems, and social media, the SSO can effectively address their needs and concerns about SSB information. Despite these efforts, the SSO faces challenges related to a lack of staff to communicate with citizens via online services. To mitigate this challenge, policymakers and system designers can collaborate with retired SSO officers who possess valuable knowledge of the operational structure and can efficiently disseminate information.

Other factors for enhancing transparency in SSO services could include technical factors such as readability, timeliness, and accessibility of information. Improving readability by presenting information in clear and understandable language, utilizing visuals or video clips, and ensuring timely updates in tracking information are essential steps to build trust in SSB information. Furthermore, enhancing accessibility to SSO services is paramount. For instance, the SSO website could offer alternative pathways for service access. A practical example would involve prominently displaying links for downloading the SSO mobile app on both IOS and Android platforms. This initiative would enable users to conveniently access SSO services on their mobile devices, thereby enhancing overall accessibility and user experience.

The most important aspect of promoting citizen engagement and trust in SSO services is to concern government transparency through the disclosure of government data. By leveraging OGD platforms and addressing technical challenges, the SSO can effectively empower insured persons to access and understand critical information regarding their benefits.

6.4.4 Accountability with Citizen Engagement

Increasing citizen engagement in information verification can be performed by emphasizing the tracking information. Suppose a mistake is discovered in data reporting. In that case, citizens can utilize this supporting information to express their complaints, leading to a greater sense of satisfaction in knowing that their voices can contribute to improving the performance of government authorities. In particular,

satisfaction surveys can encourage a culture of accountability by establishing a measurable and transparent standard by which both overall and individual performance can be measured.

By enabling the citizens to track the history of their claims via the SSO Connect Mobile and the SSO official website, the SSO encourages social accountability by allowing insured persons to verify historical data. This includes hospital lists (i.e., the names of hospitals where insured person used for treatment), monthly tax contributions (i.e., the amount of contributions paid to the SSO each month), and the amounts received from claiming SSB rights (i.e., the previous sums received through SSB claims each year). Nevertheless, as shown in Section 5.6.1, some insured persons required more than just tracking information; they also required a notification system to remind them when their monthly contributions were past due. In the case of IP216, the employer failed to pay the appropriate contributions. This makes using the right to claim unemployment benefits impossible. As a result, adding a notification system to alert insured persons via e-services such as e-mail, the official website, and SSO Connect Mobile may assist insured persons in maintaining their rights to withdraw compensation money in the future. Another enhancement to the SSO website and mobile app that could provide the tracking number status to indicate the progress of a claim, similar to tracking product status when ordering through the online system. This service can reduce concerns or questions about unpaid claims or delays.

Another significant issue in enhancing accountability for the SSO is its complaint system, especially record-keeping, when an insured person notices an unfair or incorrect benefit payment or feels that the service they received from SSO officials was unsatisfactory. For example, in Section 5.6.2, some insured persons had trouble receiving their benefits and tried to reach out to SSO staff, either by phone or in person, to express their concerns and inform them of their complaints. However, the SSO lacked a systematic method for recording complaints, leading to these issues being logged on paper with handwritten notes. To tackle this issue, Joshi (2013) suggested enhancing the complaint mechanism by introducing an online system, as this would allow data to be recorded in an organizational database. Presently, the SSO has made attempts to enable complaints to be lodged via its website, but responses from SSO headquarters staff are often delayed (refer to Section 5.6.2). Therefore, the SSO could

implement accountability measures such as tracking response times and publicly reporting them to hold officers accountable for delays, ensuring that SSO officers are held responsible for their actions. For complaints about inappropriate behaviour by officials, such as corruption, Rahman (2018) suggests that a government call centre can deliver SMS messages and phone calls to citizens, encouraging them to inquire for more information. Sending SMS messages is not only helpful in making complaints, but it can also be applied to sending satisfaction surveys to citizens after receiving services from public officers.

The SSO presently employs the overall satisfaction surveys, as delineated in Section 5.6.3. There existed a viewpoint among insured persons contending that this survey lacked fairness in its evaluation of diligent officers. As a result, the SSO can combine the strengths of these two types of surveys, where overall satisfaction surveys can help to evaluate overall performance by providing valuable insights to the SSO about service points that need to be addressed, evaluating e-service delivery systems and the existing policy, and so on. Simultaneously, individual satisfaction surveys can be employed to measure the SSO staff's behavior and work performance after the service, reflecting detailed feedback that can be operated to address specific problems. In addition, the evaluation results could be presented consistently via the SSO e-services, including comparing current survey findings with historical data. This analysis can explain a comprehensive review of any changes or improvements employed for implementation.

6.5 Chapter Summary

This chapter analyses and interprets the research findings arising in chapters 4 and 5, which are segmented into three parts. The first section presents the summary of the results from the RQ1. This section explains the topic of moneywork on benefit payments, which discusses the differences in participants' experience in moneywork, focusing on analog and digital payment in the benefit payment. This is followed by a discussion on the activities that can support the SSO officers and insured persons to collaborate with each other when claiming benefits. Specifically, this section highlights

how data quality impacts the citizens' decision on a claim. Following that, the section features a discussion on the challenges and awareness of government payment services.

Next, the discussion centred on the RQ2, where the emphasis was on exploring the influences of T&A in the SSO. The section emphasizes transparency in the Sapiens system by discussing the awareness of organizational T&A aspects arising from identifying responsibility and answerability for the SSO officers' performance. Moreover, this chapter discusses the use of citizen engagement activities with the SSO e-service that leads to enhanced transparency because SSB information becomes visible through openness data as well as promotes social accountability to track citizens' benefits and monitor the SSO work performance.

Finally, this chapter concludes by highlighting implications for design, which affect the way officials work, people involved in payment systems, e-service systems, and policy suggestions to guide the boost in T&A for the SSO. The next chapter is the final part that summarizes the key findings, the research contributions of this thesis, limitations, recommendations for future research, and personal reflection.

Chapter 7: Conclusion

7.1 Introduction

This chapter provides an overview of key findings and contributions, particularly in relation to the research questions outlined in Chapter 1. These focus on understanding how participants interact with payment systems of the Social Security Office (SSO), the influences that enable transparency and accountability (T&A) within these systems, and the broader implications for theory and methodology in the fields of Human-Computer Interaction (HCI) and Computer-Supported Cooperative Work (CSCW). This research examined the complex socio-technical interactions involved in benefit payment processes, highlighting the critical role of trust, collaboration, and digital technology in enhancing organizational transparency and accountability. The findings contribute to novel insights into the lifecycle of financial transactions within government agencies, expanding the understanding of moneywork and T&A in the context of government-to-citizen (G2P) payment systems. This final chapter also briefly reflects the study's limitations and suggestions for future research. It concludes by reflecting on my Ph.D. journey, including the understandings gained, challenges faced, and lessons learned.

7.2 Summary of the Key Findings

This section provides a summary of significant research findings related to Chapter 1, answering the two main research questions.

