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DEPARTMENT OF OPERATIONS AND MANAGEMENT INFORMATION SYSTEMS

DIGITAL TRANSFORMATION OF HEALTH INSURANCE SERVICES IN A
DEVELOPING COUNTRY: AN INSTITUTIONAL THEORY PERSPECTIVE

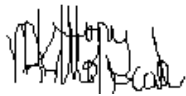
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DECLARATION

I hereby affirm that this thesis is the result of my own research conducted under supervision. It has not been submitted for any academic award in this or any other institution by myself or anyone else. All references to the work of others have been appropriately acknowledged. I bear full responsibility for any deficiencies in this work.



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ABSTRACT

Structurally, the health system comprises different sub-sectors within the economic system, including healthcare providers, insurance organisations, and pharmaceutical companies. The health insurance organisation is at the nexus of this triad, bridging access to healthcare services. To improve access to healthcare delivery, several developing countries have tried to digitalise their health insurance system with some transformational outcomes. However, in sub-Saharan Africa (SSA), for example, operational challenges have been identified as impeding the successful evolution of public health insurance. These include low penetration due to limited enrollment, escalating costs from multiple instances of fraud, delays in reimbursement, overcrowding at facilities, and a prevailing reliance on manual and paper-based processes. Digitalisation is acknowledged as a catalyst for digital phenomena, facilitating organisations in their quest to navigate the process of digital transformation. The digital transformation of health insurance services goes beyond acknowledging just the changes that digital technologies bring. It considers the multifaceted social system requiring institutional perspective to chronicle the complex interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment. However, while this complexity has been acknowledged, it is vastly underestimated and empirically undocumented.

Then again, despite health insurance's growing importance, studies on developing, adopting, and using digital technologies and digital transformation in health insurance have remained predominantly non-IS. Moreover, regarding domain specificity, a blurred distinction exists between healthcare and health insurance, with the health system triad's nexus (health insurance) attracting limited to no research attention. Information systems' limited exploration of the subject

has also been atheoretical and on adoption at the individual unit of analysis. Therefore, this study aims to understand the digital transformation of health insurance services and the influence of the institutional environment in a developing country context. In so doing, the study sought to answer the following research questions: 1) Why might a developing country pursue digital transformation within the health insurance sector, and what meanings do health insurance organisations associate with the digital transformation of health insurance services? 2) how is the institutionalisation of digital transformation enacted in public and private sector health insurance organisations? 3) how does the institutional context influence the digital transformation of health insurance services and vice versa? 4) what are the outcomes of the digital transformation of health insurance services in a developing country?

To achieve the study's purpose, this research consolidates two analytic frameworks from institutional theory: institutional pillars analytic framework (*regulative, normative, and cultural-cognitive*) and the institutionalisation process approach made up of *deinstitutionalisation* and *reinstitutionalisation*. The thesis used an IS interpretive qualitative case study as a methodology. Through purposive sampling, data was gathered from two cases of the National Health Insurance Scheme (public insurer) and Alpha Private Health Insurance Scheme (pseudonym, private health insurance organisation) in Ghana. A thematic analysis was conducted on data from the two cases to generate themes from the case description, followed by a theory-driven analysis based on the concepts and principles of combined institutional theory analytic frameworks.

The findings show that a developing country *would digitally transform health insurance services to* 1) ensure operational efficiency and transformation, 2) improve service delivery, and 3) drive

data-driven decision-making. However, from an institutional perspective, interpreted through the lens of how health insurance institutions—both public and private—conceive, implement, and adapt to change, two different meaning frames underpin this outcome. For public health insurance, these are 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism. For private health insurance, these are 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 3) innovation and differentiation. This demonstrates that actors operating within a public sector institutional framework are motivated by a “social logic” that prioritises equity. Conversely, actors within a private sector institutional framework are driven by a “market logic,” focusing on profit maximisation.

In terms of *how the institutionalisation of digital transformation is enacted in public and private sector health insurance organisations*, this study shows a decoupling of deinstitutionalisation and reinstitutionalisation culminating in five enactment phases or SCOPE. These are 1) **Scrutinise** phase [assessment of the existing institutional environment], 2) **Clarify** phase [identification of issues and initiation of deinstitutionalisation], 3) **Organise** [strategy and planning for digital transformation], 4) **Perform** [implementation and reinstitutionalisation] and **Enhance** [ongoing adjustments]. *Regarding how the institutional context influences the digital transformation of health insurance and vice versa*, the study shows a co-shaping relationship between institutional elements and digital transformation with the influence of normative, regulative, and cultural-cognitive institutional elements imposing different levels of impact. Finally, regarding the outcomes of the digital transformation of health insurance in a developing country, the study shows

institutions as a significant driver of digital transformation and the emergence of a fourth pillar of institutions, i.e., technology.

The study makes the following contributions regarding theory, research, practice, and policy. Theoretically, this study refines the two analytic frameworks of institutional theory: the institutional pillars and the institutionalisation process. For the institutional pillars, this study refines the three pillars by introducing elements that make up a fourth pillar of technology that is crucial in understanding the interplay of digital transformation within institutional environments. This new pillar reflects the growing recognition that technology is not just an artefact but a fundamental aspect of modern institutional frameworks, influencing inscribed meanings, behaviour, policy, strategy, and structure within organisations. Secondly, the study refines the institutionalisation process approach by decoupling its two sub-processes, deinstitutionalisation and reinstitutionalisation, into five distinct but connected phases (SCOPE) of digital transformation. Hitherto, these were seen as black boxes limiting their practical application in organisation studies. In terms of research, this could be considered one of the initial attempts at IS interpretive qualitative research that seeks to extend the literature on the digital transformation of health insurance services from a multi-level perspective, involving both public and private sector health insurance in a single study. The study demonstrates that while the institutional environment may constrain organisations, they inversely catalyse an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies. In terms of policy, this study offers developing countries, managers, and public and private sector health insurance decision-makers ample guidelines in formulating appropriate digital-first policies to drive digital transformation and edge them closer to attaining universal

health insurance coverage. Significant contributions of this thesis include publications in five conference proceedings and the publication of one book chapter.



DEDICATION

To God, and then to my wife, Barbara and daughter, Iris



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I extend my deepest gratitude to God, who has generously bestowed upon me the enthusiasm, stamina, resources, and, most importantly, good health throughout the challenging seven years of my PhD journey while also fulfilling other responsibilities, including work and parenting. I am profoundly grateful to my dedicated wife, Barbara, whom God utilised significantly to provide the essential support our family needed while I was deeply immersed in my PhD studies, and to Iris, who arrived two years ago and honoured me with renewed inspiration and motivation.

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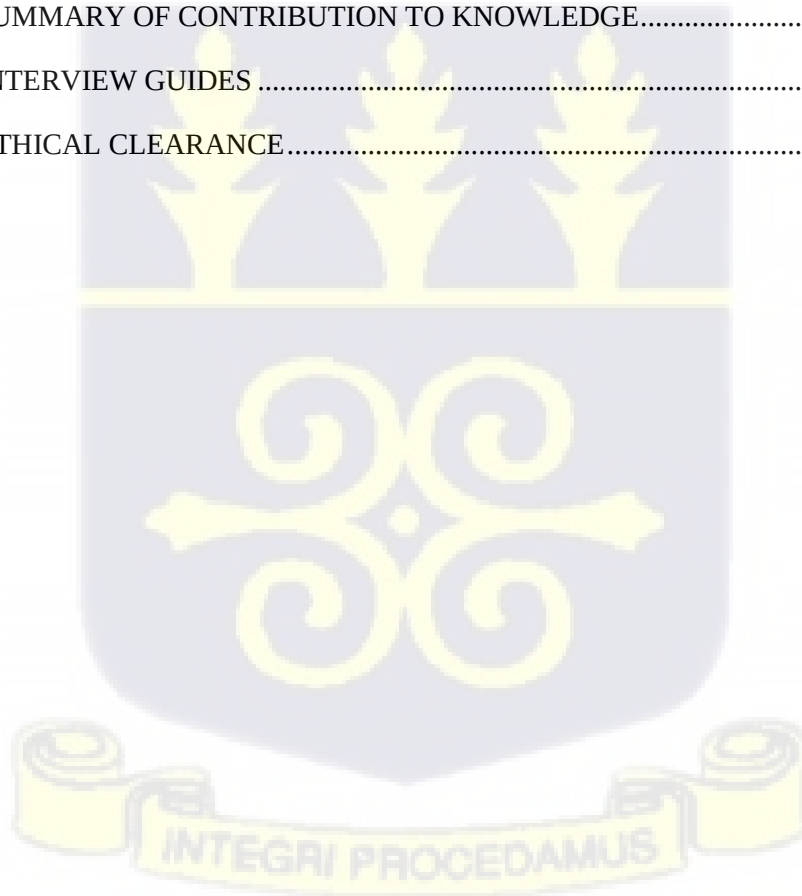
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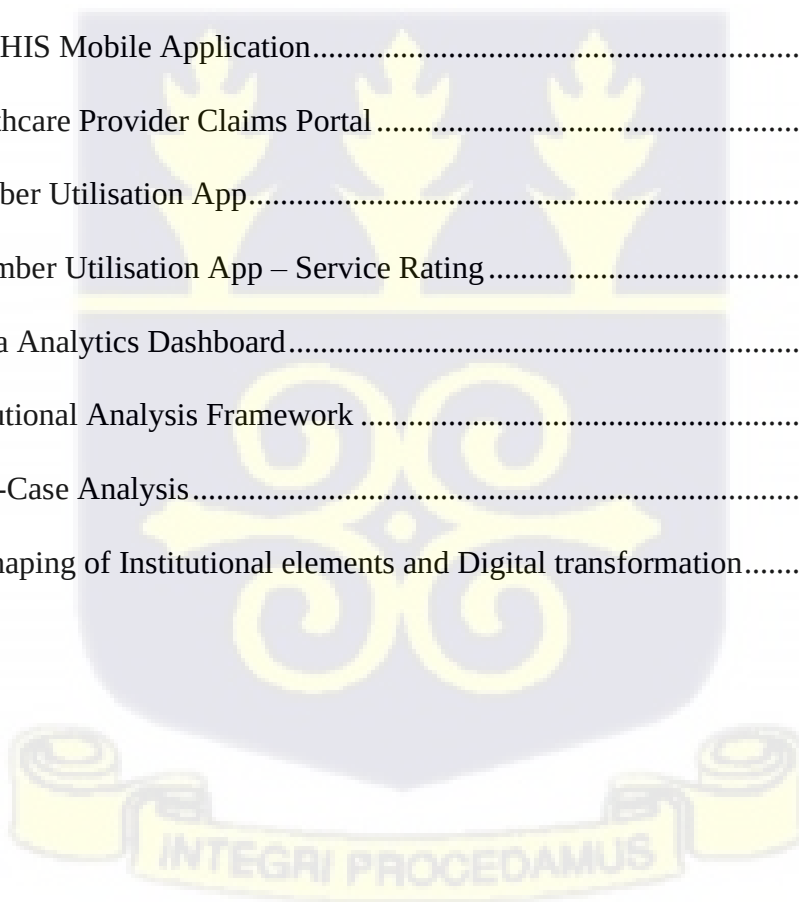
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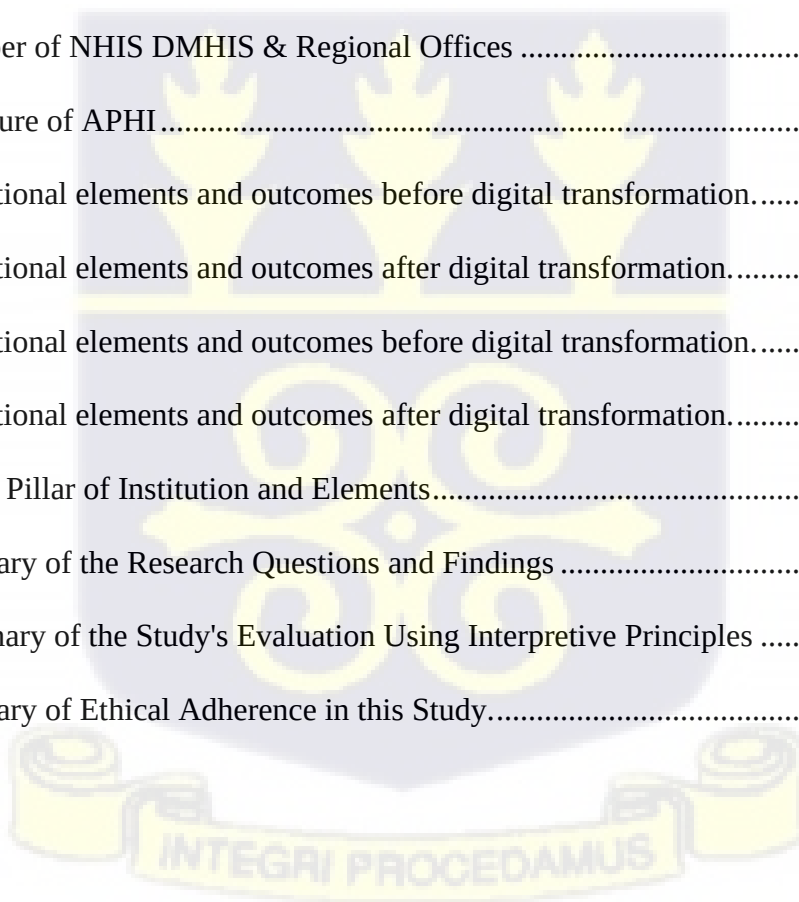
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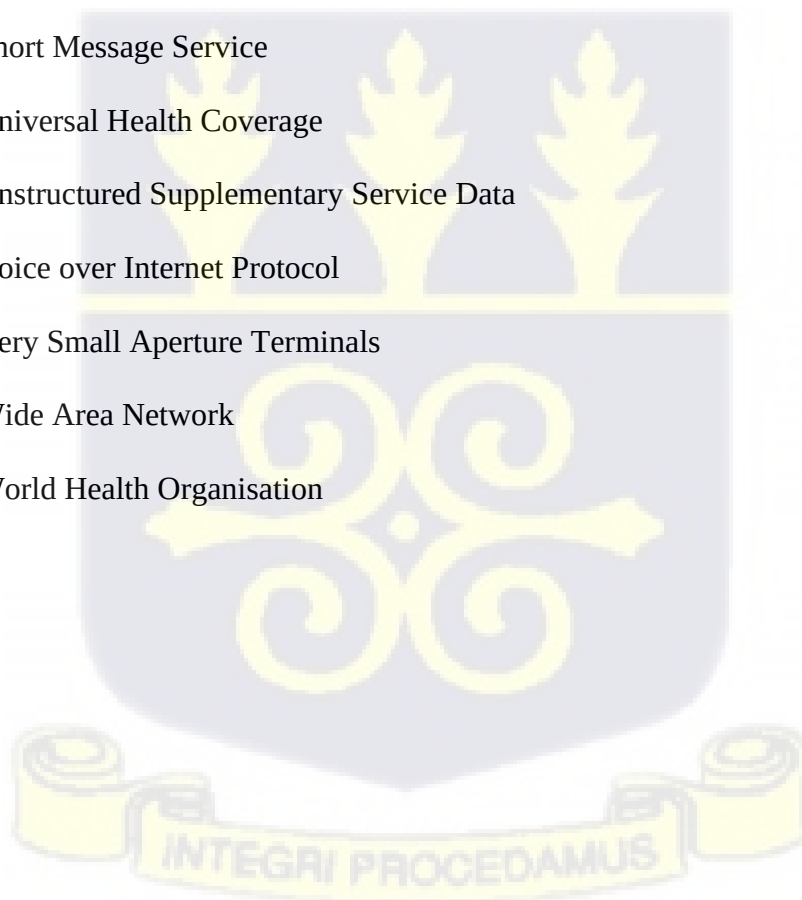
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LIST OF ABBREVIATIONS

APHI	Alpha Private Health Insurance
API	Application Programming Interface
BMS	Biometric Membership System
CCC	Claims Check Code
CRPs	Conference Room Pilots
DMHIS	District Mutual Health Insurance Scheme
DT	Digital Transformation
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
GSS	Ghana Statistical Service
HCPs	Healthcare Providers
HIIS	Health Insurance Information Systems
HIP	Health Insurance Project
HIS	Health Information Systems
HMO	Health Maintenance Organisation
HPM	Health Provider Management
ICT	Information & Communications Technology
ICT4AD	ICT for Accelerated Development
ILO	International Labour Organisation
IS	Information Systems
IT	Information Technology
LAN	Local Area Network

MIM	Member Identity Management
MNOs	Mobile Network Operators
MTN	Mobile Telephone Network
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
NIA	National Identification Authority
PHIS	Private Health Insurance Scheme
SDGs	Sustainable Develop Goals
SMACIT	Social, Mobile, Analytics, Cloud & Internet-of-Things
SMS	Short Message Service
UHC	Universal Health Coverage
USSD	Unstructured Supplementary Service Data
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminals
WAN	Wide Area Network
WHO	World Health Organisation



CHAPTER ONE

INTRODUCTION

1.1 Background

Structurally, the health system comprises different sub-sectors within the economic system. The health system includes health insurance organisations, healthcare providers, and pharmaceutical companies with healthcare financing and equity goals, health improvement, and responsiveness to legitimate expectations (Frenk, 2010; Ledesma et al., 2014; Olden, 2019). There is a growing importance of health insurance as a means of healthcare financing as countries adopt it to accelerate universal health coverage attainment under the sustainable development goals (SDGs), e.g., Nigeria (Odusola et al., 2016), Korea (Park et al., 2012), China (Tang et al., 2012), Japan (Akiyama, 2004) and Uganda (Kyomugisha et al., 2009). These goals are SDG 3: Good Health and Well-being – which aims to ensure healthy lives and promote well-being for all ages, particularly regarding access to quality healthcare services, and SDG 10: Reduced Inequalities – which relates to ensuring equal access to essential healthcare services, primarily through digital transformation in developing economies.