7.2.1 RQ1. How do participants interact with payment systems of the Social Security Office?

1a. How do participants collaborate with one another using mixed media in the payment process?

This thesis presents findings related to participants' experiences with digital technology and services in the context of benefit payment processes, for both cash and digital payments. The financial transactional work is explored through the lens of the *'moneywork'* lifecycle, which analyses the payment process when insured persons interact with government agencies. Based on the findings of Chapter 4, the three stages of the moneywork lifecycle were outlined: pre-transactional activities in preparing the process of receiving benefit payment, at-transaction activities involving currency selection and payment device preparation, and post-transactional activities that deal with money transfer and benefit payment information dissemination through SSO e-services. In this study, I show that effective collaborative work between SSO departments and officers, as well as with insured persons, is crucial. This process involves a detailed interplay of checking and rechecking information to ensure accuracy and prevent fraud. As illustrated, various SSO departments must meticulously verify and cross-check data from multiple sources, including personal interviews with insured persons, digital records, and physical documents. This thorough validation helps mitigate errors and ensures that payments are correctly processed. The importance of trust in the payment system, particularly regarding digital transactions, cannot be overstated. Participants in the SSB system demonstrated a clear preference for digital payments due to their convenience and perceived security. Trust in digital banking is bolstered by the ability to track transactions and the assurance that public officers cannot mishandle funds, as transactions are directly linked to the SSO's system. This trust is critical as it addresses concerns about fraud and offers a sense of security that analog methods, while still necessary for some, cannot fully match. The collaborative effort in information verification and the emphasis on secure, trusted payment methods underscore the intricate dynamics of managing SSB claims and ensuring their effective processing.

This complexity raises important considerations for designing payment systems that are transparent and accountable, which will be explored further in RQ2.

1b. How do participants make payment decisions?

The SSO's benefit payments are integrated within a complex set of socio-technical systems since the payment systems interact with numerous individuals who have different motivations and interests for receiving benefits, and several digital systems. The initial phase in the study of this payment process involved understanding the benefits provided by the SSO and deciding on the appropriate benefit payment methods for insured persons. The findings revealed that some insured persons sought SSB information by comparing data from various sources, including online communities, social media platforms, and the SSO official website. Other insured persons were encouraged by people in their community, such as their family members and colleagues, to acquire knowledge, gather evidence, and make plans in order to receive SSO benefits. On the other side of the process, the responsibility for determining benefit payment methods rests with public officers, who need to give precedence to legal regulations in their decision-making. Section 4.7.1 highlights how the SSO promoted the use of digital transfers for payments among individuals newly entering the Social Security System (SSS). Digital payment is quick and efficient, reducing the need for physical handling and payment processing. However, public officers must carefully consider each insured person's situation, taking into account their economic status, social background, or technological proficiency. In some cases, non-digital payment methods might better meet their needs. For example, if someone does not have access to a bank account or struggles with using technology, the SSO officer might choose cash payments. This payment method is straightforward and ensures the person receives their benefits without needing to navigate complex systems. In other cases, cheques or postal orders might be more appropriate, particularly for individuals who live in areas with limited banking services or who are more comfortable with traditional methods. Cheques provide a secure way to handle payments, while postal orders are useful for those who may not have a bank account but still need a reliable way to receive their benefits.

7.2.2 RQ2. What are the influences that enable transparency and accountability in the SSO payment systems?

2a. How can digital technology enhance organizational transparency and accountability in the SSO payment systems?

This thesis explores T&A in the use of digital technology, in particular, through the SSO back-office system, known as Sapiens. Influences that enable transparency in the operational process involve three key aspects: '*data transparency', 'process transparency',* and '*decision and policy transparency'*. A transparent internal operation system allowed for the easy identification of relevant officials when they used their User ID to access the SSO system in which the date and time of their actions and the specific system they used could be disclosed. Additionally, the system's ability to track historical data ensured accountability in case there were any errors in the diagnosis or decision-making process related to benefit payments. The findings in Section 5.3, identified key accountability mechanisms which included '*identifiability', 'monitoring and evaluation',* and '*social presence'*. However, accountability mechanisms identified in prior literature have been extended with a new characteristic of accountability in the system mechanisms, namely '*answerability and feedback'*. This new theme underscores the SSO's potential to bolster accountability through proactive citizen engagement, utilizing communication channels to foster answerability, and soliciting feedback to evaluate public officials' performance. This is because engagement from citizens is valuable, as feedback comes directly from those people affected by these operations. To organize feedback data, the SSO back-office system can be enhanced by incorporating a data collection feature, such as logging inquiries or complaints received through phone calls or walk-ins at the SSO. By documenting public inquiries and SSO staff responses across all communication channels, the SSO can build a knowledge base for effective problem-solving. The citizen's voice has already led to improvements in internal operations, such as addressing staff inquiries and ensuring the accuracy of financial data before it is shared with the SSO e-service systems, which act as a connection point in creating T&A in the front-office system. This demonstrates how public *'feedback and answerability'* can be an important strategy

for enhancing T&A within organizations, providing valuable insights, and encouraging stakeholder engagement.

2b. How can activities of citizen engagement enhance social transparency and accountability in the SSO payment systems?

The second part of research question 2 delves into the pivotal role of citizen engagement in the effective adoption of OGD to enhance T&A in public services. Encouraging the utilization of digital platforms such as the SSO website and mobile app can ensure that citizens are well-informed about SSB information, with a focus on addressing user needs and managing expectations around claims. Dissemination of information to the public can contribute to heightened transparency within the front-office system, influenced by three key factors shaping citizen engagement with OGD: '*motivations', 'social influence',* and '*technical factors'.* Our findings show that citizens are primarily extrinsically motivated by tangible benefits and the necessity to comprehend regulations through SSO e-services in order to receive claim benefits. Moreover, social influence plays a significant role in disseminating knowledge about SSB information to insured persons, while technical factors serve as both facilitators and barriers to public access to SSO e-services. Furthermore, this thesis explores a new theme for enhancing transparency, termed '*proactive public relations'*. The findings of Study 2 revealed that through proactive digital information dissemination, the SSO could improve citizen engagement and increase awareness of social security rights. Proactive relations help citizens become aware of their power to participate in improving the SSO benefit payment systems through accountability factors: '*tracking information', 'complaint mechanisms',* and '*satisfaction surveys'*. By actively engaging citizens in these processes, the SSO empowers them to voice their concerns and hold the organization accountable for its actions. Ultimately, these efforts contribute to enhancing accountability in front-line services, ensuring that the SSO benefit payment systems respond to the demands of the citizens they serve.

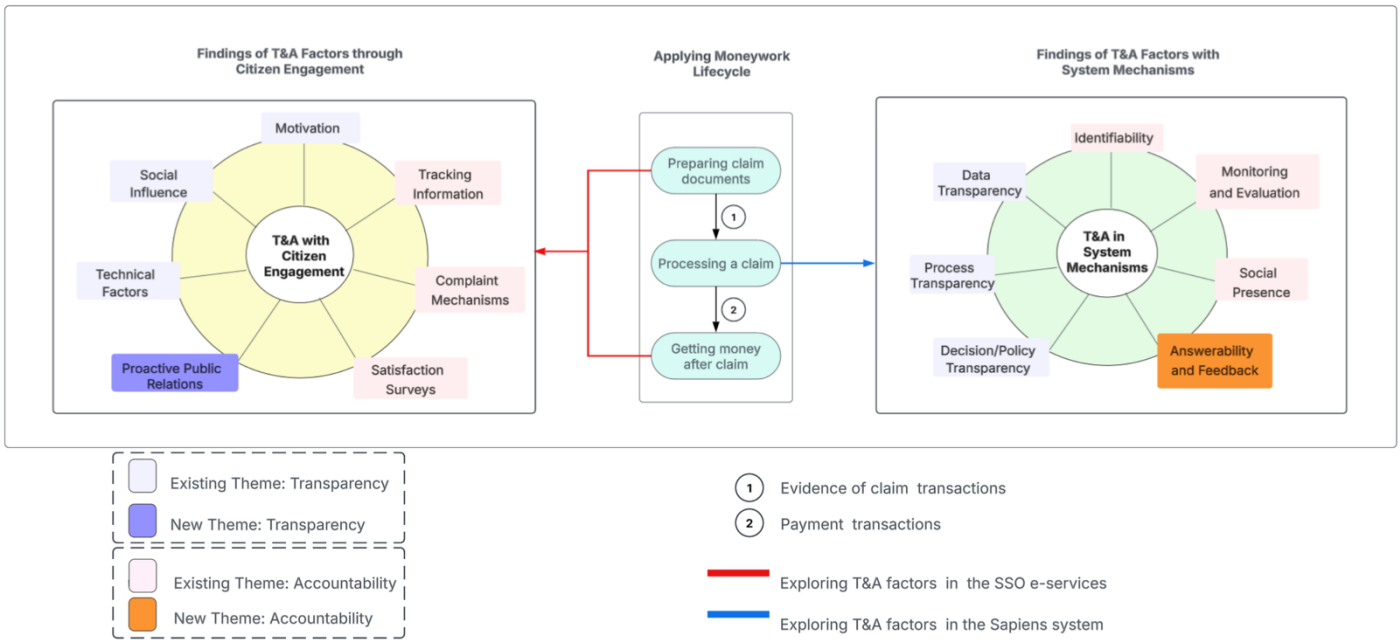

Figure 7.1: Summary of Key Findings on T&A

Figure 7.1 is crucial in presenting the summary of key findings on transparency and accountability (T&A) because it highlights how T&A factors influence both citizen engagement and system mechanisms. These findings not only reflect the existing themes based on the literature review but also introduce newly identified aspects that play a significant role in enhancing T&A within these processes.

For an explanation of the new themes—‘Answerability and Feedback’ and ‘Proactive Public Relations’—see Section 7.3.1, Contributions to Knowledge.

7.3 Research Contributions

This section describes the thesis's novel contributions to theory and methodology in the fields of HCI and CSCW, specifically addressing the moneywork cycle and enhancing T&A in government services. These contributions highlight the study's intellectual and academic significance, and its impact on understanding the T&A of government payment systems. Contributions to different stakeholder groups are listed in Table 7.1.

Table 7.1: Contribution to Knowledge for Stakeholders

Stakeholders	Impacts and Benefits
Policymakers	Policymakers can consider the challenges facing current SSO payment systems and the areas where improvements are needed. They can set regulations and policies that directly address these issues, such as lack of computer literacy, age restrictions, and limited access to banking services. Balancing technological advancements with the practical needs of citizens is essential. For instance, enhancing transparency by sharing information about benefits and payment procedures through radio, television, social media, and proactive text message notifications can allow citizens at all levels to monitor SSO operations.
IT staff and designers	IT staff and designers can recognize the importance of T&A factors at every system design stage. By developing systems with strict regulations on access rights, it is possible to help IT staff and designers track and evaluate government officials' performance. Another practical application is that they can collaborate with policymakers to transform services into full electronic service delivery. For example, integrating a Feedback Management module into the Sapiens system can document all communications and ensure thorough follow-up and resolution.
Public officers	Public officers can understand the relationships and interactions with payment systems to citizen’s needs, technologies, and services of

Stakeholders	Impacts and Benefits
	other entities' infrastructures (e.g., hospitals, clinics, banks, and post offices). This information can affect the claim processes when determining the appropriate payment methods for citizens. To ensure public decisions are transparent and accountable, policymakers can set training programs such as updating knowledge and improving public relations and communications for their public officers. These activities can enhance the public officers' professional skills and capacities to make every decision accurate and precise.

These contributions are developed in the following subsections in detail.

7.3.1 Contributions to Knowledge

This thesis makes multiple contributions to the understanding of the moneywork lifecycle and the potential factors of T&A, which hold significance within the fields of HCI and CSCW. These areas connected to the contributions of this thesis include the interaction between the individuals involved in benefit payments, as well as the user experience when technology is applied to assist in information retrieval and communication, supporting collaborative work, particularly among public officers and insured persons. This thesis also examines the effects of using technology throughout the SSO payment processes. These findings show the stages of benefit payments and the associated T&A factors within each stage. By leveraging this knowledge, we can enhance our comprehension of how to integrate the moneywork cycle and T&A factors into the framework of payment system, leading to the discovery of new insights into payment systems and T&A within the government context.

Previous exploration in the literature of HCI and CSCW fields related to money and its work lifecycle mainly address the exchange of goods or services among individuals and businesses. In contrast, the workflow of financial transactions between government agencies and citizens has been the subject of very few research studies. This thesis is therefore of value to HCI and CSCW researchers interested in studying moneywork in the context of G2P payment. Reviewing moneywork in different contexts is crucial to indicate the benefits and solutions that come from using money and digital

transfers. This is particularly useful in contributing to the understanding of financial transactional work (before, during, and after transactions) in government agencies. In this study, I applied the knowledge of the moneywork lifecycle to explain the workflow of SSO claims, the way users interact with others, the digital technology used, and its impact on SSO payment systems. This knowledge provides new understandings into government payment processes, divided into five sub-events of the claim process: finding SSB information, submitting claim documents, assessing and diagnosing claims, transferring benefit payments, and receiving benefit payments.