The World Health Organisation (WHO) ardently champions universal access to health care (UHC). This vision is articulated within the Sustainable Development Goals (SDGs) as a pivotal global objective and a remedy for health inequities (World Bank, 2019). This commitment is evident in various countries, as seen in the adoption of social or public health insurance schemes and supplementary private health insurance for services exceeding the basic health package (Cotlear et al., 2015). Consequently, health insurance organisations are instrumental in financing and compensating for health care services (Addae-Korankye, 2013). In this capacity, health insurance,

whether private or public, ensures the delivery of requisite healthcare to its members based on active enrolment (Adesola, 2010). Stemming from this, the present study posits that health insurance stands at the crux of the health system, bridging access to healthcare services among healthcare providers, pharmaceutical companies, and the general populace. As delineated in a report by the World Bank (2019), it is untenable to perceive health spending merely as consumption. On the contrary, when viewed as a mechanism for health financing, health insurance is deemed an investment. This investment augments the economy through six principal avenues: the cultivation of human capital, enhancement of skills and employment opportunities, augmentation of labour market mobility and formalisation, mitigation of poverty and disparity, elevation of efficiency and fiscal discipline, and the bolstering of consumption, competitiveness, and health security (World Bank 2019).

In numerous developing and low-income countries, health insurance is increasingly viewed as a potential alternative funding mechanism for the health sector (Sakyi et al., 2012). Central to this model is the distinction that, on the one hand, healthcare providers such as hospitals, clinics, pharmacies, and other care institutions are responsible for the production of health services. On the other hand, health insurance organisations institutionalise the purchase of these services (Street, 1994). Despite health insurance's profound significance and multifaceted advantages, developing countries have not yet fully harnessed the sector's growth and developmental prospects (World Bank, 2019). For instance, in sub-Saharan Africa (SSA), operational challenges have been identified as impeding the successful evolution of public health insurance. These challenges have consequent negative impacts on the progression towards enhanced access to care and fortified financial protection (De Allegri et al., 2009). Even though many schemes have been in place for

over a decade, they face substantial hurdles. These include low penetration due to limited enrolment (Adewole et al., 2021; Benatar et al., 2018; Nayak et al., 2019a; Nguyen & Leung, 2013; Schultz et al., 2013), escalating healthcare costs and regulatory overheads (Dutt, 2020; Meessen, 2018), technological shifts (Agyepong et al., 2016; Benatar et al., 2018), instances of fraud (Meessen, 2018; Nayak et al., 2019a), delays in reimbursement (Fusheini, 2019; Suchman, 2018) overcrowding at facilities (Cotlear et al., 2015) and a prevailing reliance on manual processes by healthcare providers (Sakyi et al., 2012).

Health insurance services encompass registration, accreditation, and regulation of health insurance schemes and healthcare providers. They also include member registration, premium collection, issuance of identity cards, and claims administration, which covers processing and payment. Historically, these services have been delivered from physical premises, with paper-based processes predominating. Most human interactions take place face-to-face. Such a service delivery approach presents challenges, including delays in reimbursement, over-billing for drugs and services, overcrowding, protracted waiting times for members, and tariff misappropriation (Odusola et al., 2016; Sakyi et al., 2012). The limited availability of information technology infrastructure further complicates the situation. It impedes effective communication between healthcare providers and insurers, leading to administrative inefficiencies and a decline in the quality of care (Odusola et al. 2016). Consequently, this inefficiency restricts access to the basic healthcare typically covered by health insurance policies (Odokonyero et al. 2017).

To address these challenges, international stakeholders have supported developing countries that are keen on implementing foundational reforms in health insurance. The aim is to instigate

significant policy changes that enhance access, improve service quality, and scale up health insurance to bolster health outcomes (Escobar et al., 2010). While it is anticipated that these measures will enhance member experiences—by curtailing waiting times, boosting enrolment, mitigating fraud, refining back-office operations, and cutting costs (Dutt, 2020), a deeper exploration reveals that the success of these initiatives hinges on design and contextual considerations. Health insurance is not a one-size-fits-all product (Escobar et al., 2010).

Developing countries have recently embarked on digitalising health insurance service delivery to address pressing challenges, including enhancing healthcare access and curbing costs (Marfo et al., 2017). Digitalisation is acknowledged as a catalyst for digital phenomena, facilitating organisations in their quest to navigate the process of digital transformation effectively (Bockshecker et al., 2018). However, digital transformation remains an emergent and relatively uncharted territory within health insurance. Notably, the present study's understanding of digital transformation—as situations or processes shaped by the mutual influence of social and technological developments (Bockshecker et al., 2018; Schneider, 2017), appears conspicuously absent in discussions centred on the digital transformation of health insurance.

In this study, the concept of 'digital transformation' goes beyond merely acknowledging the changes digital technologies bring. It delves deeply into the sociotechnical setting of these technologies, considering their broader implications for society. Therefore, 'digital transformation' encapsulates the intricate, iterative journey of conceptualising and implementing digital technologies within health insurance processes and services. Drawing from the definition of Fichman et al. (2014), this study views digital technologies as a synthesis of information,

computing, communication, and connectivity technologies. Furthermore, the study positions the digital landscape as a foundational sociotechnical platform and the bedrock for developing other digital resources and services (Plantin et al., 2018).

While the pivotal role of health insurance within the health system is undisputed—being executed as an integral facet of health policy (Escobar et al., 2010), it fundamentally serves as a mechanism for health financing (World Bank, 2019). Its primary function is to offer financial risk protection, with payments made to healthcare providers contingent on providing medical services to insured individuals (Escobar et al., 2010). This underscores the central thesis of this study: health insurance operates at the nexus of the health system, mediating access to healthcare services among healthcare providers, pharmaceutical firms, and the general populace, thereby influencing multiple economic sectors. Escobar et al. (2010) further reinforce the need to spotlight health insurance and observe that while the underinvestment in health technology for less affluent countries is being addressed, healthcare financing remains a neglected domain.

Health insurance services encompass a range of processes: member registration and onboarding, premium collection, identity card issuance, claims processing, and contract management with healthcare providers. Additionally, when functioning as regulators, health insurance organisations oversee the registration and regulation of other health insurance entities, including private health insurance providers. Maintaining financial sustainability is a paramount challenge these organisations face (Gajate-Garrido & Owusua, 2014; World Bank, 2019). In this context, digital strategies that can reduce operational costs, boost efficiency, and enhance service delivery are pivotal. They can optimise resource utilisation, promoting long-term sustainability.

The global consensus underscores that digital transformation ensures resource efficiency (Hinings et al., 2018). This recognition has galvanised governments, national bodies, and private entities to spearhead policy and strategic shifts, aiming to catalyse a more robust healthcare system (Benlagha & Hemrit, 2020; Kim et al., 2018). These potential benefits can incentivise stakeholders to firmly embed a “digital-first” philosophy within health insurance services. Over recent years, advanced nations have harnessed digitalisation in health insurance as a springboard for a holistic transformation of their health systems (Benlagha & Hemrit, 2020; Jimenez et al., 2021; Kim et al., 2018).

Operating within budgetary constraints and restricted financial resources is a common challenge for developing countries (Andoh-Adjei et al., 2017; World Bank, 2019). Consequently, these countries must consider digital transformation as a tool for innovation and a crucial strategy for cost containment. This ensures that health insurance services remain uninterrupted and their quality is maintained for the broader population. Encouragingly, countries in Sub-Saharan Africa are heeding this call. Studies from developing countries such as Nigeria (Azogu et al., 2019), South Africa (Iyamu & Mgudlwa, 2021), Ethiopia (Awol et al., 2020) and Cameroon (Abdul & Wang, 2019) provide evidence of some IT-enabled transformation. However, a paradox emerges. Despite the proliferation of such interventions, the desired end goal appears elusive. Chib et al. (2015) argue that while ICT initiatives abound, the health sector in many developing countries has yet to achieve scalability and sustainability. Walsham further underscores this incongruity, observing that tangible evidence remains scant regarding the positive impact of information systems on health outcomes and the welfare of the impoverished in these countries. As Walsham puts it, “We

still see only limited evidence as to how information systems within healthcare context have contributed to improved health outcomes and to advancing the state of the poor in developing countries” (Walsham, 2020, p. 194).

Despite the availability of health insurance in Ghana since 2003, comprehensive coverage remains elusive. Initiatives since 2008 have sought to modernise operations and services across the National Health Insurance Scheme (NHIS) and the Private Health Insurance Scheme (PHIS). Central to these efforts have been digital interventions aimed at streamlining member enrollment, facilitating premium payments, and enhancing the claims submission and processing mechanism. The overarching goal has been to curb fraud and elevate the quality of services extended to citizens and other stakeholders. Traditionally, these processes relied heavily on paper-based systems and direct, face-to-face interactions. However, the interventions mentioned above have catalysed a shift from manual methodologies towards a degree of automation. This paradigm shift has engendered tangible improvements, notably in service accessibility, transparency, and fraud prevention (Owusu-Oware et al., 2018). Such transformative endeavours are paramount for developing countries to achieve their ambitions of universal health insurance coverage. They represent the bedrock upon which envisioned health policy reforms can be built, especially in countries still striving for significant developmental milestones (Walsham, 2020).

Given that developing countries often grapple with resource constraints and frequently do not reap the total rewards of their transformation efforts—both in public and private sectors—the pressing question emerges: How can we effectively conceptualise the nexus of health insurance? While digital transformation is touted as a potential avenue to achieve health insurance system reform, a

deeper understanding of its implementation and outcomes is essential for governments, researchers, practitioners, and policymakers. Giedion and Diaz (2010) highlight the context-specific nature of health insurance, asserting that it is not a monolithic concept. Thus, a profound understanding of the specific health insurance scheme under evaluation is vital for accurately interpreting outcomes. Although the objective of digitally transforming health insurance may seem direct, the path towards its attainment is often nebulous. This research endeavours to elucidate the digital transformation of health insurance services within a developing country, Ghana.

1.2 Research Problem

Digital transformation in health insurance services refers to transitioning from predominantly manual and paper-based processes to digital platforms. Evidence from the information system literature identifies five strategic imperative application areas for the digital transformation of health insurance services: claims (Kumar et al., 2010; Tan et al., 2017; Thenmozhi et al., 2021), fraud detection (Dutt, 2020; Owusu-Oware et al., 2018; Sowah et al., 2019), member identity systems (Adesola, 2010; Ivanović & Raković, 2019; Kim et al., 2018) and service integration (Silvello, 2018; Vassilakopoulou & Marmaras, 2013; Yu et al., 2016). These studies demonstrate that the digital transformation of health insurance encompasses intricate processes which aim to provide accessibility for an entire country's population and necessitate interactions with other sub-sectors to achieve the intended health outcomes.

Despite the considerable resources invested in the transformation agenda within the health insurance sector of developing countries, the transformative potential of information and communication technologies remains unrealised. Bara-Slupski (2016) and Meessen (2018) argue

that the role and potential of digital technologies in the health insurance sector, particularly within the context of health systems, are poorly understood. They also lament the scarcity of relevant literature on the subject. Furthermore, the prevailing emphasis on digital transformation in the health sector has predominantly centred on healthcare (Furstenau & Auschra, 2016; Vassilakopoulou et al., 2017), with less attention given to health insurance. This focus is often atheoretical. Consequently, there is limited research on health insurance as a crucial sector for healthcare financing, particularly in developing countries.

Within the mainstream information system (IS) literature, institutional theory has been applied to various dimensions. This application has proven advantageous for understanding the intricate interactions involved in developing, implementing, and using digital technologies at institutional levels. Researchers have adapted the theory to suit different areas of study. These areas encompass the Amazon monitoring system, which is a set of satellite-based remote sensing systems (Rajão & Hayes, 2009), e-payment entrepreneurship (Effah, 2016b), enterprise system (ES) implementations (Berente et al., 2019), electronic health records (EHRs) adoption (Alharbi & Ramirez, 2020), assimilation of business intelligence (Chaubey & Sahoo, 2021), value co-creation for smart villages (Lintula & Tuunanen, 2020) and cloud adoption (Hsu, 2020). Beyond its current application in organisational studies and enterprise systems and recognition of digital transformation's ongoing challenges, this study aims to refine institutional theory's use in health insurance information systems studies. It presents a shift in perspective to understand the digital transformation process within health insurance services.

To summarise, existing research problems in the health insurance literature, which motivated this study, are as follows:

- i. Research on health insurance draws interest from various perspectives and academic disciplines. For instance, in healthcare, Kurtzman et al. (2018) explored the scheduling of physician appointments based on health insurance types, including self-pay, Medicare, and Medicaid. In the domains of policy and economics, Odokonyero et al. (2017) argue that, within the context of health insurance and financing, the availability of essential health infrastructure and human resources is vital for achieving universal health coverage. McFall (2019) examines the role of self-tracking in health insurance pricing. In computer science, Sowah et al. (2019) investigated using genetic support vector machines (GSVMs) for fraud detection in health insurance claims. Despite the lag in digital transformation within the insurance sector compared to other industries (Eling & Lehmann, 2018; Persson et al., 2018), there is limited research on the digital transformation of health insurance in information systems (Nayak et al., 2019b). Such research often displays a strong technological determinism. The predominant focus has been on the implementation and utilisation of digital technologies and platforms as the primary drivers of organisational change, e.g. (Dutt, 2020; Meessen et al., 2016; Silvello, 2018; Tan et al., 2017; Thenmozhi et al., 2021). Considering that the health insurance sector is typified by complex systems with multiple stakeholders operating at various levels (Ivanović & Raković, 2019; Tan et al., 2017), existing research has not adequately captured the interactions and reciprocal relationships among the institutional environment, human actors, and the technologies they

engage with in this intricate multi-level system (Welch, 2017). This study aims to address this gap.

- ii. Regarding domain specificity, a blurred distinction exists between healthcare and health insurance. Consequently, information systems research has predominantly centred on healthcare topics such as those explored by Yaraghi et al. (2019) in health information exchange (HIE), Thapa and Sein (2018), platforms for medical records, Gamache-O'leary and Grant (2017), telemedicine; and Vassilakopoulou et al. (2017), social media in healthcare and the development of national eHealth platforms, rather than on health insurance. The role of health insurers varies based on country-specific policies (Silvello, 2018). For instance, the World Health Organisation, WHO (2007) presents a framework of six building blocks for health systems. This framework delineates healthcare and health financing as two distinct blocks. Here, health financing, which encompasses health insurance organisations, concerns the generation of sufficient funds for health and protecting individuals from the financial hardships of health service payments. The framework remains highly relevant today and continues to guide global health policies and decisions reflected in recent health system reforms, including efforts to achieve Universal Health Coverage (UHC) and improve health security (Debie et al., 2024). Despite its significance, the intricate contextual reality of health insurance digital transformation within developing countries remains largely unexplored. Gaining insights into the digital transformation of health insurance services will enhance our understanding of the processes at play and offer strategies to influence outcomes. This, in turn, will promote the

formulation and adoption of appropriate policies and practices, steering towards universal health insurance coverage.

- iii. The implementation of health insurance programmes occurs at various levels within an economy and involves many stakeholders, including the government, regulators, insurance companies, and healthcare providers (Nayak et al., 2019a). Technologically, this forms an institutional environment characterised by interactions, IT resources, and capabilities, leading to heightened social complexity (Sun & Yue, 2018). While this technological intricacy is recognised as a management challenge, its depth and breadth are often underestimated in health insurance literature. Many of these studies tend to be atheoretical, failing to encapsulate the multifaceted, context-driven, and expansive processes inherent to health insurance systems. Furthermore, analyses have been narrowly confined to the IT artefact and remain primarily conceptual. Thus, there is a pressing need to identify and apply suitable theoretical frameworks. The underutilised institutional perspective in this domain presents an ideal avenue for understanding the intricate sociotechnical phenomena. This presents an opportunity to understand the interplay between the digital transformation of health insurance services and processes, the institutional contexts, and the subsequent outcomes. In light of this, the present study embraces institutional theory and associated concepts that cater to context, complexities, processes, and outcomes, aiming to illuminate the digital transformation journey of health insurance services.

This study adopts a qualitative, interpretive case study approach as its foundational methodology (Myers, 2013; Walsham, 1995; 2006) and employs institutional theory as its theoretical lens. The

aim is to address the prevailing research gaps in the literature on digital transformation within the health insurance sector. For several compelling reasons, Ghana has been chosen as the focal point for this study. Primarily, the transformative role of digitalisation in Ghana's public sector and its impact on public service delivery and management has been highlighted (Zaato, 2024). It demonstrates how digitalisation has enabled faster, more efficient public services and fostered interaction with citizens. Zaato (2024) notes that Ghana's successful digitalisation has been driven by strong political support and the establishment of key institutions like the National Identification Authority (NIA), integrating multiple sectors, including finance and healthcare, streamlining public services and improving efficiency and serves as a model for other developing countries. Furthermore, Ghana's government-led digital transformation in the FinTech ecosystem demonstrates a deliberate effort to address financial exclusion, especially in the informal sector. The government emphasises frugal innovation and leveraging existing infrastructure, making it a model for digital transformation in resource-constrained contexts (Senyo et al., 2024).