Additionally, this study explains the connections between T&A and financial transactions within back and front office systems and the work needed to make these function. Indeed, previous research on T&A in government payments has been scarce, particularly in studies that simultaneously address the behind-the-scenes payment processes as well as the government e-services and interactions provided to citizens. This study is, therefore, the first of its kind to identify potential T&A factors in G2P payments by drawing on T&A concepts related both to system mechanisms and citizen engagement, covering the back and front office SSO systems. I utilized these T&A concepts as a starting point to develop new T&A frameworks for government payment systems. The new framework of T&A in *'system mechanisms'* identified seven potential factors, which were categorized into three transparency elements (data, process, and decision and policy) and four accountability elements in system mechanisms (identifiability, monitoring and evaluation, social presence, and answerability and feedback). Expanding the understanding of T&A through citizen engagement involves considering not only the perspective of public officers in the operational process but also examining how citizens make use of T&A within the front-office system. The new framework of T&A with *'citizen engagement'* identified seven factors encompassed four elements of transparency (motivation, social influence, technical factors, and proactive public relations) and three accountability elements with citizen engagement (tracking information, complaint mechanisms, and satisfaction surveys).

The two key contributions of transparency and accountability (T&A) factors consist of 'answerability and feedback', and 'proactive public relations' in demonstrating how digital tools (Sapiens system and SSO e-services) support T&A in Thailand's benefit

payment system. In particular, ' answerability and feedback' refers to the ability of the SSO to respond quickly and clearly SSB information when citizens raise questions or file complaints. When responses are timely and informative, not only can problems be resolved more effectively, but they also promote trust and credibility in the system. At the same time, providing 'proactive public relations,' such as regularly updating citizens with accurate, relevant, and understandable information without requiring citizens to initiate the search for information, helps citizens not to forget to claim benefits on time or to be informed of the reasons for delayed payment. This proactive approach can completely meet citizens' needs, reducing frustration and uncertainty in payment processes. Together, these two factors will help create a more efficient T&A framework, supporting smoother and faster payments.

Although this thesis focuses on the context of social security benefits (SSB) in Thailand, some findings—such as the role of transparency and accountability (T&A) in social engagement—are consistent with broader global trends in benefits systems. For example, a report by International Social Security Association (2019) reveals that the social security systems globally promote self-e-services to respond to inquiries related to work injury benefits. Similarly, the SSO e-services in Thailand can support T&A by facilitating access to financial information and complaint channels. However, the Thai SSO has not implemented intelligent chatbots to enhance these services, unlike some countries such as Belgium, Finland, and Saudi Arabia. The use of AI chatbots in those countries has the potential to reduce the workload of SSO staff, allowing them to be redirected toward face-to-face services, such as providing training to educate citizens about their benefits. In addition to communicating through the SSO e-services, this thesis's findings point to social media as an important channel for disseminating SSB information to the working population in Thailand. This is a similar practice in Singapore, where social media is actively used to raise awareness of social security benefits among youth and young adults.

Overall, this topic demonstrates that the significant contributions in this thesis relate to understanding moneywork lifecycle and the T&A factors within government payment systems, specifically in the context of SSO payments. Unlike previous moneywork studies that have focused mainly on commercial financial transactions, this thesis explores the new knowledge of moneywork cycles in the welfare and social security

systems. This discovery can help stakeholders (policymakers, IT staff and designers, and public officers) to study and understand the financial system through the interactions between them and citizens, highlighting the impact of technology on these processes. By analysing each stage of the SSO claim process and identifying potential T&A factors, this thesis provides a new framework for examining government payment systems, offering new insights into how T&A factors can be integrated into both back-office and front-office operations.

7.3.2 Methodological Contribution

This thesis makes a significant methodological contribution by applying the narrative approach in qualitative research to the analysis of financial transactions within the fields of HCI and CSCW. While the narrative approach is less commonly recognized than methodologies such as grounded theory, case studies, or ethnography (Elliott, 2005, McAlpine, 2016), it offers a unique framework for understanding participants' experiences by organizing them into the understanding of how previous events shape current behaviors and future expectations. This is essential for gaining a thorough understanding of participants' lived experiences. This narrative approach offers a distinctive way to analyze financial transactions. Instead of merely looking at isolated financial data points, this approach allows researchers to construct a detailed report of connected sequences of actions in a story that reflects the entire lifecycle of financial interactions. Because of this, the narrative approach aligns closely with the moneywork lifecycle, which categorizes financial processes into pre-, at-, and post-transactional stages. By integrating these two frameworks, this thesis provides a comprehensive and chronological narrative of financial transactional work, capturing the full scope of participants' experiences in the SSO claims. This novel application not only enhances the new understanding of financial behaviors in both digital and cash settings but also demonstrates the versatility and value of the narrative approach in qualitative research.

Moreover, this study is one of the very few that uses hybrid thematic analysis[1] to examine SSO payment experience data and the transparency and accountability (T&A) of government agencies in the fields of HCI and CSCW. The uniqueness of this thesis lies in its interpretive framework, which combines a structured approach with flexibility. Initially, it identifies key themes related to T&A based on existing literature, and then it further explores and uncovers additional themes through data collection and analysis. By utilizing hybrid thematic analysis, this thesis provides a clear framework for T&A analysis and addresses participants' behavioral and activity-related issues that have not been previously explored in the previous literature. This approach offers new insights into enhancing T&A in government operations, contributing significantly to the field, as mentioned in Section 7.3.1.

This thesis delivers a notable contribution to the methodological enhancement of T&A research in the HCI and CSCW fields. It has succeeded in doing so by enhancing the understanding of the workflow and enhancing T&A for benefit payment processes. This thesis also delves into the distinct challenges linked to response operations, strategies for mitigating these concerns, and the reasons behind potential information non-disclosure, all of which will be explored in the following section.

7.4 Limitations

There are a few limitations to acknowledge in this study regarding the constraints associated with an online research design, and the limitations of disclosing interviewed information and applying knowledge gained from this thesis.

I chose to use the online rather than a face-to-face interview to maintain social distancing, thus minimize the risk of virus transmission during that time. However, this situation presented scheduling challenges due to time differences between Thailand and England, which were addressed by proposing suitable interview times after work or on weekends. As suggested in de Villiers et al. (2022) study on qualitative research

[1] a search of the literature revealed only four papers that have used this technique in total.

utilizing online interviews, when conducting interviews across different time zones, arranging interviews from home and communicating the local time to the interviewee is advisable.

The online interview approach also affected interview continuity when facing internet signal failure, causing some participants to be interviewed more than once. To address this challenge, I established backup communication channels, such as calls on Facebook platforms, to ensure continuity in case of internet failure, similar to Burgin et al. (2021) who advocated using alternative communication channels to offer audio, video, chat, and sharing capabilities. These functions allowed me to facilitate contact via text message for reconnecting or rescheduling future interview.

It is important to recognize that SSO officials place significant constraints on the disclosure of specific details about insured persons in order to protect their personal information. Another limitation concerns the use of qualitative approach which usually involves an in-depth study of human behavior, experiences, and attitudes rather than focusing on numbers or statistical analysis. Because of this approach, the thesis selected fewer participants to manage the time and effort required for qualitative analysis.

Undertaking interviews without seeing the back-office of the Sapiens system work because of the pandemic presented a hurdle for this study when formulating questions. This is especially evident when compared to studying the SSO official website, which offers public relations information readily downloadable for the general public to understand the e-service system's usage. Conducting an in-depth interview utilizing a semi-structured approach, as Bold (2011) advocates, allowed for flexibility in adjusting questions during the interview to align with the flow of conversation. This method facilitates probing into how public officers interact within the Sapiens system. Consequently, it enabled us to garner detailed and clear responses from officials, allowing T&A analysis of the Sapiens system. In contrast, interviewing insured persons presented challenges, as some lacked comprehension of the technical terminology associated with T&A. Hence, it becomes imperative to avoid jargon, repeat questions when necessary, and communicate the interview's scope beforehand. This proactive approach enabled participants to grasp interview questions by substituting other key

terms for T&A, such as open data (i.e., transparency) and responsibility (i.e., accountability). Moreover, informing interview scope in advance aided in participants effectively recalling events, especially when certain claim instances, like maternity allowance reimbursements, may have occurred 2-3 years ago.

The disadvantages of relying on interviews while excluding other methods, such as direct observation or fieldwork, is that it may restrict the depth of understanding and overlook important contextual factors. Interviews provide valuable understandings from participants' perspectives, but they can be influenced by participants' biases, memory recall issues, or social desirability pressures (Mowat, 2022). In contrast, direct observation or fieldwork allows researchers to observe real-world behaviors and interactions, offering a better understanding of the situation (Khuan et al., 2024, van Graan et al., 2024). Without these methods, researchers may miss crucial aspects, such as non-verbal communication or interpersonal interactions (ibid.), which could provide some explanations for participants' behaviors.

Another drawback of this thesis is that it focuses on understanding T&A in the SSO by answering questions only about benefit payments within the Thai system. Hence, it is difficult to determine how recommendations for improving T&A could be more generally employed. Based on the findings and discussion of this thesis, problems could lead to solutions similar to those of government agencies in other countries. They promote technology adoption in their workplace and expand the range of e-services offered to the general public. However, some practical matters, such as laws, IT infrastructure, and IT knowledge, might have limitations or differences, which may require solving similar-seeming problems with different approaches. It is, therefore, vital for HCI and CSCW researchers to be cautious in their application of the design suggestions outside of Thailand. On the other hand, these issues demonstrate that some of the limitations above are interesting areas for future work.

Lastly, one of the limitations encountered in this study was the difficulty in obtaining feedback from SSO participants and citizens due to the challenges posed by the pandemic. This limitation impacted the process of validating the findings directly with participants. To address this, the thesis used a triangulation approach during the interview process (Carter et al., 2014), employing informal cross-validation of findings

from insured individuals and SSO staff at an expert level. This validation was done to establish credibility in the interpretation process through data comparison (Harwood et al., 2015, Jonsen and Jehn, 2009). While this approach provided valuable insights, the lack of direct feedback from a broader participant base remains a notable constraint.

7.5 Recommendations for Future Work

The research findings, discussions, and limitations, as noted in Chapters 4, 5, 6, and 7, contribute opportunities for further work in across cultures, countries, and technical systems. Researchers in HCI and CSCW can leverage government payment systems as a focal point for investigation, delving into the T&A findings uncovered in this research. This endeavor will not only enable a deeper understanding of the topic but also facilitate the exploration of the various influences that shape T&A practices.

Drawing from the findings, I identified interesting user behaviours and practices when interacting with digital tools and online platforms to access the SSO's services. These merit further exploration in future studies, particularly considering users' backgrounds, such as age (e.g., the elderly people), work status (e.g., retired individuals), income levels, and people with disabilities. These factors may render individuals particularly vulnerable to barriers when accessing SSO services. Future studies could delve into the challenges and obstacles faced by individuals in accessing government services, such as hospitals, post offices, and banks. Understanding these difficulties is crucial for promoting T&A within government agencies. By evaluating the service provided by government agencies and community members in overcoming these limitations, researchers can gain a better understanding of how well current methods are working and identify ways to make T&A more effective. This enhanced understanding of T&A in governance can ensure equitable access to essential services for all citizens.

Other areas for a future extension of enhancing T&A could explore different organizations, such as non-profit organizations (e.g., charities and temples). In addition, areas of organizations, such as fraud detection agencies, hospitals, and

courts, require transparency and a strong sense of accountability, which will also be interesting issues in future studies. These areas do not only use payment systems; HCI and CSCW researchers could study different systems, such as receiving money and receiving complaints. By exploring into these organizational processes, researchers can uncover insights into how different systems impact T&A practices across various domains. Due to differences in organizations or systems, there will be different expectations regarding enhancing T&A, and further research might lead to exploring the new themes or relationships between influential factors of T&A in those systems.

In other contexts, such as examining T&A in government payment systems across different countries, researchers have the opportunity to study various aspects, such as government payment practices, understanding public beliefs and values regarding financial spending, and exploring the utilization of modern financial technology. Furthermore, researchers might compare findings across countries to assess similarities and differences in using money and potential factors of T&A improving the payment process.

7.6 Personal Reflection

I initially encountered the difficulty of conducting this thesis by simultaneously studying various fields, including financial transactions, computer science, and analytics inside government organizations because of my educational background in accounting. Specifically, investigating the operational mechanisms of the SSS or the state welfare system poses a challenge due to the scarcity of scholarly literature addressing this topic. As mentioned, the challenges earlier, I decided to work hard on enhancing my English proficiency to read literature and write articles. By dedicating three years of classes and coursework, I was able to enhance my academic knowledge, build new friends, and improve my English skills as expected.

Despite these efforts, I still encountered limitations in applying my knowledge practically, especially when global events like the COVID-19 pandemic began disrupting travel, conventional methods of learning, and professional interaction, the

COVID-19 situation has changed the collaborative work between the SSO officers and insured persons. While interpersonal relationships have decreased, the use of technology in communication and services has become more evident. Thus, the importance of developing online payment and service systems is becoming more widely acknowledged by people. As seen in the current conferences and publications, this pandemic increased interest in improving T&A within government services. Unfortunately, although the pandemic prevented me from traveling to attend international conferences, I had a chance to present online. These presentations were an excellent opportunity for me to learn about research trends in HCI and CSCW, summarize content, and present results in a limited time.

A major challenge for me was to learn financial work in the fields of HCI and CSCW because there is very little research applying these fields to payment systems in Thailand. I sincerely hope that the knowledge gained from this thesis will provide an opportunity for HCI and CSCW designers to understand government payment systems, their challenges, and suggestions to enhance T&A in their research.