Moreover, Ghana has developed a reputation as one of the few countries in Sub-Saharan Africa making significant strides in establishing National Health Insurance (NHI) to extend coverage to a significant portion of its population. Since its introduction in 2003, Ghana's NHI covers 57.7% of the population, subsidising coverage for vulnerable groups through targeted budget allocations. It has successfully transitioned from a "cash-and-carry" health system to one that reduces financial hardship, showing Ghana's ability to address socioeconomic challenges and enhance health equity (Cashin & Dossou, 2021). These reforms highlight Ghana's commitment to advancing universal health coverage, reflecting its growing reputation as an emerging, resilient economy. It offers a unique opportunity to glean fresh insights into the digital transformation of health insurance

services and processes from the vantage point of a developing country. Finally, Ghana showcases a diverse implementation of information systems within its general health framework and other pivotal sectors, mirroring patterns observed in other developing nations (Bonina et al., 2021; Matthes & Kunkel, 2020). These insights provide ample evidence that Ghana is well-positioned for studies focusing on diverse information systems implementations, making it an exemplary case for research. Notably, the focus of the current study is underscored by the pressing need to address the conspicuous absence of studies dedicated to understanding the role of technology in the health insurance sector, especially given the sector's heavy reliance on technology as an integral operational component (Nayak et al., 2019a; Persson et al., 2018). Readers are expected to understand how the institutional environment shapes the processes and outcomes of digital transformation in health insurance within a developing country. This thesis stands out as the inaugural endeavour to holistically examine and discuss this phenomenon within the Ghanaian context. To the best of the author's knowledge, no other study has delved into the interplay between the institutional environment and the digital transformation of health insurance services, with Ghana in the spotlight.

1.3 Research Purpose and Questions

This study aims to understand the digital transformation of health insurance services and the influence of the institutional environment in a developing country context. To achieve this purpose, the study answers the following questions:

1. Why might a developing country pursue digital transformation within the health insurance sector, and what meanings do health insurance organisations associate with the digital transformation of health insurance services?
2. How is the institutionalisation of digital transformation enacted in public and private sector health insurance organisations?
3. How does the institutional context influence the digital transformation of health insurance and vice versa?
4. What are the outcomes of the digital transformation of health insurance in a developing country?

The study approaches the research questions stated above in the following ways:

- i. This thesis first examines the literature on digital transformation and health insurance. Beyond that, the thesis further reviews key concepts, perspectives, and dimensions of digital transformation. Literature on health insurance information systems is reviewed. Situated empirically in the Ghanaian context, the study also discusses health insurance information systems in developing countries of which Ghana is part and the implications for digital transformation. Finally, the gaps found in the literature are discussed.

- ii. This study uses the IS interpretive case study as the methodology and institutional theory as the analytical lens to understand the IS phenomena under study.
- iii. The study combines the findings from the literature and the two case studies to address the research questions. Through this, the study offers rich insights and implications for research, practice, and policy.

1.4 Research Context

The fundamental premise of this research is to understand the institutional environment that influences the digital transformation of health insurance organisations, taking into account the unique nature of such institutions. Central to this premise is the assertion that the health system is distinctly atypical, exhibiting various heterogeneous characteristics (Chakraborty et al., 2015). This perspective is supported by Ivanović and Raković, who observes, “Like any other complex system, the health insurance system cannot always be neatly categorised or fully developed” (Ivanović & Raković, 2019, p. 1). Consequently, context is pivotal in interpretive research (Myers, 2013; Walsham, 2006). Subsequent sections delve deeper into this discussion, detailing the theoretical and empirical contexts of the study on the digital transformation of health insurance services. The research employs institutional theory as its theoretical framework and examines health insurance in Ghana as its empirical context.

1.4.1 Digital Transformation Challenges and Opportunities in Health Insurance

This study focuses on understanding the digital transformation of health insurance services. Digital transformation is “a process that aims to enhance an entity by triggering significant changes to its

attributes through the combination of information, computing, communication, and connectivity technologies” (Vial, 2019, p. 3). This extends to the profound shifts seen within society and industries due to the adoption of digital technologies (Agarwal et al., 2013; Majchrzak et al., 2016). Hence, this study conceives the digital transformation of health insurance services as an ongoing sociotechnical process that combines information, computing, communication, and connectivity technologies. This process transitions manual and paper-based processes to digital platforms, facilitating universal health insurance coverage.

Digital applications tailored for health insurance range from basic EHR-based tools (Hall et al., 2017) and web-based member identities (Adesola, 2010) to more sophisticated e-claims and e-reimbursement platforms (Vassilakopoulou & Marmaras, 2013). These platforms often integrate with third-party mobile payment systems (Obadha et al., 2020). Such platforms empower insurers to verify and validate members’ access to benefit packages within the health insurance programme. They enable health insurance subscribers to enrol for services, initiate payments, and streamline the review and reimbursement processes for services that healthcare providers render to the insured. These digital interventions elevate service delivery and control costs while ensuring the requisite healthcare for social and economic growth.

Developing countries, in particular, perceive this transformation as a means to establish a health system that can potentially diminish health disparities for their populace. However, the intricate challenge of achieving broader equity has been acknowledged and is often considered elusive (Benatar et al., 2018). This perspective is rooted in the challenges that many digital interventions face, including extended waiting periods to procure health insurance membership cards, hurdles

in enrolment (Ayanore et al., 2019), accessing health data from isolated data silos, and issues related to interoperability (Grundstrom et al., 2018). Furthermore, the pressing concern of detecting and mitigating fraud in health insurance claims (Owusu-Oware et al., 2018; Sowah et al., 2019) is central to discussions of sustainability (Ayanore et al., 2019) and the achievement of universal health coverage goals. Such challenges breed dissatisfaction among existing policyholders and foster scepticism among potential subscribers (Meessen et al., 2018; Singh et al., 2021). Factors encompassing socio-cultural, cultural-cognitive, and other contextual elements extend beyond the mere introduction of digital technologies.

Developing countries grapple with many challenges in their quest for digital transformation. These challenges span from resource and infrastructure constraints to the absence of common interoperability standards (Hariyanto et al., 2018). They also confront institutional, socio-cultural, and technological barriers (Siddiquee, 2016) and navigate intricate, multi-tiered bureaucratic structures. Other pressing issues include e-illiteracy, subpar ICT infrastructure (Hendriks, 2012), resistance to change, intra-organisational power conflicts, and the deficiency of cross-agency collaboration (Effah & Nuhu, 2017).

Despite the significant research contributions and the relentless efforts of organisations, key actors, and collaborators, the problem of digital transformation initiatives falling short of their projected outcomes remains pervasive. Many organisations, particularly those operating within the expansive health domain, are not exempt from these challenges. The insurance sector, for instance, encounters barriers that hamper its progression into the digital age (Grundstrom et al., 2018). The sector's operational landscape is notably diverse, spanning vast geographical expanses, and

necessitates intricate collaborations with stakeholders. These stakeholders include government entities, regulatory bodies, insurance firms, and healthcare providers (Nayak et al., 2019b).

Traditional insurance models are becoming increasingly obsolete in the current age of rapidly advancing digitalisation and the enhanced predictive abilities offered by data analytics (Persson et al., 2018). Consequently, there is an imperative need for more research in developing countries. This research should aim to delve deeper into understanding digital transformation within intricate service systems, such as health insurance. Emphasis should be laid on transcending conventional reductionist methodologies. This is vital because the complexities of organisations cannot be adequately grasped without considering the overarching influence of their institutional context (Hinings et al., 2018).

1.4.2 Overview of Institutional Theory

Understanding the theoretical background of a research topic serves as the foundation from which a robust research framework can develop. Reviewing this theoretical backdrop positions the arguments of the current study within the traditions of the relevant scientific disciplines. The primary theoretical context of this study is institutional theory. This theory posits that actors operate within an institutional framework defined by rules, norms, knowledge, and established discourses (Scott, 2005). Institutional theory delves into the profound and enduring characteristics of how institutions are formed, sustained, transformed, and dissolved (Jensen et al., 2009). Scott (2014) suggests that institutional theory offers the most insightful and fruitful perspective for examining organisations and other facets of contemporary life in modern society. The roots of

institutionalism are deeply embedded in the disciplines of economics, sociology, political science, and, more recently, organisational theory.

Within the field of economics, this theory challenges the enduring assumption of the rational economic agent. According to Parto (2005), the proposition suggests that economic activities are not necessarily derived from logical decision-making but emerge from the social context. Therefore, it may be argued that digital transformation projects emerge from certain historical and social circumstances (Parto, 2005). There has been a notable emphasis on examining legal and administrative frameworks that define and distinguish different government systems in the political sphere. Institutionalists have endeavoured to underscore the importance of normative frameworks and rule systems in guiding, constraining, and enabling social and political behaviour (Scott, 2014). The sociological perspective on institutions is shaped by the natural systems model, which elucidates the role of institutions in shaping organisational behaviour (Scott, 2001). In this context, the digital transformation of health insurance can be positioned in a multifaceted social system. This suggests that a comprehensive understanding can be achieved by examining the environmental and social structures in conjunction with their non-rational elements. These elements encompass the complex informal systems linking social participants with one another and others beyond their boundaries (Scott, 2014).

Various definitions underpin the concept of institutions. The literature abounds with diverse definitions and typologies of institutions. Given the absence of a standardised definition, institutions can be defined relative to the context of their study (Vatn, 2005). Scott (2001) characterises institutions as enduring social structures comprising cultural-cognitive, normative,

and regulative elements. These structures bring order and stability to social life and offer guidance, resources, prohibitions, and constraints on actions. While symbolic systems – encompassing rules, norms, and cultural-cognitive beliefs – are fundamental to institutions, the concept also incorporates related behaviours and material resources (Scott, 2014). Consequently, institutions are intricate, lasting social structures combining symbolic elements, social activities, and material resources.

Distinctively, the institutional approach provides guidance that allows researchers to connect past and present events and processes, reconcile differences amongst social science disciplines and their multiple subfields, and bridge micro and macro perspectives in comprehending social structure and processes (Scott, 2014). Notwithstanding its evolution and progress, a shared limitation of early institutional works is the scant attention given to organisations. Within the literature on organisational studies, institutional theory prominently manifests in institutional factors and the institutionalisation process (Mignerat & Rivard, 2015). The factor approach perceives regulative, normative, and cultural institutions as channels of action within organisations and their environment (Scott, 2014). In contrast, institutionalisation elucidates how institutions emerge, stabilise, evolve, and fade. This process includes two sub-processes: deinstitutionalisation and reinstitutionalisation. Deinstitutionalisation pertains to the cessation of established institutions due to recognised deficiencies (Kwiek, 2012). Conversely, reinstitutionalisation relates to introducing a new form of institutional order with new arrangements different from the previous (Currie & Swanson, 2009; Scott, 2014).

Drawing from the use of institutional theory in organisational studies, IS researchers (Chaubey & Sahoo, 2021; Currie & Finnegan, 2011; Effah & Nuhu, 2017; Lyytinen et al., 2009; Nielsen et al.,

2014; Orlikowski & Barley, 2001) have endeavoured to integrate institutional theory and its related concepts into IS research. Within this field, institutionalisation refers to the process of transferring and stabilising material artefacts and routines in the form of digital platform systems. This highlights the pivotal role of artefacts and routines as bearers of institutional logic (Lyytinen et al., 2009). Institutional theory is employed to chronicle the complex interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the environmental context. Collectively, these elements shape the outcome of institutionalisation. Additionally, applying this theory has highlighted how elements within the social and technical environment enable or constrain digital interventions (Effah & Nuhu, 2017).

In this study, which focuses on the digital transformation of health insurance services, the theoretical foundation is underpinned by institutional theory (Scott, 2014) and its associated concepts. Scott (2014) underscores the socially constructed nature of technology and highlights how situational factors and interpretive processes mediate its effects. This perspective integrates both technical and symbolic elements, as described by Suchman (2003). The primary objective is to comprehend how a developing country undergoes the process of digitally transforming its health insurance services.

Institutional theory is instrumental in highlighting the sociotechnical interplay between institutional elements, human agency (Fuenfschilling & Truffer, 2016), and the digital transformation of health insurance (Sharma et al., 2023). Furthermore, this theory explains how such interactions can either facilitate or inhibit the intended outcomes and how the digital transformation of these services impacts the institutional dimensions of health insurance. Within

this study, the institutional elements of health insurance encompass legal, social, political, and technical factors inherent to health insurance services. Human agents refer to individuals and groups participating in the digital transformation process. Health insurance digital transformation refers to the environment within which the health insurance service is delivered. Intended outcomes are the results of the digital transformation process.

This study posits that the well-developed institutional perspective offers concepts and theorising that are highly relevant for understanding the IS phenomenon in its context. Moreover, health insurance is one of the critical service domains whose complexity mainly arises from the fact that it has to deal with people's quest for health and well-being (Faggini et al., 2018). A more detailed exploration of this theory is provided in chapter three.

1.4.3 Digital Environment in Ghana

Ghana, situated on the west coast of Africa, serves as the context for this study. Classified as a lower-middle-income country, it boasts a population of approximately thirty million citizens (GSS, 2021). Ghana is increasingly recognised as a pioneer in digitalisation and innovation. This reputation is underscored by global giants such as Google, which established an artificial intelligence centre in the country, and Twitter's decision to locate its African headquarters in Ghana. The ICT sector contributes an average of 3.6% to the nation's GDP, largely due to the contributions from a liberalised and competitive telecommunication industry (Osei-Owusu, 2015; World Bank Group, 2019). Broadband services are expanding and driven by mobile network operators (MNOs). The country's digital ecosystem has witnessed robust growth, spurred by government investments to position Ghana as a regional hub for digital services.

The Ministry of Communication and Digitalisation, established under Section II of the Civil Service Law, 1993 (PNDCL, 327) and later amended by the Civil Service Act, 2001, is responsible for formulating policies to bolster information and communication infrastructure and service delivery within Ghana. Several policies have been enacted in digitalisation and ICT services to guide developments in the ICT and telecommunication sectors. These include Ghana's ICT for Accelerated Development (ICT4AD) policy, the National Broadband Policy and Implementation Strategy, Ghana's National Cybersecurity Policy & Strategy, and the Digital Financial Services Policy. The ICT for Accelerated Development (ICT4AD) policy, introduced in 2003, aims to develop Ghana's information society and economy, pursue a multi-sectorial ICT-led socio-economic development strategy, and harness ICTs as a broad-based enabler of developmental goals.

In the health sector, the ICT4AD policy underscores the transformative potential of digitalisation. It recognises health as a priority sector where the comprehensive adoption of ICT can significantly aid the government in realising its developmental objectives. In alignment with this perspective, the Ghana Health Sector ICT Policy and Strategy outlines a strategic roadmap for harnessing, cultivating, and integrating ICT across the sector to expedite service delivery. Among its various objectives, the ICT4AD policy seeks to enhance the population's overall health. It emphasises curtailing health disparities, seamlessly incorporating ICTs into health programme delivery, and expanding geographical, financial, and socio-cultural accessibility to health services.

While these policy statements advocate for comprehensive changes, there remains a fragmented understanding of the use of these systems, underscored by contradictory findings on digitalisation (Achampong, 2012; Afarikumah, 2014). Even though Ghana is distinguished for its leadership in ICT penetration, especially within the context of developing countries, the health sector has seen limited impact from ICT (Kesse-Tachi et al., 2019). Several challenges continue to impede progress in this sector. Telecommunications infrastructure is notably weak beyond urban areas, and there is a palpable lack of support across the health sector. The response to digitalisation, albeit modest, has been less systematic than one would hope. The drive for ICT adoption has often been motivated by individual or private interests and innovations rather than a clearly identified institutional need. This approach has led to varying levels of ICT utilisation within the sector, creating a digital divide. Consequently, the full potential of ICT has yet to be realised in the health sector. For instance, the National Health Insurance Scheme (NHIS) grapples with verifying substantial claims submitted by healthcare providers for payments (Alhassan et al., 2016). This has made fraudulent claims commonplace, undermining the overall efficiency of the scheme (Kesse-Tachi et al., 2019).

Despite the myriad challenges facing the sector, organisations within the health insurance institutional field have endeavoured to establish a more cohesive scheme. This is being achieved by adopting digital infrastructure and platforms designed to complement the expanding healthcare system. Gradually, outdated paper filing systems are being supplanted by more modern methods: member registration now leverages biometric technology (Effah et al., 2020), healthcare providers are transitioning to electronic claims submission, and growing integration with mobile payment platforms to enhance financial transparency (Renner-Micah et al., 2020).

This study aimed to explore the influence of the institutional environment on digital transformation in developing countries, specifically in the pursuit of universal health insurance coverage. Fieldwork for this thesis was undertaken within the public sector, represented by the National Health Insurance Scheme (NHIS), and the private sector, represented by Alpha Private Health Insurance (name anonymised). The National Health Insurance Authority (NHIA) is the designated body responsible for regulating and overseeing the NHIS in Ghana. The NHIA's primary objective is to achieve universal health insurance coverage for Ghana residents and non-residents visiting the country. It aims to ensure these individuals can access healthcare services under the scheme (NHIA, 2021). Additionally, the NHIA is tasked with registering and supervising private health insurance schemes (PHIS) within the country.

Like many developing countries, Ghana's journey towards the digital transformation of health insurance services is shaped by unique political, social, and cultural factors that either facilitate or hinder such initiatives. In essence, institutional characteristics play a pivotal role in the digital transformation of health insurance. However, significant disparities exist in the adoption rates between public and private health insurance, primarily influenced by the nuances of the institutional environment (Cavazza et al., 2023; Motaze et al., 2021). To offer a comprehensive understanding and provide insights into the digital transformation of health insurance in developing countries, two case studies from Ghana – representing both the public and private sectors – were selected as the empirical foundation for this research.

1.5 Significance of the Study

The significance of this study is manifold, touching upon research, practice, and policy within the context of information systems and digital transformation in health insurance in Ghana. It offers a pioneering examination of digital transformation in the health insurance sector. By integrating theoretical underpinnings from institutional theory with empirical insights from Ghana's health insurance domain, the research unveils a nuanced understanding of digital transformation's multifaceted institutional influence and outcomes. This contribution is critical, bridging the gap in the existing literature that has often overlooked the complex interplay between digital transformation and health insurance systems.

Practically, this thesis equips health insurance organisations, healthcare providers, and policymakers with a framework for harnessing digital technologies to enhance service delivery, operational efficiency, and stakeholder engagement. By showcasing the transformative potential of an ongoing and adaptive digital transformation strategy in health insurance, the study illuminates pathways for achieving greater access to healthcare services, thereby advancing the goal of universal health coverage in developing contexts like Ghana.

Policy-wise, the findings offer substantive insights for the Government of Ghana and relevant regulatory bodies to refine and enact policies that foster an enabling environment for digital transformation in the health insurance sector. It underscores the need for collaborative efforts among stakeholders to navigate the digital landscape effectively, ensuring that the benefits of digital transformation are equitably distributed across society.

In essence, this thesis not only contributes to the academic discourse by delineating the contours of digital transformation in health insurance but also lays down practical and policy-oriented recommendations for leveraging digital transformation to catalyse systemic improvements in healthcare financing and delivery.

1.6 Organisation of the Thesis

This section outlines the structure of the thesis. To understand the digital transformation of health insurance services within a developing country like Ghana, reviewing the existing literature on digital transformation and its anticipated outcomes is crucial. Furthermore, it is essential to draw on a suitable theoretical framework and paradigmatic and methodological approaches to gain in-depth insights into this intricate sociotechnical phenomenon. Consequently, this study examines two instances of digital transformation of health insurance services in Ghana to understand the phenomenon in question. Following this introduction, the subsequent parts of the thesis are organised as follows.

Chapter Two looks at the literature review. It examines the literature on digital transformation and health insurance. Beyond that, the thesis further reviews key concepts, perspectives, and dimensions of digital transformation. Literature on health insurance information systems is reviewed. Situated empirically in the Ghanaian context, the study also discusses health insurance information systems in developing countries of which Ghana is part and the implications for digital transformation. Finally, the gaps found in the literature are discussed.

Chapter Three focuses on the theoretical foundation underpinning the research. In particular, the chapter examines institutional theory by discussing its concepts and principles. The chapter, moreover, reflects on areas in which these theories have been applied and the justification for adopting the institutional theory as the analytical lens. The limitation of institutional theory in the context of the study is also provided.

Chapter Four spotlights the methodology. The discussion centres on the philosophical assumptions and methodology regarding the research method and the data collection and analysis techniques employed in this study. This chapter further discusses the reasons for choosing the interpretive paradigm and qualitative case study method. It also explains the case study selection, fieldwork, data collection and analysis.

Chapter Five presents the case description. To position empirical research in a developing country's health insurance service, the chapter describes the study context, National Health Insurance as a public insurance organisation and Alpha Private Health Insurance (anonymise) as a private health insurance organisation, and case study findings to address the research questions.

Chapter Six focuses on the case analysis based on institutional theory. The chapter begins with a case analysis of the two cases. The chapter summarises the findings that pertain to the research purpose and addresses the research questions.

Chapter Seven addresses the research questions stated in this introductory chapter through discussion and interpretation of the study's findings in relation to the research questions and the

literature review in Chapter Two. The chapter ends with reflections on using institutional theory for this study.

Chapter Eight outlines the summary and the conclusion of the study. The chapter addresses the purpose of the study and research questions. This chapter also discusses institutional theory, providing a rich insight into the digital transformation of health insurance services in a developing country. This chapter also presents the contribution to research, theory, and practice. The chapter finally presents the study's limitations and offers overall conclusions and directions for further research.



CHAPTER TWO

DIGITAL TRANSFORMATION AND HEALTH INSURANCE

2.1 Chapter Overview

Chapter one introduced the research background, problem, context, purpose, and questions this thesis aims to address. This chapter delves into the literature on digital transformation, focusing on its application in health insurance research. It begins by reviewing the literature on the digital transformation process, followed by an exploration of health insurance information systems. The chapter then discusses health insurance information systems in developing countries. Lastly, the gaps in the literature concerning digital transformation in health insurance are highlighted.

2.2 The Digital Concept

Over the past several decades, the concept of “digital” has evolved, witnessing expanded usage and ushering in new opportunities. So, what has changed concerning the digital concept? Information systems research suggests significant shifts (Baskerville et al., 2020). The term “digital” is a catchall descriptor for many changes instigated by technological advancements at individual, organisational, and societal levels. In contrast to analogue, “digital” refers to the discrete representation of signals or data (Legner et al., 2017). It is highlighted that digital technology rests on data representation using the binary system of 0s and 1s. This system can express even the most varied, multi-dimensional information (Boehme-Neßler, 2020; Faulkner & Runde, 2019).

The term “digital” has become ubiquitous in information systems, linking to an ever-expanding array of processes, entities, and objects (Rodriguez & Piccoli, 2018). Some prevalent examples include digital innovation (Nambisan et al., 2017), digital artefacts (Hron, 2021), digital infrastructures (Koutsikouri et al., 2018), digital platforms (Bonina et al., 2021), and digital transformation (Reis et al., 2018). Beyond its use in referencing systems that employ discrete representation, “digital” is also frequently associated with general-purpose computing. From this standpoint, Rodriguez and Piccoli (2018) noted two phenomena. First, “digital” becomes associated with objects, like digital media, where technology plays a pivotal role. Second, “digital” is employed to characterise the resulting outcomes. Here, terms like “digital innovation,” “digital revolution,” and “digital transformation” convey the effects of integrating digital artefacts into activities and processes. Given these observations, it is evident that the concept of “digital” has become increasingly complex, imprecise, and intertwined. Recognising this evolution, the subsequent sections delve into the facets of the term “digital” and its dimensions, aiming to unravel the intricate interplay among individuals, organisations, and society.

2.3 Digital Technology

Digital technology is a central component in discussions about digital transformation and is fundamental to our understanding of the research phenomenon. Generally, information systems research highlights the vast potential offered by digital technologies (Berger et al., 2018; Ghawe & Chan, 2022). Henriette et al. (2015) note that digital technologies underpin many significant innovations. This is evident in how various digital technologies are combined in transformative ways within organisations (Riasanow et al., 2018). A recurring theme in the literature is the portrayal of digital technologies as integrating several distinct technologies. For instance, they can

be described as the conjunction and interconnectivity of myriad dispersed information, communication, and computing technologies (Bharadwaj et al., 2013). This perspective on digital technology is also reflected in its varied conceptualisations, encompassing technologies related to cloud computing and big data (On-Piu Chan, 2020), mobile devices (Matt et al., 2016), platforms (Sandberg et al., 2020) and others. Hanelt et al. (2021) found that SMACIT technologies (social, mobile, analytics, cloud, and Internet of Things) are pivotal in shaping digital transformation due to their distinctive digital properties. Matt et al. (2016) contend that organisations pursue digital transformation to harness the myriad benefits of digital technology, including productivity enhancements, cost savings, and fostering innovation.

Numerous studies have been conducted to elucidate how organisations have adopted digital technology (Fitzgerald et al., 2014; Skare & Soriano, 2021) and illustrate these technologies' transformative impact (Soto Setzke et al., 2021). Concurrently, existing research has indicated that while most organisations grapple with realising the transformational effects of digital technologies, a select few have capitalised on the potential of these new digital innovations. This observed disparity has prompted researchers to infer that significant work remains in this domain (Dang & Vartiainen, 2020; Hinings et al., 2018). Organisations frequently perceive the outcomes of their technology investments as either inadequate or insufficient. As Fitzgerald et al. (2014) have posited, within the context of digital transformation, the promise of digital technologies extends beyond mere automation of processes; they offer avenues for pioneering and innovative methods that influence all facets of organisations. The ensuing sections delve into the literature concerning organisational approaches to digital technology adoption and the diverse perspectives that shape

such usage. The aim is to provide a deeper understanding of the determinants of organisational success or failure in leveraging digital technology for transformation.

One prevailing theme in academic literature is the impact of digital technologies on business models. Coinciding with the advent of the Internet in the mid-1990s, the business model concept gained traction and momentum (Zott et al., 2011). Broadly, a business model delineates how an organisation functions, realises its objectives, generates and captures value, and the resources, capabilities, and competencies necessitated to buttress these value mechanisms. It mirrors an organisation's business strategy and illustrates how digital technology can bolster that strategy (Gilsing et al., 2022). In this context, digital technologies offer opportunities for organisations to modify particular facets, notably their business models, to maintain competitiveness in their sectors (Carcary et al., 2016; Morakanyane et al., 2017). The domain of e-business—conducting business electronically—has been the most prolific in addressing business models to date (e.g., Mahadevan, 2000; Böttcher et al., 2022; Haftor & Climent Costa, 2023). More recently, the business model concept has been broached in innovation and technology management disciplines (Gilsing et al., 2022) under the broader term 'business model innovation'. This predominantly encompasses leveraging digital technologies to facilitate a broader spectrum of business models (Li, 2020). While many studies have underscored the significance of business models in commercialising digital technology at the firm level, there is a growing sentiment that an industry-wide lens is essential (Zott et al., 2011), a stance reiterated by the assertion that there is often a failure to account for "industry-specific aspects" (Veit et al., 2014, p. 46). In conclusion, while research on digital transformation and the transformative potential of digital technologies on

business models emphasises their importance for organisations, it concurrently posits that this may not be a panacea for assured success (Gurbaxani & Dunkle, 2019; Schallmo & Williams, 2018).

2.4 Digital Transformation

Digital transformation frequently appears in diverse contexts, leading to potential misinterpretations. A literature review reveals a broad spectrum of meanings associated with the term (Hanelt et al., 2021; Reis et al., 2018), which further vary depending on the specific context and academic discipline referencing it (e.g. Chen et al., 2016; Warner & Wäger, 2019). Given the multifaceted nature of the topic, it is anticipated that there will be significant variation in its treatment across different academic fields and by different authors. This section delves into the literature on digital transformation, focusing predominantly on the perspective of information systems.

Digital transformation has been defined in various ways, ranging from being described as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies (Vial, 2019, p. 3) to encompass the profound shifts occurring within society and industries due to the adoption of digital technologies (Agarwal et al., 2013; Majchrzak et al., 2016). Thus, digital transformation emerges as a complex and multifaceted phenomenon, offering diverse perspectives and revealing critical dimensions. For instance, Ivan et al. (2019) define digital transformation as a process of change facilitated by digital technologies. This definition underscores the dual nature of digital transformation: as a process in one regard and a catalyst for change in another. Such a perspective is notably prevalent in the IS literature (Bosilj Vukšić et al., 2018; Karanasios et al.,

2022; Vial, 2019). Beyond these viewpoints, research has also explored multiple dimensions of digital transformation.

2.4.1 Dimensions of Digital Transformation

The concept of ‘dimension’ is crucial in addressing the question of “what to transform?” for an organisation to achieve a successful digital transformation outcome (Udovita, 2020). These dimensions represent various facets of an organisation that must be considered during the digital transformation process. Several studies have highlighted some key dimensions. For instance, in an empirical study involving three companies across the telecommunications, heavy manufacturing, and insurance sectors, Ivan et al. (2019) identified seven dimensions of digital transformation: strategy, people, organisation, customer, ecosystem, technology, and innovation. While these dimensions function distinctly, they are interconnected and collectively vital to the success of the transformation process.

The strategic dimension is the foundation, delineating the direction and articulating the vision for digital initiatives. As the catalysts of this transformation, people occupy a central role, underscoring the need for talent development. The organisational structure and culture create the milieu in which digital transformation takes place, often requiring the introduction of new roles, such as that of a Chief Digital Officer. Emphasising customer-centricity is vital, as it emphasises the importance of involving customers in the transformation journey, thereby refining services to provide enhanced value. From an ecosystem standpoint, there is a pressing need to probe new markets and revenue opportunities digitally. The selection and deployment of digital technology

emphasise the practical facets of the transformation, with innovation driving the conceptualisation and advancement of digitally augmented products and services (Pankowska, 2016).

The significance of these dimensions has been extensively explored in the information systems literature, encompassing areas such as strategy (Hanelt et al., 2021; Matt et al., 2016), ecosystem (Schreieck et al., 2022), and organisational culture or structures (Mergel et al., 2019). Beyond the studies mentioned above, Matt et al. (2016) posit that an organisation can undergo digital transformation across four primary dimensions: the use of technology, alterations in value creation, structural modifications, and financial aspects. These dimensions often intersect and are not mutually exclusive. For instance, an organisation's adoption of digital technologies to enhance digital competencies might instigate shifts within the ecosystem. The prominence of specific dimensions is contingent upon the organisation's objectives. Organisations can adeptly align their digital transformation endeavours with their overarching aims by pinpointing the pertinent dimensions to emphasise, thereby ensuring more favourable outcomes.

Recent academic literature has started to acknowledge the importance of digital transformation, but comprehensive exploration remains in its nascent stages. In this context, Hajishirzi et al. (2022) posit that ample opportunities exist for a deeper understanding of the myriad dimensions of digital transformation within organisations, advocating the application of institutional theory for subsequent studies. These dimensions hold particular ramifications for health insurance organisations. For instance, within the technological dimension, such organisations must invest in cutting-edge technologies to maintain relevance. This necessitates financial outlay and initiatives to enhance employee skills, ensure compatibility with extant systems, and address potential risks

intrinsic to novel technologies, such as cybersecurity vulnerabilities. While these dimensions proffer myriad opportunities for health insurance organisations to refine their services, optimise operations, and elevate customer interactions, they concurrently introduce challenges that demand astute foresight and strategic planning. Effectively assimilating these dimensions could establish health insurance organisations as frontrunners in an ever-transforming digital environment.

2.4.2 Digital Transformation and the Nature of Change

Change, defined as a variance in form, quality, or state over time within an organisational entity (Van De Ven & Poole, 1995), is intrinsically linked to digital transformation (Hanelt et al., 2021). Thus, digital transformation can be seen as the alterations resulting from developing, implementing, and utilising digital technologies (Gabryelczyk, 2020). It is evident that digital transformation fundamentally pertains to change; the nature and dynamics of this change warrant clear articulation and exploration in empirical research on the topic. Several observations underscore this contention. Firstly, earlier studies contextualised digital transformation in relation to information technology and IT-enabled change, the latter being defined as the deployment of computing and network systems (Kokuryo, 1997; Piccinini, 2015). Secondly, contemporary studies on digital transformation indicate an evolving paradigm regarding how these changes manifest within organisations. Although digital technologies such as big data, digital platforms, mobile technology, and cloud computing appear distinct from past IT-enabled organisational transformations, they introduce novel attributes. These include being generative, adaptable, and combinative, setting them apart from traditional IT systems (Kallinikos et al., 2013). Yoo et al. (2010) attribute these unique traits of digital technology to reprogrammability, data homogenisation, and their self-referential nature. Consequently, traditional perspectives on

material attributes and their organisational implications may require re-evaluation, especially in digital transformation.

While there might be a prevailing notion that digital transformation pertains exclusively to service industries due to their pronounced emphasis on customer engagement or to sectors that can fully digitise their products, existing research underscores that digital transformation transcends specific sectors (Bosilj Vukšić et al., 2018). Studies on digital transformation span various domains, encompassing manufacturing (Chen & Wang, 2022; Sebastian et al., 2017), the financial sector (Kim et al., 2022; Selimović et al., 2021), education (Aditya et al., 2021) and healthcare (Ghosh et al., 2018, 2023). Grasping the nuances of digital transformation and the nature of change across diverse industries is pivotal for academic research. This is due to factors such as industry-specific intricacies, the rate of change, the pertinence of technology, and the cultural and organisational implications (Agarwal et al., 2013; Soto Setzke et al., 2021; Yoo et al., 2012).

The information system discourse surrounding the dynamics of change, within which digital transformation is undertaken, and the factors that promote this change have provided valuable insights into the mechanisms and outcomes of such transformations (Gregory et al., 2015). However, the academic literature displays considerable variance, implicitly and explicitly, concerning the attributes and nature of change. Often, the term is applied broadly to almost any organisational initiative that utilises digital technologies (Riasanow et al., 2018). Consequently, a potential gap emerges in comprehending how these novel attributes of digital technology influence the institutional environment of health insurance. While the literature underscores the transformative capabilities of digital technologies, particularly their evolving traits described as

“generative, malleable, and combinatorial,” the interplay between these technological features and the institutional environment of the health insurance sector in a developing country remains inadequately studied. Future research might endeavour to discern how these emergent digital attributes engage with and potentially reformulate the entrenched institutional structures within the health insurance domain. Moreover, there exists a lacuna in grasping the evolution of change and how such transformation becomes ingrained in established sectors like the health insurance industry in developing countries (Dang & Vartiainen, 2020).