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Appendix I: Ethical Approval Letter for Study 1

College of Engineering, Design and Physical Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

2 October 2020

LETTER OF CONDITIONAL APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 09/10/2020 AND 30/09/2024

Applicant (s): Miss Saiphit Satjawisate Prof. Mark Perry

Project Title: Enhancing transparency and accountability in payment system for the Social Security Office (SSO) in Thailand

Reference: 25258-LR-Oct/2020- 28056-2

Dear Miss Saiphit Satjawisate

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- **Approval is given for remote (online/telephone) research activity only. Face-to-face activity and/or travel will require approval by way of an amendment.**
- **The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.**
- **In addition to the above, please ensure that you monitor and adhere to all up-to-date Government health advice for the duration of your project.**
- **No approval has been given for you to travel for research purposes only and only online research can be conducted and is approved. If you wish to travel at any time once COVID - 19 conditions change and interview participants you must submit an amendment via the BREO system.**
- **Data should be stored on the secure password protected Brunel Network Server and any raw data should be anonymised as soon as possible and identifying information deleted.**
- **Some questions are of a sensitive nature, please ensure that participants are given a list of questions at the outset so that they can decide if they would like to take part.**

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Hua Zhao

Chair of the College of Engineering, Design and Physical Sciences Research Ethics Committee

Brunel University London

Appendix II: Ethical Approval Letter for Study 2

College of Engineering, Design and Physical Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

17 June 2022

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 17/06/2022 AND 31/12/2022

Applicant (s): Miss Saiphit Satjawisate Prof. Mark Perry

Project Title: Transparency and accountability in the Thai SSO benefits payment system: officer and citizen engagement

Reference: 36895-LR-Jun/2022- 39825-2

Dear Miss Saiphit Satjawisate

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- **Approval is given for remote (online/telephone) research activity only. Face-to-face activity and/or travel will require approval by way of an amendment.**
- **The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.**
- **Please ensure that you monitor and adhere to all up-to-date local and national Government health advice for the duration of your project.**

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- If your project has been approved to run for a duration longer than 12 months, you will be required to submit an annual progress report to the Research Ethics Committee. You will be contacted about submission of this report before it becomes due.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Simon Taylor

Chair of the College of Engineering, Design and Physical Sciences Research Ethics Committee

Brunel University London

Appendix III: An Example of Gatekeeper's Approval for Study 1

หนังสือขออนุญาตเก็บข้อมูล
(Authorization Letter)

[redacted]

[redacted]

วันที่ (Date) 6 กันยายน 2560

เรียน (Dear) นางสาวสายพิชญ์ สัจจวิเศษ (Miss Saiphit Satjawisate)

จดหมายฉบับนี้แสดงความประสงค์อนุญาตให้นางสาวสายพิชญ์ สัจจวิเศษ ดำเนินการวิจัยภายใต้หัวข้อ "การเพิ่มความโปร่งใสและความสำนึกรับผิดชอบในระบบการจ่ายเงินสำหรับสำนักงานประกันสังคมในประเทศไทย" ซึ่งหลังจากที่ได้รับหนังสือขอความอนุเคราะห์จากอาจารย์ที่ปรึกษาของท่านมายังสำนักงานประกันสังคมจังหวัดระยอง เรามีความยินดีที่อนุมัติให้ท่านเก็บข้อมูลวิจัยตามสัญลักษณ์ (✓) เพื่อแสดงการอนุญาตดังนี้:

This letter will serve as authorization of Miss Saiphit Satjawisate to conduct the research project entitled "Enhancing transparency and accountability in payment system for the Social Security Office (SSO) in Thailand". After reviewing the letter sent to us by your institution, we are glad to approve your request(s) to conduct your study in our organization, using checkmark (✓) to show permission as follows:

☑ อนุญาตให้สัมภาษณ์เกี่ยวกับมุมมองของเจ้าหน้าที่ประสันสังคมต่อนโยบายประกันสังคมที่เกี่ยวข้องกับการจ่ายเงินประโยชน์ทดแทน
All interviews regarding public officers' perspective toward the Social Security Office (SSO) policy involving benefits payment.

☑ อนุญาตให้สัมภาษณ์เกี่ยวกับกระบวนการจ่ายเงินชดเชยประกันสังคมของสำนักงานประกันสังคมระดับจังหวัดจากมุมมองของเจ้าหน้าที่ผู้เกี่ยวข้อง

All interviews regarding the claiming benefits payment process in the Social Security Office (SSO) at the provincial level from public officers' perspective.

ทั้งนี้สำนักงานประกันสังคมจังหวัดระยองอนุญาตให้นางสาวสายพิชญ์ สัจจวิเศษสัมภาษณ์เจ้าหน้าที่ประกันสังคม จำนวน ๔ ท่าน ท่านละ ๑-๒ ชั่วโมง โดยเก็บข้อมูลวิจัยในระหว่างวันที่ ๙ ตุลาคม ๒๕๖๓ ถึงวันที่ ๓๐ กันยายน ๒๕๖๗

By this agreement, our organization allows Miss Saiphit Satjawisate to interview our public officers 4 people and each person for around 1-2 hours in order to collect data between 9/10/2020 and 30/09/2024.

ขอแสดงความนับถือ
Sincerely,

เซ็นชื่อ(Signed) [redacted]
ชื่อผู้อนุมัติ (Aut[redacted]
อีเมลล์ (Email) [redacted]

Appendix IV: An Example of Gatekeeper's Approval for Study 2

หนังสือขออนุญาตเก็บข้อมูล

(Authorization Letter)

[redacted]

[redacted]

วันที่ (Date) 19 พฤษภาคม 2565

เรียน (Dear) นางสาวสายพิชญ์ สัจจวิเศษ (Miss Saiphit Satjawisate)

จดหมายฉบับนี้แสดงความประสงค์อนุญาตให้นางสาวสายพิชญ์ สัจจวิเศษ ดำเนินการวิจัยภายใต้หัวข้อ "การเพิ่มความโปร่งใสและความสำนึกรับผิดชอบในระบบการจ่ายเงินสำหรับสำนักงานประกันสังคมในประเทศไทย" ในระยะที่ 2: "เทคโนโลยีดิจิทัลในส่วนระบบหลังบ้านสามารถเพิ่มความโปร่งใสและภาระรับผิดชอบของการจ่ายเงินสิทธิประโยชน์ของสำนักงานประกันสังคมในประเทศไทยได้อย่างไร" ซึ่งหลังจากที่ได้รับหนังสือขอความอนุเคราะห์จากอาจารย์ที่ปรึกษาของท่านมายังสำนักงานประกันสังคมกรุงเทพมหานคร เขตพื้นที่ 3 เรามีความยินดีที่อนุมัติให้ท่านเก็บข้อมูลวิจัยตามสัญลักษณ์ (✓) เพื่อแสดงการอนุญาตดังนี้:

This letter will serve as authorization of Miss Saiphit Satjawisate to conduct the research project entitled "Enhancing transparency and accountability in payment system for the Social Security Office (SSO) in Thailand" in second phase: "How the digital technologies can enhance transparency and accountability in the back-office of the SSO's payment system in Thailand". After reviewing the letter sent to us by your institution, we are glad to approve your request(s) to conduct your study in our organization, using checkmark (✓) to show permission as follows:

☑ อนุญาตให้สัมภาษณ์เกี่ยวกับมุมมองของเจ้าหน้าที่ประสันสังคมต่อการทำงานของระบบการปฏิบัติงานหลังบ้านที่เกี่ยวข้องกับการจ่ายชำระเงินสิทธิประโยชน์ให้ผู้ประกันตน

Interviews with public officers about the operation of the back-office operating system in relation to benefit payments (claims) to insured people are permissible.

☑ อนุญาตให้บันทึกภาพและเสียงระหว่างการสัมภาษณ์เกี่ยวกับระบบการปฏิบัติงานหลังบ้านของการจ่ายเงินชดเชยสิทธิประโยชน์ให้แก่ผู้ประกันตน

During the interview, video, and audio recordings on the back-end system of benefit payments (claim) are permitted.

ทั้งนี้สำนักงานประกันสังคมกรุงเทพมหานครพื้นที่ ๓ อนุญาตให้นางสาวสายพิชญ์ สัจจวิเศษสัมภาษณ์เจ้าหน้าที่ประกันสังคมจำนวน ๔ ท่าน ท่านละ ๑ ชั่วโมง โดยเก็บข้อมูลวิจัยในระหว่างวันที่ ๑ มิถุนายน ๒๕๖๕ ถึงวันที่ ๓๑ ธันวาคม ๒๕๖๕ ดังนี้

- เจ้าหน้าที่ฝ่ายสิทธิประโยชน์ระดับชำนาญการ ๑ ท่าน และระดับปฏิบัติการ ๑ ท่าน
- เจ้าหน้าที่ฝ่ายการเงินและบัญชีระดับชำนาญการ ๑ ท่าน และระดับปฏิบัติการ ๑ ท่าน

By this agreement, our organization allows Miss Saiphit Satjawisate to interview our public officers 4 people and each person for around 1 hour by collecting data between 1 June 2022 and 31 December 2022 as follows

- Benefits officer at the professional level 1 person and the operational level 1 person.
- Financial and accounting officer at the professional level 1 person and the operational level 1 person.

ขอแสดงความนับถือ

Sincerely,

เซ็นชื่อ(Signed) [redacted]

ชื่อผู้อนุมัติ (Auth[redacted]

อีเมลล์ (Email): [redacted]

Appendix V: Consent Form

CONSENT FORM (English version)

This form is to record your consent to participate in research study as part of the following Doctoral Research project, titled:

Enhancing transparency and accountability in payment system for the Social Security Office (SSO) in Thailand

Lead researcher:
Ms. Saiphit Satjawisate | Department of Computer Science | College of Engineering, Design and Physical Sciences | Brunel University London | Email: saiphit.satjawisate@brunel.ac.uk

Once you have discussed all relevant aspects of the Participant Information Sheet (attached with this form) with the researcher, please tick the boxes below and only sign if you agree to take part in this study. You will be given a copy of all forms to keep.

Approval has been granted for this study to be carried out between 09/10/2020 and 30/09/2024

The participant should complete the whole of this sheet.		
	YES	NO
Have you read the Participant Information Sheet?	☐	☐
Have you had an opportunity to ask questions and discuss this study?	☐	☐
Have you received satisfactory answers to all your questions?	☐	☐
Do you understand that you will not be referred to by name in any report concerning this study?	☐	☐
Do you understand that:		
• You are free to withdraw from this study at any time	☐	☐
• You don't have to give any reason for withdrawing	☐	☐
• Choosing not to participate or withdrawing will not affect your rights?	☐	☐
• You can withdraw your data any time up to 31/12/2021	☐	☐
I agree to my interview being audio recorded	☐	☐
I agree to the use of non-attributable quotes when the study is written up or published	☐	☐
The procedures regarding confidentiality have been explained to me	☐	☐
I agree that my anonymised data can be stored and shared with other researchers for use in future projects.	☐	☐
I agree to take part in this study.	☐	☐

Participant Name (print): _____

Signature: _____ Date: _____

Note: The contents of the consent form for study 1 and 2 are not different.

Appendix VI: Interview Guide for Study 1

(Understanding the payment system in the SSO)

Interviewees: Insured persons

Introduction for interview- Describe the main points of interview, clarify participant can stop interviewing at any time, or may not answer a specific question. Ask for permission for recording interview.

Insured persons' background:

1. How old are you? (Indicate your age or choose not to say)
2. What is your highest level of education?
3. What is your current job? / Last job?
4. How much salary do you get?
5. How long have you been an insured person?

The process of claiming the benefit payment:

- **Preparing document required**
  1. How do you learn to prepare your evidence for claiming?
  2. What sources of the problem when you ask for documents from the hospital or clinic to claim the benefit payment? (if yes, how do you solve the problems?)
  3. Is there any support from local governments when you prepare evidence? (if yes, how do they support?)
  4. How do you think the supporting document required can be improved?
  5. How social media can be improved to better support this process?
- **Sending document required**
  6. Have you ever had the experience of sending documents required through the post office or walk into the Social Security Office?
     If yes,
     - Could you tell me about your experience?
     - Do you encounter any obstacles? And how do you deal with the problem?
  7. Have you ever had the experience of sending documents required through FAX, E-mail, or Line application?
     If yes,
     - Could you tell me about your experience?
     - Do you encounter any obstacles? And how do you deal with the problem?

8. According to the previous answer (6 and/or 7), what is your favorite channel and why?
9. How do you think the sending document required can be improved?
10. How e-services can be improved to better support this process?

- **Receiving benefit payment:**
  11. How do you know that you have received the money?
  12. What kind of payment do you prefer? (cash or digital payment) and why?
  13. What are the advantages and disadvantages when you associate with using online banking for receiving money?
  14. Do you think that receiving benefit payment via online banking increase transparency[1] in payment system? Why or why not?
  15. How do you think the receiving benefit payment can be improved?
- **Tracking benefit payment transaction:**
  16. Have you ever tracked your benefit payment history via SSO website or SSO Connect Mobile? (If yes, what are your motivation to check transaction? /If not, why do you ignore?)
  17. Do you think that the disclosure history of the benefits payment increase transparency in payment system? Why or why not?
  18. If you have the receiving of benefit payment problems, how do you report your complaint to SSO?
  19. Do you think that public officials respond to the public's reaction via social media or SSO e-services increase accountability[2] in payment system? Why or why not?
  20. How do you think the tracking benefit payment transaction can be improved?

Ending the interview- Do you have anything to add/ Have I missed anything?

[1] open data, reduced corruption, increased system security

[2] taking responsibility for their actions and results.

Interviewees: Public Officers

Introduction for interview- Describe the main points of interview, clarify participant can stop interviewing at any time, or may not answer a specific question. Ask for permission for recording interview.