2.4.3 Change Patterns of Digital Transformation

This section offers a synopsis of pivotal literature concerning models of change, concentrating on two primary paradigms: Continuous Change and Episodic Change. These models have been integrated into the review to guide organisations on the nuances of implementing or facilitating changes, making them directly relevant to the study. Existing literature aligns the phenomenon of digital transformation with various forms of change (Dang & Vartiainen, 2020; Hanelt et al., 2021), leading to diverse viewpoints on the manner and essence of digital transformation’s manifestation. As digital technologies present emerging and incessant opportunities tailored to the evolving needs of organisations, the pace of change they induce has accelerated, marked by heightened intricacy. Consequently, organisations are compelled to recalibrate in response to this swift evolution perpetually. Digital transformation serves as a mechanism through which organisations navigate and adapt to these shifts and challenges (Bitzer et al., 2021). Contemporary literature on digital transformation differentiates between two predominant forms of change: continuous and episodic (Hanelt et al., 2021). Notable variations such as continuous incremental and revolutionary episodic change (Dang & Vartiainen, 2020) mirror organisations’ diverse

strategies for adapting to the digital age. Continuous change necessitates subtle, progressive modifications to established processes and systems, aligning with technological progress (Fischer & Baskerville, 2022). In contrast, episodic change embodies infrequent yet profound changes, such as adopting entirely novel technologies or business paradigms purposely initiated over a short period (Lyytinen & Newman, 2008; Yoon et al., 2022).

Within digital transformation, continuous change refers to the perpetual and steady progression of information systems and technologies in reaction to changing corporate and societal demands. This transformation has ignited extensive discussions. The dominant viewpoint posits that continuous change is incremental and evolutionary, building upon pre-existing systems and technologies (Hanelt et al., 2021; Safadi & Faraj, 2011; Van De Ven & Poole, 1995). While technological advancements are at the heart of this, other facets of change induced by digital transformation are gaining recognition for their significance. For instance, Bitzer et al. (2021) emphasise the continuous character of digital transformation and change, asserting that organisations are perpetually striving to adapt. They further argue that digital transformation is not a fleeting stage but an ongoing process without a definitive endpoint. Crucially, various elements underpin this continuous change, notably organisations' strategies to steer digital transformation towards sustained evolution. The authors argue that true transformation is multi-dimensional, encompassing digital, cultural, and agile elements. The challenge of cultural transformation is particularly underscored, often deemed more formidable than its digital counterpart. This underlines the notion that while technologies can be updated, altering an organisation's deep-seated habits, beliefs, and values poses a more complex challenge. Yet, numerous organisations recognise their accomplishments as mere markers on a prolonged journey. The path forward is

marked by further transformations, necessitating unwavering adaptability. Bitzer et al. (2021) introduce a transformation triad—consisting of Digital Transformation (DT), Agile Transformation (AT), and Cultural Transformation (CT)—as a framework to facilitate continuous change.

Drawing from 15 years of research and observation across diverse contexts, Lawrence et al. (2006) highlight the multi-dimensional nature of continuous change. They stress that continuous change does not follow a linear path. Instead, it is iterative and cyclical, necessitating both adaptability and foresight from organisations. Contrasting continuous change with traditional models of organisational change, which they characterise as simplistic and episodic, they offer a richer understanding of its complex nature. This perspective challenges conventional paradigms and presents a more dynamic and holistic view. The work underscores the need to grasp both the micro (individual) and macro (organisational) dimensions to effect meaningful and enduring change. Lawrence et al. conceptualise continuous change as a process encompassing four distinct phases: Influence, Authority, Technology, and Culture. Each phase is marked by a particular type of advocate: Evangelists, Autocrats, Architects, and Educators. Figure 2.1 illustrates Lawrence et al.'s (2006) cycle of continuous change, accompanied by an explanation of the phases and their associated components.

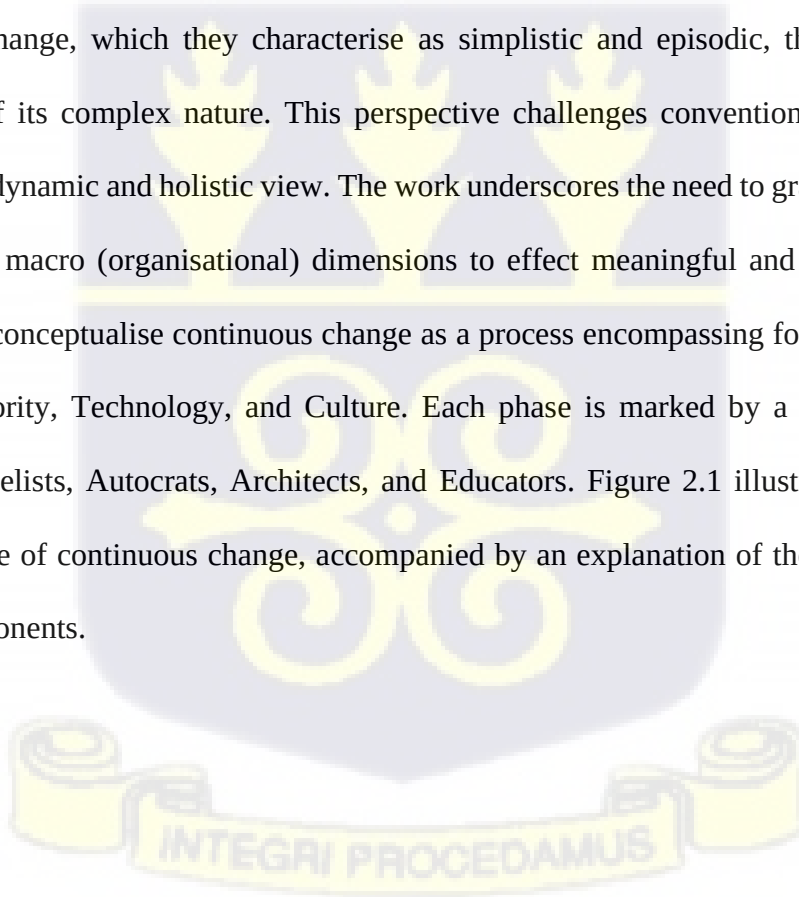
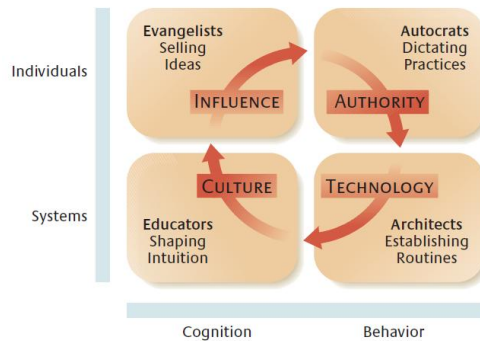


Figure 2.1: The Cycle of Continuous Change



[Adapted from (Lawrence et al., 2006)]

Phase 1: Utilising Influence to Advocate Ideas: Change stems from an idea, whether it arises from insight, intuition, or a belief that challenges the prevailing norms. For such an idea to instigate change, it needs to be clearly articulated and conveyed in a way that sways others. The change agent in this stage is dubbed the “evangelist”, who champions the idea to pivotal members within the organisation. To succeed in this phase, the evangelist must deploy various influence strategies tailored to specific stakeholder groups.

Phase 2: Using Authority to Change Practices: In numerous instances, promising ideas flounder because their advocates either lack the understanding or the resources to transform them into tangible actions. Merely persuading is insufficient to stimulate collective action; an authoritative figure is often indispensable. Such “autocrats” wield the formal power to determine the nature, method, and timing of actions. This authority is pivotal for three primary reasons. First, even when key members are receptive to an idea, reservations may persist regarding its implementation, making endorsement from an authoritative figure essential. Second, innovative concepts might give rise to diverse interpretations, necessitating precise directives supported by authority. Lastly,

resistance can obstruct change, and such impediments can only be surmounted with decisive authority.

Phase 3: Embedding Change in Technology: While autocrats can instigate new practices, ensuring their endurance demands more than singular effort; technology often becomes indispensable. To institutionalise change, the role of an architect is pivotal in designing systems that weave change into organisational routines, embedding it in day-to-day operations. This often necessitates technology-driven solutions, such as information systems. Technology curtails suboptimal alternatives and promotes cohesive behaviour. Nonetheless, this stage must be both efficient and visible; otherwise, enthusiasm may diminish, leading to stakeholder disillusionment. Hence, this phase involves cementing change through meticulous technology integration.

Phase 4: Managing Culture to Fuel the Cycle of Change: The fourth phase emphasises embedding a culture that extends beyond initial change objectives. This ultimate stage is frequently underestimated yet crucial, and it seeks to ensure an enduring legacy that surpasses the preliminary goals of change. It involves nurturing an innovation-driven culture where educators foster employees' strategic intuition. Contrary to traditional change, continuous change accentuates the expansion and refinement of ideas. Often undervalued, educators play a pivotal role in moulding a culture of expertise and experimentation.

In conclusion, the authors underscore the significance of recognising that integrating new routines extends beyond individual endeavours. They highlight potential pitfalls in the change process, stressing the need to harmonise individual efforts with systemic strategies to circumvent prevalent

organisational pitfalls. The continuous change delineated in their research encompasses reactive adaptations and the proactive establishment of an environment fostering adaptability. More recently, Menti et al. (2023) have built upon insights from Lawrence et al. (2006), emphasising the role of ‘change evangelists’ in facilitating the adoption and implementation of Logistics 4.0 technologies, particularly in persuading those resistant to change. Similarly, Hinsén et al. (2019), drawing from pivotal insights, underscore the importance of continuous change as a cornerstone capability for organisations aiming to adapt and thrive in today’s fiercely competitive markets.

The concept of episodic change is often attributed to Lewin’s (1951) renowned three-stage change model. Lewin proposed a framework for understanding and managing change, encompassing three stages: unfreezing (challenging the existing state), changing/moving (transitioning to a new state), and refreezing (re-establishing stability post-change). This type of change is distinguished by its infrequency, discontinuity, and intentionality. As such, it is commonly referred to as planned change, radical change, technological imperative, or punctuated equilibrium (Orlikowski, 1996). Within this framework, organisations are seen to operate within business environments that display a certain degree of stability. During punctuated equilibrium periods, organisations experience extended durations of stability, fostering the emergence of deeply embedded inertial structures (Romanelli & Tushman, 1994).

Despite the apparent stability of organisational environments and settings, they can be disrupted by many dynamic factors. Influences such as evolving customer demands, disruptive technological advancements, and the emergence of new competitors can disturb the alignment between organisations and their external environment, leading to a potential decline in organisational

productivity (Hinsen et al., 2019). Organisations initiate radical and transformative changes to address this misalignment, transitioning from one state of equilibrium to another and altering their established organisational structures and routines. While such change often presents as planned, intentional, and formal, its episodic nature can render it disconcerting, even intense. This introduces significant risks and places considerable strain on organisations (Hinsen et al., 2019).

Punctuated equilibrium is characterised as a strategy to address episodic change, providing organisations with an efficient means of achieving transformation. Romanelli and Tushman (1994) depict punctuated equilibrium as a brief, radical, and comprehensive shift leading to organisational transformation. In their work, the authors liken punctuated equilibrium to change that unfolds profoundly and revolutionarily. They further argue that such change proves more effective than slower, incremental adjustments. A critique of this form of change is rooted in the notion that organisations operate within stable and predictable contexts, enabling them to transition systematically from one pre-defined state to another (Burnes, 1997; Malinova et al., 2022). Nevertheless, many organisations perceive their environment as unpredictable and might need to implement changes at a pace that planned change, such as episodic and punctuated equilibrium, does not adequately support (Besson & Rowe, 2012; Chatterjee et al., 2002; Mikalef et al., 2021).

2.5 Digital Transformation and IT-Enabled Transformation

Organisations increasingly find themselves at the crossroads of digital innovation. This intersection has led to two predominant paradigms: Digital Transformation and IT-Enabled Transformation. Although frequently used interchangeably in academic discourse, these concepts represent distinct facets of organisational change and technological integration. As the digital

landscape perpetually evolves, it is crucial to explain the intricacies of these transformations. This not only aids in understanding their merits but also in recognising their interconnectedness and points of divergence. This section considers the discussion on the novelty of the concepts. A pertinent question in the literature is, ‘Is digital transformation different from other forms of IT-enabled transformation?’ (Vial, 2019, p. 33). Consequently, this section examines the practical implications of both Digital and IT-enabled transformations, establishing the groundwork for understanding their roles in shaping the health insurance landscape.

Compared to previous IT-enabled transformations or changes instigated by traditional technological innovations, digital transformation is posited to be fundamentally distinct (Bharadwaj et al., 2013; Caputo et al., 2021; Vial, 2019). Wessel et al. (2021) examine the distinction between digital transformation and IT-enabled organisational change and pinpoint key differentiators. They emphasise that although both types of transformation share similarities in their objectives and driving forces, they diverge significantly in their relationship with digital technology, organisational value propositions, and identity. Specifically, in digital transformation, digital technology is pivotal in reshaping value propositions, culminating in a novel organisational identity. Conversely, IT-enabled transformations employ information technology to bolster and sustain a pre-existing value proposition and identity.

During the 1990s, IT-enabled transformations focused on the impact of enterprise resource planning (ERP) systems on organisational transformation within information systems (IS). In the subsequent decade, IS literature delved into the concept of transformation, a process that entails significant organisational change (Besson & Rowe, 2012). Scholars in the IS domain have

underscored the importance of organisational transformation to ensure alignment between functional IT strategies and overarching business strategies. Notably, studies by Brown and Magill (1994) and Chan et al. (2006) have examined this interplay.

In academic discourse, digital transformation (DT) discussions have often mirrored traditional IT-enabled transformation debates, wherein technology is perceived as strategically crucial for bolstering business outcomes. Wessel et al. (2021) argue that a deeper understanding of digital transformation (DT) requires a shift in our perspective. Given that many have approached DT with a similar foundational logic as IT-enabled transformation, the authors recommend re-evaluating the predominant views on DT. Firstly, we need to broaden our understanding of DT beyond its strategic significance, primarily since most transformation endeavours aim to enhance business outcomes. Secondly, it is imperative to move past overarching, macro views of DT that focus solely on the organisation as a whole and instead adopt a multilevel perspective (Dąbrowska et al., 2022) involving the core process of transformation. While the literature on DT is rapidly evolving across research, practice, and policy, there remains a paucity of works that distinctly differentiate between digital and IT-enabled transformations. A deeper exploration of the interplay between these transformational processes presents a promising direction for future research (Wessel et al., 2021).

2.6 Overview Health Insurance Information Systems

Within the context of the healthcare sector, health insurance information systems (HIIS) are pivotal, especially for health insurers (payers), healthcare providers, and members (patients). Health insurance operations can be more effectively managed, tracked, and analysed through

digital technologies. In recent years, the transformative potential of digital technology across various sectors, particularly in healthcare, has attracted significant attention. However, while healthcare delivery systems have been extensively studied in the context of digital transformation (Ghosh et al., 2018, 2023; Klecun, 2016), a noticeable gap persists in the study of digital technology's application within the health insurance sector, especially within the information systems domain. This oversight is particularly striking from an information system perspective, given health insurance's critical role in healthcare access, quality, and financing. Health insurance can be considered to be at the intersection of the health system, mediating access to healthcare services between healthcare providers, pharmaceutical companies and citizens. This perspective on health insurance is supported by Hermes et al. (2020), who observed that the healthcare sector has evolved into an industry primarily driven by insurance. However, only a few of these systems, such as the Electronic Health Insurance Administration System (EHIAS) (Hammouri et al., 2021), Electronic Beneficiary Entitlement Verification (Bażydło et al., 2013) and Electronic Health Insurance Record (EHIR) (Kostikidis et al., 2020) have been documented with distinct information system attributes that manage, either wholly or partially, aspects of a health insurance system.

In the existing body of information systems research, there is a conspicuous absence of a comprehensive definition for a health insurance information system (HIIS). This study aims to bridge this gap by formulating a definition based on a review and synthesis of the key technological elements underpinning health insurance systems' operations. Presently, these elements are dispersed across the literature and are often discussed in isolation. The most frequently addressed health insurance process in academic literature pertains to health insurance claims. Notably, several studies, e.g., (Johnson et al., 2021; Menon, 2018; Park et al., 2012), focus on fraud

mitigation within this context. This emphasis is well-founded, as the number of health insurance fraud cases has been observed to rise annually (Liu et al., 2019). Such fraudulent activities have significant financial implications, threatening the sustainability of health insurance organisations worldwide (Wu et al., 2022).

The implementation of health insurance is a public policy measure aimed at mitigating the issue of excessive healthcare expenses that might lead to financial hardship (Indimuli et al., 2023). This initiative aims to achieve universal health coverage (UHC) via national health insurance schemes. Consequently, leveraging technology to promote social inclusion becomes an integral aspect of this endeavour. Many countries are currently harnessing technological tools to realise the objective of social inclusion. Technology deployment is essential to improve the accessibility of health insurance and healthcare services for the most marginalised sections of the population (Nayak et al., 2019b). This is particularly relevant for enrolment, premium collection, and membership management processes. On accessibility, technological solutions should be in place to facilitate easy service access at the point of need, following the verification and determination of benefits.

Even less discussed in the IS literature are systems for managing payer-provider relationships. These systems are needed to ensure greater alignment between the health insurance organisation (payer) and the healthcare provider for contracting and operating agreements, payment, and information exchange (Hennington & Janz, 2007; Liao et al., 2016). An extension of HIS can come in the form of connecting these systems to the payers. Kyu Kim et al. (1990) point out that this provides enormous strategic benefits for healthcare providers, including speeding up the payment process.

In recent times, the integration of big data analytics has emerged as a vital element within the digital capabilities of health insurance (Marfo et al., 2017; Wu et al., 2022). In an empirical study, Wang et al. (2018) observed the utilisation of comparative analysis by a health insurance firm to assess current and historical cost and profit data on health insurance services. This analytical capability allowed the firm to account for claim irregularities and make informed decisions regarding optimal quotes.

From the above, HIIS can be defined as sociotechnical systems for managing, processing, and analysing various operations associated with health insurance. These systems incorporate several functionalities, including the enrolment of beneficiaries, processing of claims, managing provider networks, billing and premium management, and generating reports. HIIS, therefore, aims to increase operational efficiency, improve the accuracy of transactions, assure regulatory compliance, raise transactional accuracy, and improve the experience for members, healthcare providers, and insurance administrators.

2.6.1 Health Insurance Information Systems in Developing Countries

This section discusses the literature on health insurance information systems in developing countries. Information technology integration into health insurance has shown substantial progress in industrialised nations, unlike developing countries (Nayak et al., 2019b). The incorporation of technology into health insurance systems signifies a significant advancement, particularly in the context of promoting social inclusivity. According to Nayak et al. (2019a), technology plays a pivotal role; however, the integration process is not devoid of complexities.

In the case of developing countries, such as India, the emphasis on health insurance is paramount, especially when a significant portion of the population remains uncovered, and out-of-pocket health expenses pose a substantial burden. The authors note that developing countries grapple with inefficiencies in data management, which hinder effective decision-making in social health insurance. The study underscores the potential of a socially inclusive technology policy for health insurance firms, furthering the objective of enhancing social inclusion strategies through technology.

In another study, Li et al. (2020) observed that China's Medical Insurance Information Systems (MIISs) have evolved significantly since their establishment in 1998. These systems have progressed through various phases to adapt to the changing technological, operational, and policy landscape. They have transitioned from standalone versions to internet-based platforms and have embraced big data technologies. The authors acknowledge that this journey has encountered challenges such as repeated investments, isolated data systems, and inconsistencies in insurance participation. However, from 2010 to 2017, there has been a notable shift in focus towards network interconnection, data centralisation, and enhanced data application. China's experience underscores the importance of adaptability and forward-thinking in developing health insurance information systems. It highlights the significance of strategic planning, consistent evaluation, and phased implementation. China's experience exemplifies the potential benefits of a well-structured, technology-driven health insurance information system. It underscores the necessity for ongoing refinement and innovation to cater to the population's evolving needs.

In recent years, several countries in sub-Saharan Africa, such as Nigeria (Okuzu et al., 2022), Ethiopia (Entele & Vincent Emodi, 2016; Mulat et al., 2022), South Africa (Wilkinson et al., 2022), and Kenya (Mbugua et al., 2021), among others, have been exploring the importance of information technologies (Hollingworth et al., 2021) to enhance the management of health insurance. For instance, Okuzu et al. (2022) examined Nigeria's legal framework for health insurance and assessed the influence of technology on enrolment in health insurance programs. Their findings indicate that digital insurance management systems can significantly increase enrolment among low-income households. However, the successful adoption of these digital insurance systems relies on three critical factors: a supportive policy environment, effective public-private partnerships, and consistent stakeholder engagement and training.

Table 2.1 Country Comparative Insights

Country	Country Insights from Literature
Nigeria	Digital insurance management systems significantly increased enrolment among low-income households. Success relies on supportive policy, public-private partnerships, and stakeholder engagement (Okuzu et al., 2022).
Ethiopia	Health insurance faces inefficiencies in data management, hindering decision-making in social health insurance. Emphasises the need for socially inclusive technology policy (Entele & Vincent Emodi, 2016; Mulat et al., 2022).
South Africa	Exploration of the importance of information technologies to enhance health insurance management (Wilkinson et al., 2022).
Kenya	The study explored the influence of technology on health insurance enrolment. Digital tools improved enrolment and management processes (Mbugua et al., 2021).
India	Focus on out-of-pocket health expenses and the role of technology in improving access to health insurance for underserved populations (Nayak et al., 2019b).
China	Medical Insurance Information Systems have evolved significantly since 1998, moving towards network interconnection, data centralisation, and the use of big data (Li et al., 2020).

Table 2.1 presents a summary of insights from various countries regarding the adoption and impact of digital health insurance management systems. The table highlights key findings from literature

across six countries—Nigeria, Ethiopia, South Africa, Kenya, India, and China- on how digital technology has influenced health insurance enrollment, data management, and service delivery.

2.7 Information Systems and Health Insurance

This review section delves into the literature concerning information systems and health insurance. Although “information system” and “information technology” are often used interchangeably, it is essential to clarify their usage within this thesis. The concept of information systems in the context of health insurance is introduced in this subsection. Subsequently, the study explores the various application areas of health insurance within information systems research.

There has been a substantial debate within the information systems research community concerning the underlying assumptions and the knowledge people hold regarding the concept of information technology (Orlikowski & Gash, 1994) and the IT artefact (Hron, 2021; Orlikowski, 1992; Orlikowski & Iacono, 2001; Rajão & Hayes, 2009). The notion of the IT artefact has received various descriptions, such as hardware and software technologies, sociotechnical systems involving human participants, and processes and methods (Alter, 2015). From this standpoint, the concept of the IT artefact has evolved beyond merely being an entity composed of hardware and software. Over time, numerous authors have broadened the definition of an IT artefact to encompass more than just a tool installed on a desktop (Markus & Silver, 2008), incorporating more comprehensive and multifaceted conceptualisations (Lee et al., 2015).

For instance, Orlikowski and Iacono (2001, p. 131) propose five premises for theorising about IT artefacts:

1. “IT artefacts, by definition, are not natural, neutral, universal, or given.
2. IT artefacts are always embedded in a specific time, place, discourse, and community.
3. IT artefacts usually consist of multiple, often fragile, and fragmentary components whose interconnections are often partial and provisional, requiring bridging, integration, and articulation to function together.
4. IT artefacts are neither fixed nor independent but emerge from ongoing social and economic practices.
5. IT artefacts are not static or unchanging but dynamic.”

Since then, there have been numerous conceptualisations and reconceptualisations, such as IT artefacts and IS artefacts (Lee et al., 2013, 2015), digital artefacts (Hron, 2021), and agentic IS artefacts (Baird & Maruping, 2021). While these debates have been valuable for advancing information system research, it has been observed that they have led to expressions of inconsistencies in what the IT artefact represents, particularly within information system research (Alter, 2015).

The definition of the IT artefact has undergone several iterations over the years. It has evolved from March and Smith’s (1995) description of the IT artefact as an instantiation of a complex organisation of hardware and software to being recognised as a collection of material and cultural elements resulting from ongoing socioeconomic actions (Orlikowski & Iacono, 2001) and assemblages of sociotechnical systems (Silver & Markus, 2013). This latter perspective was further expanded upon by Lee et al. (2015), who noted that IT artefacts encompass a combination

of ‘information artefacts’ and ‘technology artefacts’ interacting with a ‘social artefact’ to generate an ‘IS artefact.’

More recently, in line with the rich history of sociotechnical thinking that has shaped the field of information systems, there has been a call for a central artefact to encapsulate information system research. Chatterjee et al. (2021) argue that this central artefact should comprise social, technical, and information elements, collectively constituting the ‘information system’. To address the inconsistencies Alter (2015) highlighted, this study aligns with the abovementioned perspective and adopts the sociotechnical conceptualisation. It acknowledges that studying the contextual application of technology within social subsystems and organisations is fundamental to the discipline of information systems (Demetis & Lee, 2018). Therefore, from an Information Systems perspective, the information technology artefact offers an intriguing dimension for discussing information systems in the context of the digital transformation of health insurance.

Information systems have been conceptualised as complex ‘tools’ that mediate individuals’ activities and profoundly impact the subject and the object of those activities (Schwalb et al., 2019). Many critical societal issues, including healthcare, rely increasingly on information systems. In practice, information systems are evolving unprecedentedly, and their influence is expanding significantly (Burton-Jones et al., 2021). While the discipline has long been concerned with the development of information systems and how individuals, groups, organisations, and society interact with new technology (Sidorova et al., 2008), these activities have undergone substantial transformations over time, which are expected to continue.

In the 1990s, the global healthcare community became intrigued by the internet's potential to offer virtually universal access and up-to-date information (Ambinder, 2005). Over the past decade, substantial changes have occurred in the nature and types of digital technologies implemented and adopted within healthcare (Waterson, 2014), resulting in reforms that have enhanced service delivery (Abdul & Wang, 2019). Governments and organisations have harnessed these changes to provide digitised services to reduce costs and promote efficient and timely service delivery.

Information systems use in health insurance has been explored through various conceptualisations, such as health insurance technology (Entele & Vincent Emodi, 2016), e-health insurance (Zahid et al., 2019) and digital health insurance (Kostikidis et al., 2020). Collectively, these concepts encompass a wide array of technologies and applications expected to enable more efficient automation, improved decision-making, stronger connections with clients and external stakeholders, and enhanced data-driven innovations. Combined with business process redesign, this enables a transformative shift in organisations' operations (Zahid et al., 2019).

Furthermore, as intermediaries, health insurance organisations play a pivotal role in the healthcare sector. However, it has been observed that, in comparison to other industries, health insurance has been slower in adopting information and communication technologies. Notably, health insurance has been reported as a slow adopter of digital innovations (Zahid et al., 2019). Due to the consumerisation of health insurance and the imperative to provide healthcare access to a broader population (Kagermann, 2015; Kostikidis et al., 2020), most payers are just beginning to embrace customer-centric thinking and leverage digital technologies. Consequently, the literature on health insurance digitalisation has addressed technology adoption for insured citizens to access healthcare

(Bahadori et al., 2018; Hall et al., 2017; Kostikidis et al., 2020; Obadha et al., 2020) along with the associated challenges, failures, and issues related to accessibility, delivery, and service quality (Grundstrom et al., 2018; Meessen, 2018; Rittweger et al., 2020).

Additionally, a substantial portion of the literature discusses the adoption of technology to automate internal processes (Dutt, 2020; Singh et al., 2021; Sowah et al., 2019; Tan et al., 2017) and addresses digital strategy and policy (Nayak et al., 2019a, 2019b). In light of the above, most research on health insurance has primarily focused on adoption and post-adoption issues rather than delving into institutional and contextual factors influencing the process and outcomes.

2.8 Gaps Found in the Literature

The literature review shows that despite the undeniable potential of digital transformation, specifically for health insurance — a critical component in the healthcare continuum, research focused on the digital transformation of health insurance from an information systems perspective in developing countries remains conspicuously limited. This limitation can be observed across domains, perspectives, and relationships. Regarding the domain gap, with few exceptions (e.g., Grundstrom et al., 2018; Persson et al., 2018, 2019), information system research on digital transformation has been limited to the healthcare sector (Agarwal et al., 2013; Ghosh et al., 2018, 2023; Ologeanu-Taddei et al., 2023) failing to address other important sectors like health insurance, especially in developing countries.

In terms of perspectives, IS health insurance studies in Ghana have focused on technology adoption related to ICT (Mingle & Dzandu, 2013), biometrics (Owusu-Oware et al., 2018) and big data

analytics (Marfo et al., 2017). IS-based health insurance digital transformation studies have also emerged from the perspective of participatory design (Persson et al., 2018) and customer attitudes (Persson et al., 2019). These perspectives have explored the phenomenon in a limited manner, constrained by narrower conceptualisations of usage and adhere to the social agency view as they prioritise the role of human agency, specifically human perceptions and behaviours, in explaining the consequences of digital change. The significance of the material technology agency is often underestimated when viewing either the technology or the social aspect in isolation as the primary responsible actor. There is less emphasis on conceptualising the comprehensive and integrated interplay between technology and social factors in mediating health insurance outcomes. In other words, there is a dearth of research examining the simultaneous influence of health insurance digital transformation, institutional contexts, and outcomes within a single study, particularly in developing countries where digital transformation is in its nascent stages. With their unique socioeconomic challenges, regulatory landscapes, and technological infrastructures, developing countries provide a distinct backdrop against which the digital transformation journey unfolds. In order to have a comprehensive understanding of the institutional elements in developing countries, it is crucial to prioritise studies that specifically examine these elements and their influence on desired outcomes rather than relying solely on research undertaken in other contexts that may not fully capture the distinctive characteristics and outcomes of countries (Jho & Song, 2015). Conducting such studies would benefit developing countries since they would furnish primary data to researchers, policymakers, and practitioners, thus mitigating the need for repetitive investments (Collinson et al., 2021; Sahay et al., 2019).

Lastly, another limitation pertaining to relationships is the absence of studies examining public and private health insurance. Numerous publications exist on private health insurance outside the IS discipline (Cavazza et al., 2023; Mhazo et al., 2023), with few examining their relationship (Hou & Zhang, 2017; Sohn & Jung, 2016). Across the IS discipline, while research exists on private health insurance (Kühne et al., 2011; Marfo et al., 2017), the two are yet to be examined in the context of digital transformation and the intuitional dynamics in a single study. The existing gaps within the literature limit the thorough understanding of the phenomenon pertaining to the digital transformation of health insurance services. This study addresses the limitations outlined in the Introduction Chapter, specifically the research problem (Section 1.2) and research questions (Section 1.3).

2.9 Chapter Summary

This chapter reviewed the literature on digital transformation in the health insurance sector, setting a foundation for understanding its importance and application. It began by contextualising digital transformation, exploring the evolution of “digital” and its revolutionary impact on various individual, organisational, and societal levels. The chapter emphasised digital transformation’s complex, multifaceted nature, covering strategy, people, organisation, customer focus, ecosystem, technology, and innovation. It challenges traditional views, stressing the need for continuous adaptation and highlighting the dynamic interplay of these dimensions in achieving successful digital outcomes. Focusing on the health insurance sector, particularly in developing countries, the review explored digital transformation, its challenges, and opportunities for promoting social inclusion and improving system accessibility and efficiency. It identifies a significant gap in research, especially regarding health insurance information systems (HIIS) in these regions. It calls

for a more in-depth exploration of the nuances of digital transformation in health insurance, taking into account unique socioeconomic contexts. In conclusion, the chapter sets the stage for further insights into enhancing the health insurance sector through digital transformation, particularly addressing the understudied areas in developing countries.



CHAPTER THREE

THEORETICAL FOUNDATION

3.1 Chapter Overview

The previous chapter provided an overview of the literature on digital transformation and health insurance. This chapter delves into institutional theory, serving as the theoretical foundation for this study. Building on the insights from the previous chapter, this chapter uses this theory as a framework to better understand the phenomenon of digital transformation in health insurance. This encompasses the macro-level context, the organisational field perspective and its impacts, as well as the digital technology requirements of organisations. The chapter then explores the historical context of institutional theory, highlighting its diverse views and standpoints. It also examines the application of institutional theory in information systems research and addresses its criticisms and gaps. The chapter concludes with a summary.

3.2 Institutional Theory

Institutional theory offers a detailed and informative lens to understand how and why organisations are influenced by their technology choices and practices. It delves into the more profound and enduring facets of institutions' creation, maintenance, change, and dissolution (Jensen et al., 2009). This has seen its rise as a theory of choice in the social sciences. Scott (2014) posits that institutional theory presents a promising and productive lens for viewing organisations and other facets of modern life. Since its resurgence in the 1970s, the theory has not merely grown; it has thrived, establishing itself as the primary framework guiding management and organisational

studies. An institutional approach, more than other theoretical perspectives, offers guidance and support for researchers, facilitating their endeavours to:

- Connect past and present processes and events,
- Bridge the gaps between social science disciplines and their various subfields,
- Integrate micro and macro approaches to understanding social structure and process.

Institutional theory has attracted the interest of sociologists, economists, and political scientists who study society's diverse institutional domains. Some researchers have also examined how individuals are both enabled and restricted by shared normative systems. However, Scott (2014) maintains that few have considered organisations as distinct institutional entities or have explored how overarching institutions influence groups of organisations. Consequently, despite evident continuity, evolution, and progress in the field, a primary limitation in earlier institutional studies is the insufficient focus on organisations (Scott, 2014).

Institutional theory posits that actors operate within an institutional framework of rules, norms, knowledge, and established discourses (Scott, 2014; Scott, 2005). While these institutional conditions are typically perpetuated through actions, they can also be altered or transformed intentionally or unintentionally. Such changes often arise from collaborative activities based on resource interdependencies or conflicts stemming from divergent interests, interpretations, and worldviews (Mignerat & Rivard, 2015). An institutional perspective on innovation is invaluable because it highlights the organisational and cultural conditions that can either impede or facilitate social and political actors' efforts to devise innovative solutions. The significance of institutional

theory within the information systems field has been acknowledged for a while. Scholars have employed an institutional lens to study information systems in developing countries (Bass et al., 2013; Noir & Walsham, 2007), indicating a keen interest in the interplay between ICTs and their encompassing institutional environments. Over time, institutional theory has seen two major evolutions: the old institutional theory and its successor, the neo-institutional theory.

3.3 Old Institutional Theory and Neo-Institutional Theory

Institutionalism has deep-seated theoretical foundations across economics, sociology and political science. Scholars from these fields have provided varied insights into how institutional forces influence human actions and the genesis of these institutional structures. Historically, institutional theory stands as one of the most significant sociological viewpoints within organisational theory. It has ascended to prominence as the “dominant theory of organisation-environment relations” (Kraatz & Zajac, 1996, p. 812). The progression of institutional theory can be segmented into two primary trajectories: old institutional theory and its successor, neo-institutional theory.