Public officers' background:

1. How old are you? (Indicate your age or choose not to say)
2. What is your highest level of education?
3. Which department do you work at the SSO?
4. What is your current position at SSO?
5. How long have you worked at SSO?

The process of benefit payment:

- **Receiving document required:**
  1. Why does the SSO has multi-channel (post office, the SSO or e-filing) to send document required?
  2. Which channel does the insured person prefer to the most frequently used to send documents required? Why?
  3. Which channel does the insured person prefer to the least frequently used to send documents required? Why?
  4. According to the previous answer (3), does the SSO intend to quit this channel? (if not, why?)
  5. Could you tell me, what is the last problem when you receive the document required from insured person?
  6. According to the previous answer (5), how do you handle this problem?
  7. Do you have any suggestion for developing the receiving required process? (if yes, explain)
- **Check, and diagnose benefits payment:**
  8. Are you satisfied with the existing system, which help you to check insured person's benefit? (if not, explain?)
  9. Does the existing system help you to diagnose benefits payment? (if yes, could you give me any examples?)
  10. In your experience, what is the most difficult case to diagnose benefits payment?
  11. According to the previous answer (10), how can you overcome those difficulties?
  12. How does the SSO headquarter improve the public officer's expertise to diagnose benefit payment?
  13. Do you have any suggestion for developing the receiving required process? (if yes, explain)

- **Spending the benefits:**
  14. Is there any difficulty spending the benefits via post office, the SSO, and online-banking?
  15. According to the previous answer (14), what could be the reasons behind those barriers?
  16. In your experience, what are the opportunities and challenges of using digital payment?
  17. What is the different between benefit payment for insured person who stays in urban and rural area?
  18. According to the previous answer (17), how do you support to those people?
  19. What is the impact for citizens when the SSO use only electronic system for the claiming?
  20. Do you have any suggestion for developing the spending the benefits process? (if yes, explain)

Ending the interview- Do you have anything to add/ Have I missed anything?

Appendix VII: Interview Guide for Study 2

(Investigate transparency and accountability in payment system for the SSO)

Interviewees: Public officers

Introduction for interview- Describe the main points of interview, clarify participant can stop interviewing at any time, or may not answer a specific question. Ask for permission for recording interview.

Public officers' background:

1. How old are you? (Indicate your age or choose not to say)
2. What is your highest level of education?
3. Which department do you work at the SSO?
4. What is your current position at SSO?
5. How long have you worked at SSO?

Part 1: Following transparency concepts of system mechanisms:

- **Data transparency**

1. When you find some problems, how do you know who is responsible for fix these problems? please, tell me your experience.
2. When do you access the Sapience system to get information?
3. How does the authorization process work?
4. Where does your data of claim be stored or embedded?
5. Is the data used up to date or not?
    - If not, what happens?
    - How do you deal with it?

- **Process transparency**

6. How do you know the transaction is progressing, or if it is completed?
7. How can all transactions ever made in the system be traced or rechecked?

- **Decision/Policy transparency**

8. During diagnosis regarding claiming benefits, do you make a decision by yourselves or using computer assistant decisions? How?
9. How do you learn the rules or requirements for each step of work in the Sapiens system? (Asking for your colleagues, user manual, etc.)
10. When the new policy is released, or the existing policy is changed, how does the SSO communicate with employees?

Part 2: Following accountability concepts of system mechanisms

- **Identifiability**
  11. Which type of authentication do you use?
  12. How do you prove a person is authorized to do something in the e-payment system?
  13. How does the SSO organize authentication when some employee/s changed his/her position?
  14. Do you share your log in detail (User ID) with other users who work in the same network?
      - If so, can you check it back who did it?
      - If not, why?
- **Monitoring and evaluation**
  15. Does the login screen notify the user that their actions in the system will be recorded? If so, please share your experiences.
  16. Can you click to monitor a history of all your system activity? Particularly, can you track all decisions/approvals made in the system?
  17. When working with the SSO operation system, how do you keep a positive impression in the eyes of others to avoid negative evaluations or impressions of your behavior? (To the public, my boss, and other officers)
- **Social presence**
  18. Do your approvals relate to what other users 'decide in the system? if yes, please tell your experience.
  19. How do you feel if your behavior is visible to others in the system? Can you illustrate your case?
  20. Is it possible for a user to view what another user is doing through the SSO operating system? If yes, why does it happen?

Ending the interview- Do you have anything to add/ Have I missed anything?

Interviewees: Insured persons

Introduction for interview- Describe the main points of interview, clarify participant can stop interviewing at any time, or may not answer a specific question. Ask for permission for recording interview.

Insured persons' background:

1. How old are you? (Indicate your age or choose not to say)
2. What is your highest level of education?
3. What is your current job? / Last job?
4. How much salary do you get?
5. How long have you been an insured person?

Part 1: Following transparency concepts of citizen engagement with open data:

- **Motivations**
  1. Which component/s has the most influence on you to engage with SSO open data? Why?
  2. Which component has the least influence on you to engage with SSO open data? Why?
  3. What do you think makes people want to use SSO open data?
- **Social influence**
  4. Whom do you believe or value the most when they offer advice about claims? Why?
  5. According to the previous answer (4), how do they support your intention to use SSO open data?
  6. How do social relationships influence your decision on engaging with SSO open data?
- **Technical Factors**
  7. Does the data fit your purpose of use? (Is it clear about what is what; when collected, by whom, and so on)
     - If so, can you give me your examples?
     - If not, what kind of information do you want?
  8. Can you access the information you want to retrieve from SSO e-participation? If not, how do you handle it?
  9. Who do you think will encounter barriers to accessing the SSO Connect Mobile system? Why?
  10. Is the public information about receiving benefits payment difficult or easy to understand for you? If not, what is your suggestion?

Part 2: Following accountability concepts of citizen engagement with social accountability:

- **Tracking information**
  11. Why do you want to use the tracking information service via the SSO Connect Mobile system?
  12. Why do you not use the tracking information service via the SSO Connect Mobile system?
  13. What other history of claims do you want the SSO Connect Mobile to show you more information? Why? Please show me your examples.
  14. How could the Social Security Office use public relations for an insured person to know more about SSO connect mobile?
- **Complaint mechanisms**
  15. What issues are you most likely to complaint about the benefits payment system? (e.g. policy, service, application performance) Why?
  16. If you have the opportunity to complaint about a public officer's service, which channel will you choose? (Hotline, SSO e-mail, Line app, Facebook, etc.)
  17. According to the previous answer (16), what concerns do you have when you make a complaint about the public officer's services? Why?
- **Satisfaction surveys**
  18. How would you feel if you had the right to assess your satisfaction with the public officer's services?
  19. What type of assessment model would you like to have? (e.g., via counter service, email, mobile app) why?
  20. Do you think satisfaction surveys impact public officer's performance in the SSO? Why? or why not?

Ending the interview- Do you have anything to add/ Have I missed anything?