The old institutional theory originates in institutional economics (Rutherford, 2001). Contrary to the rational economic man concept, this theory posits that economic activities are not solely the result of rational decision-making but are shaped by the surrounding social environment (Hodgson, 1998; Spithoven, 2019). Consequently, one could argue that specific historical and social contexts influence health insurance’s digital transformation activities. This theory places significant emphasis on legitimacy, the entrenchment of organisational fields, and the centralisation of elements such as “classification, routines, scripts, and schema” (Greenwood & Hinings, 1996, p. 1023). Weber (1978), a pivotal figure in the evolution of institutional theory, distinguished

institutions from the organisations they affect. The old institutional theory elucidates how numerous external determinants mould organisational behaviour. Notably, the conduct of peer organisations in the same field, especially those viewed as market leaders or deemed more successful, exerts a significant influence (Scott, 1995).

Expanding upon the contributions of earlier scholars, DiMaggio and Powell (1983) refined the institutional theory. They posited that the impetus for organisational structural change is not predominantly rooted in competition or the pursuit of efficiency. Instead, they argued that “bureaucratisation and other forms of organisational change arise from processes that render organisations more alike, without necessarily enhancing their efficiency” (DiMaggio & Powell, 1983, p. 147). This viewpoint broadened the concept of institutional isomorphism, moving beyond just examining rationalised myths and ceremonies to consider how these myths and ceremonies are integrated into organisational structures (Ramanath, 2009). This evolved perspective, known as the new institutional theory or neo-institutionalism (Greenwood & Hinings, 1996), diverges from old institutionalism. It underscores the significance of systems of meaning, symbolic elements, regulatory processes, and governance systems (Scott & Meyer, 1994).

DiMaggio and Powell (1983) argued that the competitive marketplace, highlighted by predecessors such as Weber (1978), was no longer the primary environmental influence of organisational change. Instead, institutional conformity dominated, with organisations increasingly becoming “prisoners in a new “iron cage” of institutional isomorphism” (Kraatz & Zajac, 1996, p. 813). Neo-institutional theory suggests that institutionalised “rules, myths, meanings, and values, which are the normative expectations shared by members of a society or a

field”, underpin and shape the organisational environment in which they operate (Liao, 1996, p. 41).

Beliefs, ideas, and values are behaviours that organisations adopt from the broader institutional environment in order to survive (Greenwood & Hinings, 1996; Meyer & Scott, 1983). Conforming to institutional expectations is considered essential for organisations, even though such conformity might not directly correlate with achieving performance objectives (DiMaggio & Powell, 1983; Greenwood & Hinings, 1996; Scott, 1987). This is primarily because organisations strive to appear competent and pertinent, signalling their competitiveness. This, in turn, helps them secure legitimacy with their stakeholders. Neo-institutional theorists, such as DiMaggio and Powell (1983), termed this act of conformity as ‘isomorphism’, which describes a state of similarity across organisations, industries, and fields. This similarity arises from the overarching institutional pressures that prompt organisations to act and adapt similarly to attain legitimacy (Greenwood & Hinings, 1996). Legitimacy is a fundamental principle of institutional theory and explains why modern organisations are similar due to isomorphic practices (Deephouse, 1996). Institutional theory, hence, discerns organisational behaviour patterns as reactions to institutional and competitive pressures, establishing itself as a pivotal macro-analytic framework for understanding organisations. The newer strands of institutional theory emphasise cognitive dimensions of institutions, viewing culture as the conduit of institutions and exploring the legitimacy and embeddedness of organisational fields (McKinley & Mone, 2005). Collectively, they explain the broader influences impacting decisions to adopt digital technologies.

3.4 Institutions

This section explores the concept of institutions, their treatment, and the idea of an organisation as an institution that establishes a set of norms, principles, and templates for actions. The term institution has been interpreted in various ways, contingent on the academic field and the approach adopted to analyse institutional phenomena. Scott (1995) notes that no universally accepted definition of ‘institution’ exists. However, several definitions have been put forward. Giddens (1984) posits that institutions are, by definition, the more enduring features of social life, providing ‘solidity’ to social systems across time and space. Scott (2001) describes institutions as resilient social structures comprising cultural-cognitive, normative, and regulative elements. These structures bring order and stability to social life and offer guidance and resources for action alongside setting prohibitions and constraints on actions.

The term ‘institution’ has been broadly interpreted, varying with the academic discipline and the approach used to study institutional phenomena. This interpretation can differ markedly from the concept of an organisation (Scott, 2014). Scott delves into the definition of institutions as multidimensional, enduring social structures encompassing symbolic elements, social activities, and material resources. Institutions possess unique characteristics, and while relatively resistant to change, they evolve over time. They are often passed down across generations, maintained and reproduced (Dacin et al., 2002). From the literature, it can be inferred that, on the one hand, an institution can be seen as a group of organisations operating under a shared logic. On the other hand, an organisation can be perceived as an institution, as it establishes norms, principles, action templates, and logic that guide its internal actors in their roles and in representing the organisation.

In the societal context, institutions represent the socially and legally constructed entities that establish a contextual framework for interactions between service providers and users, for instance, in the health insurance sector. These institutions go beyond the individual agency. They encompass the formal laws, informal practices, and the entities that enforce them. This includes governmental and non-governmental bodies, private organisations, and community groups.

3.5 Concepts of Institutional Theory

Several concepts have evolved within institutional theory to aid in understanding the institutional perspective. Collectively, these concepts offer valuable insights into how institutions shape organisations and how they navigate and adapt to their institutional surroundings. Some of these concepts relevant to this study are discussed below.

3.5.1 Three Pillars of Institutions

Scott's (2014) analytical framework highlights three key elements that constitute institutions. While each element holds significance, there are instances where one might overshadow the others. However, in well-established institutional frameworks, these elements often operate in combination. Different interpretations of institutions necessitate varied perspectives on the nature of social reality and order. Similarly, these institutional elements correspond to diverse understandings of how actors make decisions, the degree of their rationality, and the interpretation of rationality itself. The three pillars are regulative, normative, and cultural-cognitive. Within information systems research, these pillars—regulative, normative, and cultural-cognitive—have been recognised individually and collectively as essential components of institutions (Baptista, 2009; Kam et al., 2020).

These elements confer stability and meaning by guiding behaviour through associated activities and resources while resisting change (Scott, 2014). Instead of existing as isolated elements, they span a spectrum from the conscious to the unconscious and from the legally enforced to the implicitly accepted (Hoffman, 2001). Consequently, while an organisation may remain stable over time, its associated institution can experience incremental or radical changes in its interactions and relevance within the social context. The three pillars of institutions are presented in Table 3.1. The three pillars that are recognised as making up or supporting institutions are contained in the columns. The rows outline principal dimensions along which different theories emphasise different elements.

Table 3.1 Three Pillars of Institutions (Scott, 2014)

Theory Element	Regulative	Normative	Cultural-Cognitive
<i>Basis of compliance</i>	Expedience	Social obligation	Taken-for-grantedness Shared understanding
<i>Basis of order</i>	Regulative rules	Binding expectations	Constitutive schema
<i>Mechanisms</i>	Coercive	Normative	Mimetic
<i>Logic</i>	Instrumentality	Appropriateness	Orthodoxy
<i>Indicators</i>	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action Isomorphism
<i>Affect</i>	Fear Guilt/ Innocence	Shame/Honor	Certainty/Confusion
<i>Basis of legitimacy</i>	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported

The regulatory pillar pertains to the ability to formulate rules, monitor adherence to them, and, when necessary, apply sanctions—either rewards or punishments—to influence subsequent behaviour (Scott, 2014). From this vantage point, institutions are established to constrain and standardise behaviour via rule-setting, oversight, and sanctioning activities. They aim to deliberately influence specific behaviours and reinforce particular practices (Greenwood et al., 2008). However, it is important to recognise that not all rules and regulations operate clearly and authoritatively. Some are so contentious or ambiguous that they fail to offer unambiguous guidelines for behaviour (Scott, 2014). As such, rules are better understood as tools for collective sensemaking and interpretation (Weick, 1995). When individuals “agree” on a rule, their consensus often pertains more to its existence than its specific stipulations or rationalised form. (Weick, 1995, p. 120). The emphasis is more on normative and cognitive elements rather than merely coercive ones for their influence (Suchman & Edelman, 1996). For instance, Suchman and Edelman argue that “laws can be ambiguous rather than clear-cut, disputed instead of authoritative, and more constitutive than merely coercive” (Suchman & Edelman, 1996, p. 930). Conversely, the normative and cognitive pillars offer greater flexibility, allowing for negotiation and adaptation. While institutions might initially be supported by one pillar, they may rely on different pillars over time and with changing contexts (Scott, 2014).

The normative pillar underscores normative rules that introduce a prescriptive, evaluative, and obligatory dimension to social life (Scott, 2014). Normative systems consist of both values and norms. Values represent the ideal or the desired, providing standards against which current structures or behaviours can be evaluated. In contrast, norms dictate how things should be done,

guiding actors on the expected behaviours to achieve valued outcomes. Normative systems set objectives and establish behavioural expectations for actors in comparable situations (Scott, 2014).

For instance, Kam et al. (2020) suggest that industries heavily reliant on digital technologies might have more robust normative information security practices, influencing their efforts to educate employees about security threats. Consequently, when organisations undergo digital transformation, there is an anticipated performance standard. This expected performance becomes part of a normative system, where any outcome short of success is perceived as a failure or inefficiency of those tasked with upholding stakeholders' expectations. While normative systems often constrain social behaviour, they facilitate and empower it. They bestow rights, responsibilities, privileges, duties, permissions, and obligations (Scott, 2014).

The Cultural-Cognitive Pillar emphasises those aspects of institutions that highlight the significance and influence of culture and cognition on organisational behaviour. This pillar addresses the collective conceptions that define “the nature of social reality and create the frames through which meaning is made” (Scott, 2014, p. 67). The cognitive dimension has attracted increasing interest (Lehmann et al., 2019; Teo et al., 2020). It acts as a mediator between the external world of stimuli and the individual's internalised symbolic representations of that world.

During an interaction, several processes occur: meaning is generated, sustained, and eventually transformed as individuals strive to interpret the continuous flow of events. An action can be understood or explained by considering the objective conditions and the individual's subjective interpretations of those conditions (Scott, 2014). This perspective is particularly relevant in the

modern endeavour to explain institutions from the neo-institutionalism viewpoint within organisational studies.

Regarding the cognitive dimension of organisational responses to external stimuli, previous research indicates that cognitive frames evolve into various information-processing activities. These range from the emphasis placed on different pieces of information, the methods of encoding, retention, retrieval, and memory organisation, to how meanings are ascribed. These processes subsequently influence predictions, judgements, evaluations, and inferences (Fiol, 2017; Meindl et al., 1994).

From a cultural perspective, emphasis is placed on semiotic dimensions, perceived as subjective beliefs and symbolic systems. These symbolic systems are considered objective and external to individual actors (Scott, 2014). The cognitive-cultural perspective underscores how external cultural frameworks shape internal interpretive processes. Drawing from Hofstede et al. (2010, p. 5) graphic metaphor, culture provides patterns of thinking, feeling, and acting: mental programs, or the “software of the mind.” The authors contend that the perceived dominance of technology over culture is misleading. While the software running on machines might be globalised, the mental frameworks of those operating them remain distinct. Technology can assume the attributes of an institution (structure), with the regulative, normative, and cultural-cognitive pillars being relevant to this institutional entity (Cadili & Whitley, 2005; Svejvig, 2009). The three institutional elements have been outlined, with their unique characteristics and operational modes highlighted. It is crucial to re-emphasise that it is not just one active element in most empirically observed institutional forms. Instead, these elements often function in various combinations.

3.5.2 Organisational Fields

The term organisational field has evolved from earlier concepts such as the institutional sphere, societal sector, and institutional environment. It is now described as the “constellation of actors that comprise this central organising unit” (Wooten & Hoffman, 2008, p. 131). Scott (1995) defines the organisational field as a community of organisations with a common meaning system. Participants in this community interact more frequently with one another than with actors outside their field. Subsequent interpretations have refined this idea, portraying the organisational field as the link between society and organisations rather than focusing on the individual organisation as a standalone unit (Fogarty, 1996). Thus, the organisational field can be understood as the extensive network of relationships in which an organisation is embedded. These relationships, in turn, influence the ongoing interactions and actions of the organisation (Warren, 1967).

While the old institutional theory gave less emphasis to the organisational field, within neo-institutional theory, it is a central and dynamic construct crucial for understanding how organisations develop solutions to twenty-first-century problems (Wooten & Hoffman, 2008). A primary perspective of neo-institutional theory focuses on individual organisations as components within a network or field of organisations. From this viewpoint, the institutional environment consists of “vertically and horizontally interlocking organisations”, where institutional elements pertain to “all of the relevant classes of organisations” within a specific field (Greenwood & Hinings, 1996, p. 1027). Existing research highlighted how organisations exhibited similarity over time within a field, perceived as largely static in its configuration, centred around common technologies, industries, or distinct network ties (Wooten & Hoffman, 2008). This viewpoint faced criticism for its excessively static nature, leading to a shift from notions of stability and inertia at

the field level to acknowledging the role of change within the field. This adjustment recognised that organisations, driven by a mix of self-interest and agency, eventually reacted to institutional elements, resulting in changes within the field (Oliver, 1991; Tolbert & Zucker, 1983; Wooten & Hoffman, 2008).

These emerging perspectives recognised that change is persistent, even within highly stable institutional contexts. They broadened the definition of the field from merely categorising common markets or agendas to one that includes issues vital to the interests and objectives of organisations (Wooten & Hoffman, 2008). Put differently, institutional fields represent the intricate, dynamic relationship between an organisation and all its external stakeholders, which are constantly evolving. The swift adoption and integration of digital technologies in organisational settings have been a primary catalyst for organisational change in recent decades, leading to a more expansive understanding of the field. This is attributed to the significant influence digital technologies exert on institutions. Today, they are an indispensable part of organisational routines, roles, strategies, rituals, and processes across various types of organisations.

3.5.3 Institutionalisation

Over the past decade, a significant portion of research and theory has focused on understanding how existing institutions influence the operation and structure of organisations, their origins, their attainment of stability, and, more recently, their evolution (Karim et al., 2020; Lintula & Tuunanen, 2020; Mola et al., 2022; Sahay et al., 2019). As Scott (2014) articulates, “Institutions do not emerge in a vacuum; they always challenge, borrow from, and to varying extents, displace preceding institutions” (Scott, 2014, p. 114). This study examines the ongoing changes associated

with digital transformation in a public and private health insurance context as instances of institutional change. Developing and implementing new digital artefacts represent organisational change, especially in second-order changes where goals and roles undergo realignment.

When a new institutional practice becomes firmly established, it is described as being institutionalised, signifying that institutionalisation has occurred (Jepperson, 1991). Institutional factors and the process of institutionalisation are two prominent aspects of institutional theory in the literature on organisational studies (Mignerat & Rivard, 2015). Collectively, they represent the stable and dynamic views of institutions. The factor approach considers regulative, normative, and cultural institutions as mechanisms of action within organisations and their surroundings (Scott, 2001). Conversely, institutionalisation aims to elucidate how institutions emerge, stabilise, evolve, and eventually decline (Mignerat & Rivard, 2015). Institutionalisation is how individuals within organisations become familiar with and adapt to an institution's rules, norms, and meanings (Tolbert & Zucker, 1983). Deinstitutionalisation, conversely, represents the decline or erosion of institutions along with their associated norms, rules, and meanings (Dacin & Dacin, 2008; Oliver, 1992). Institutionalisation encompasses two sub-processes: deinstitutionalisation and reinstitutionalisation. Firstly, deinstitutionalisation pertains to the discontinuation of established institutions due to recognised shortcomings (Kwiek, 2012). Secondly, reinstitutionalisation involves the introduction of a new institutional order, distinct from its predecessor, with fresh arrangements (Currie & Swanson, 2009; Scott, 2014).

From an institutional viewpoint, digital technologies are not merely a collection of material features operating based on the functional rules programmed into them. Instead, they are seen as

products of embeddedness in social institutions (Avgerou, 2002). In this light, digital technologies are perceived as institutions in their own right, interacting with other institutions in modern society. They are emergent, evolving, and deeply embedded (Orlikowski & Barley, 2001; Sawyer & Jarrahi, 2014). Institutional analysis assists researchers in understanding how institutions shape the design, utilisation, and outcomes of technologies within or among organisations. In recent years, studies have embraced an institutionalist viewpoint to explore digital innovation and transformation (Dang & Pekkola, 2020; Schrieck et al., 2022).

3.6 Institutional Theory Use in Information Systems Research

Institutional theory offers a comprehensive and insightful lens to understand how and why organisations are influenced by their digital technology adoption practices. As the field of information systems matures, there is a growing call for its research to expand and deepen its philosophical underpinnings, especially as it delves into sociotechnical approaches to information Systems as both social and organisational research (Fischer & Baskerville, 2022; Lumor et al., 2021; Svensson & Hult, 2022). This becomes increasingly pertinent as we aim to analyse and understand how different institutional mechanisms play a role in institutionalising technological solutions within specific settings and contexts (Mekonnen & Wubishet, 2016).

Recent challenges urge us to look beyond technological advancements and consider the broader institutional and societal contexts of our digital technology-driven interventions (Barrett et al., 2015; Negash et al., 2018; Ryu & Lee, 2018). One reason for this shift is the mounting challenge of discerning whether the focus of IS research is technological, social, organisational, or centred on the social system under scrutiny (Garcia-Lorenzo & Quek, 1997). IS research aims to enhance

the efficacy of the design, implementation, and use of information systems in organisations while evaluating their outcomes and implications for individuals, organisations, and society (Baskerville & Wood-Harper, 1996).

It is essential to consider the evolving environment within organisations, including their dynamic and symbolic attributes (Garcia-Lorenzo & Quek, 1997). As Zuboff (1996) notes, information systems symbolically represent processes, objects, behaviours, and events, enabling them to be perceived, understood, and shared in novel ways. Therefore, undertaking IS research within a social environment, such as an organisation, means grappling with intricate and fluid challenges, often laden with paradoxes and contradictions. This inherent complexity leads to issues that resist simplistic, reductionist solutions (Garcia & Quek, 1997). Furthermore, a narrow view of the user in social contexts hinders our understanding of information selection, manipulation, communication, and exchange within intricate social settings (Lamb & Kling, 2003).

In information system studies, institutional theory has been used to examine and understand various institutional elements' impact on innovation (Jewer et al., 2022; Schreieck et al., 2022; Vassilakopoulou & Marmaras, 2013) adoption (Sherer et al., 2016; Venkatraman et al., 2022) and transformation (Hinings et al., 2018; Omar & Elhaddadeh, 2016). As innovations in information systems become increasingly linked with management trends, information systems studies stand to benefit from an institutional approach to digital technology. Researchers seek to understand why certain digital technologies are embraced in the workplace while others are not. In this context, institutional theory delves into how technology choices are influenced by societal expectations, institutionally structured arrangements, and the interests of networks and actors as end users

(Powell & DiMaggio, 1991). Several studies have integrated institutional theory perspectives for examining information system research.

Mekonnen and Wubishet (2016) investigated the institutional influences on adopting free and open-source software (FOSS) within two healthcare organisations in the public sectors of Ethiopia and India. Their research aimed to understand the role of different institutional mechanisms in institutionalising and deinstitutionalising FOSS. The results revealed that regulative and normative institutions are pivotal in adopting free, open-source software in public sectors. This study underscores the value of the institutional perspective in helping researchers delve into and understand the macro-level regulative, normative, and cultural-cognitive institutions, such as policy, the educational system, and stakeholders' perceptions, across various contexts to facilitate the change process. Similarly, it enhances the understanding of micro-level shifts towards deinstitutionalising specific institutional facets of a particular technology.

In a detailed exploration of institutional change, Rajão and Hayes (2009) delve into the role of information technology artefacts in institutionalisation and deinstitutionalisation. They argue that institutionalisation must be viewed as a process rooted in history and fraught with contention. The authors analyse the intricate ways in which information technology artefacts both influence and are influenced by institutional settings. Drawing from a study that spans 44 years, focusing on using the Amazon rainforest monitoring system (comprising satellite-based geographic information systems), they demonstrate that the diverse configurations and applications of information technology artefacts can be understood by examining the shifting dominance of different institutional values over time. Rajão and Hayes contend that the interplay between

information technology artefacts and institutions is best described as conflict-ridden, evolving, and dialectical. They further suggest that the literature on institutional theory should more adequately address the emergent and contentious practices that both shape and are shaped by information technology.

Several other studies have explored the application of institutional theory in information system research. Effah and Nuhu (2017) investigated the challenges of digitising government budgets in a developing country. Their findings revealed that outdated laws and a persistent culture of paper document workflows acted as institutional barriers to the digitalisation of budgeting. Owusu-Oware et al. (2017) aimed to understand how institutions influence the implementation of national biometric identification. They found that a mix of local regulative and cognitive institutions and international normative institutions facilitated the implementation, whereas others posed constraints.

With the emergence of the COVID-19 pandemic, governments, health authorities, and other stakeholders turned to data analytics and digital technologies. While these tools were crucial in addressing the pandemic, they raised concerns about personal data usage and associated privacy challenges. To this end, Lee et al. (2022) utilised institutional theory to study the institutional effects on privacy disclosure. Other research in this area has tackled topics such as cognitive elements influencing IT outsourcing performance (Hsu et al., 2021), the integration of information privacy (Attili et al., 2022), the adoption of enterprise architecture (Dang, 2021), and the evolution of digital infrastructure (Alzadjali & Elbanna, 2020). Emphasising the significance of the institutional perspective, Hinings et al. (2018) proposed that it provides a fruitful lens for analysing

digital innovation and transformation. They identified three innovative institutional arrangements for digital transformation: digital organisational structures, digital institutional infrastructures, and foundational institutional elements.

From the above, it is evident that numerous studies have endeavoured to expand our understanding of institutional analysis within information systems. Under this umbrella, a number of organisational research studies have been and continue to be published. Many of these studies carry significant implications for organisational change, particularly in examining how agency is exerted within institutional frameworks (Lammers & Garcia, 2017). Institutional theory, especially new institutionalism, has developed a multitude of measurable concepts and empirically verifiable relationships to describe and explain organisational phenomena (Palmer et al., 2008). However, like any theory, institutional theory has not been exempt from critique. Some of these critiques will be addressed in the subsequent section.

3.7 Theoretical Perspective in Existing Health Insurance Research

Applications of theory in information systems (IS) studies frequently rely on conceptualising relationships between society and technology. A fundamental notion employed to understand this relationship is that of agency. In information systems, agency is defined as the capacity to take action (Niemimaa, 2016). This capacity can be attributed to social actors, technological entities, or both (Boell & Cecez-Kecmanovic, 2015). The social agency perspective highlights the influence of human actors, including organisations, groups, and institutional structures. This viewpoint tends to minimise the role of technology in explaining organisational effects and outcomes. Conversely, the technological agency approach concentrates on the impact of

technology on organisations, often overlooking the role of social entities. The sociotechnical agency perspective acknowledges the interplay between social and technological agencies, viewing them as collaborative forces that interact to produce emergent phenomena.

A review of the information system literature on health insurance shows that, with a few exceptions, there is a dominance of atheoretical studies. The theories that have been applied include dynamic capabilities (Teece et al., 1997), sociomateriality (Orlikowski & Scott, 2008) and the Delon & Mclean IS success model (Petter et al., 2012). In this study, digital transformation is defined as the process of utilising digital technologies to significantly enhance health insurance processes and services. This involves the integration of information, communication, and computing technologies with the aim of increasing accessibility, efficiency, and effectiveness across the entire health insurance system. It also considers the sociotechnical interactions within the organisational and institutional environment, as well as the complex interplay between technological adoption, organisational change, and stakeholder engagement. This study, therefore, addresses the limitation of current theoretical applications in the study of health insurance by employing institutional theory.

3.8 Criticism and Gaps in Institutional Theory

While institutional theory offers a valuable perspective for analysis, it comes with limitations and critiques. The theory has gained recognition for its prowess in elucidating individual and organisational behaviours. However, despite its broadening scope, a primary critique is that institutional theory predominantly serves to account for the persistence and uniformity of phenomena. The emphasis in the literature has frequently been on the stability conferred by

institutions, with a relative dearth of studies exploring institutional change (Greenwood et al., 2002; Sahay & Sæbø, 2010). Dacin et al. (2002) argue that such a narrow focus fails to harness institutional theory's full depth and breadth. It is essential to recognise that institutions are dynamic entities; they evolve, are not universally accepted, exert specific effects, and are often subject to challenges and intense debates.

Institutional theory has found its way into many facets of existing IS literature. A predominant portion of this literature focuses on understanding the role of isomorphic institutional mechanisms at the macro level, which confer legitimacy to organisational structures through IT/IS adoption, development, and utilisation (Pishdad et al., 2014). However, the influences of micro-level activities and the intricate relationship between macro and micro activities, which are critical to the success and efficiency of the institutionalisation process, have often been sidelined. As a result, IS research has faced criticism for not sufficiently highlighting the interaction between micro and macro institutional dynamics.

While there has been considerable effort dedicated to exploring institutional theory and the institutionalisation process at the macro level (e.g., Mignerat & Rivard, 2015; Zheng et al., 2013), the micro processes—specifically, the mutual transformation between technology and its respective hosting organisation has been somewhat neglected (Friedland, 2012). Friedland and Robert (1991) advocate for a more encompassing meta-theory of institutions that integrates individuals and organisations rather than merely focusing on a theory of environmental impacts on organisations. They assert that contextualising individual or organisational behaviour within its societal setting is imperative to truly grasp it. Institutional theory and the institutionalisation

approach can inspire and shape research questions at both the micro and macro analytical levels. By embracing this comprehensive approach, not only can we address the critiques raised by institutional theory scholars, but we can also introduce fresh theoretical and methodological insights to the study of institutions in the contexts of IS adoption, implementation, utilisation, acceptance, and routinisation (Pishdad et al., 2014). In summation, two main points emerge from the discussion on institutional theory and its application in the IS field:

First, despite institutional theory's expansive purview, spanning from the macro (environmental) to the micro (organisational and interpersonal) levels of analysis, it predominantly remains rooted in the macro realm (Pishdad et al., 2014). This means that while there is a burgeoning interest within the IS domain regarding the processes of institutionalisation, the predominant focus leans towards institutional dimensions at the macro scale.

Secondly, the prevailing emphasis on meeting legitimacy requirements, rather than championing efficiency and tangible value for organisations and their operational processes, may impede organisations from fully reaping the potential benefits of their digital innovations. Instead of being driven by these innovations' genuine value, many adoptions are merely reactionary, prompted by compliance with policies, resource dependency necessities, and prevailing industry trends (Greenwood et al., 2010).

3.9 Choice of and Application of Institutional Theory in this Thesis

Institutional theory has been proposed within the domain of information systems to probe and understand how institutions shape the design, application, and outcomes of digital technologies,

be it within a single organisation or spanning multiple entities (Mukerji & Roy, 2019; Orlikowski & Barley, 2001). The selection of a theoretical framework for a study, especially within interpretive research, is inherently subjective (Walsham, 2006). The initial rationale stems from the researcher's conviction that institutional theory is the optimal lens through which to view digital transformation in the selected context. This is due primarily to the multifaceted and multi-layered nature of the phenomenon under investigation.

One of the primary reasons for favouring institutional theory over other action-based theories is its inherent capacity to incorporate context into the analysis (Baptista, 2009; Currie & Swanson, 2009; Salo et al., 2020; Walsham, 2017). Furthermore, the field of information systems has traditionally been skewed towards a more technical orientation when it comes to managing such systems. This often results in a simplistic, linear perspective of the cause-and-effect dynamics of technology adoption (Williams & Edge, 1996). This approach overlooks the broader institutional elements that influence the conceptualisation and application of technological systems (Orlikowski & Barley, 2001).

The process of institutionalisation, defined as how institutions evolve and become ingrained as organisation-wide information systems (Lyytinen et al., 2009), has not been adequately explored (Currie, 2009; Phillips et al., 2004; Seo & Creed, 2002). As pointed out by Phillips et al. (2004), this has concentrated institutional research predominantly on the outcomes rather than delving into the intricate processes of institutionalisation itself. As a result, this area of study largely remains an enigmatic "black box". This uncharted combination has yet to be explored in the context of the

given research. While numerous studies have been conducted at the organisational level of analysis, the broader field level remains largely untouched (Mignerat & Rivard, 2009).

Only recently have IS researchers started to delve into the organisational behavioural elements (from a social perspective) linked to IT adoption, implementation, and design. This shift has illuminated the cognitive and political intricacies inherent in organisational dynamics within the information system discourse (Orlikowski & Barley, 2001). Even then, only a small number of researchers (e.g., Barrett & Walsham, 1999; King et al., 1994) have enquired about how institutional environments have impacted the use of technology, both within and across organisations, notwithstanding being shaped by cultural forces just as much as technical ones. Scholars have turned to institutional theory to further enrich information system research, seeking concepts capable of capturing the intricate processes of developing, implementing, and integrating digital technologies and understanding their deployment within social contexts (Lamb & Kling, 2003).

In the current study, the constructs of institutional pillars (Scott, 2014) are coupled with the concept of institutionalisation. This combined framework serves as an analytical tool to interpret the diverse institutions influencing digital transformation within a health insurance context. It is posited that the synergistic value of these two concepts offers a crucial theoretical lens, facilitating a richer understanding of the origins of digital transformation and its evolution over time (Nielsen et al., 2014; Orlikowski & Barley, 2001). Tables 3.2 and 3.3 provide a summary of the institutional pillar and institutionalisation process contracts and their application in the current study.

Table 3.2 Summary of Institutional Pillars Constructs (Scott, 2014)

Institutional Pillar	Description	Application to Digital Transformation in Healthcare Insurance
Regulative Pillar	Refers to formal rules, laws, regulations, and policies that enforce behaviour through compliance mechanisms.	Focuses on how regulations, policies, and health insurance laws impact the adoption and implementation of digital technologies in healthcare systems.
Normative Pillar	Involves norms, values, and expectations that prescribe how members of an institution should behave.	Examines how norms, standards, and values within healthcare insurance institutions guide the digital transformation process.
Cultural-Cognitive Pillar	Represents shared beliefs, assumptions, and cultural understandings that shape perceptions and behaviours.	Explores how shared beliefs and societal expectations in healthcare (e.g., patient trust in digital systems) influence the adoption and acceptance of digital solutions.

Table 3.3 Summary of Institutionalisation Process Constructs (Scott, 2014)

Institutionalisation Process	Description	Application to Digital Transformation in Healthcare Insurance
Deinstitutionalisation	The process by which established practices, norms, or institutions lose their significance.	Applied in health insurance by moving away from manual, paper-based processes to digital systems.
Reinstitutionalisation	The introduction and solidification of new structures or norms replacing old institutions.	Refers to the establishment of digital systems for operational efficiency in health insurance.

3.10 Summary and Conclusion

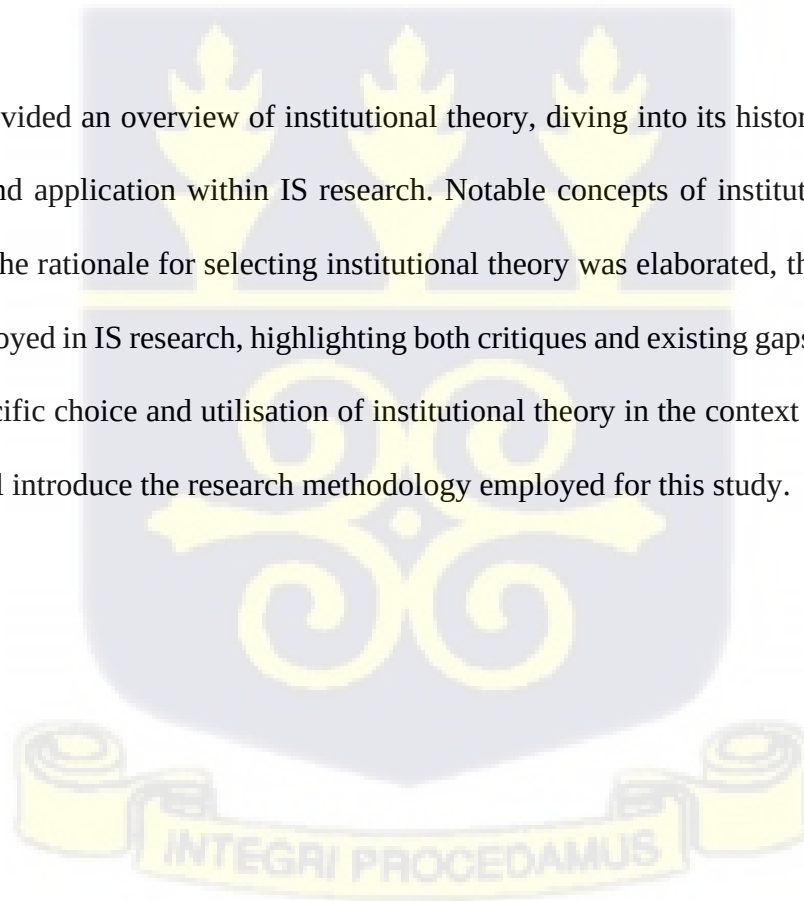
In utilising institutional theory, this thesis considers the self-reflexive analysis of theory adaptation, considering the four guidelines for theory selection proposed by Truex et al. (2006). These guidelines are:

1. Evaluating the alignment between the chosen theory and the phenomenon under study,

2. Understanding the historical context of the theory,
3. Examining how the theory influences the selection of research methodology and
4. Assessing the value of the theorising process in contributing to the cumulative body of theory.

While emerging research is beginning to shed light on digital transformation and the potential barriers to its success, there remains a noticeable gap in studies that provide theory-driven explanations of digital transformation, especially in contexts where it has been successfully reinstitutionalised or deinstitutionalised.

This chapter provided an overview of institutional theory, diving into its historical development, key concepts, and application within IS research. Notable concepts of institutional theory were touched upon. The rationale for selecting institutional theory was elaborated, then exploring how it has been employed in IS research, highlighting both critiques and existing gaps. The chapter also detailed the specific choice and utilisation of institutional theory in the context of this thesis. The next chapter will introduce the research methodology employed for this study.



CHAPTER FOUR

RESEARCH PARADIGM AND METHODOLOGY

4.1 Chapter Overview

The previous chapter introduced institutional theory as the theoretical foundation for this research. This chapter outlines the research methodology and the interpretive case study approach that supports the study. The study aims to encompass a broad scope by gathering empirical data, facilitating an inductive understanding of digital transformation within the organisational domain of health insurance. Subsequent sections explore research paradigms and methodologies. The section on research methodology expands on the reasons for selecting an interpretive case study for this research. The following sections detail the fieldwork, case selection, and data analysis, explaining how the researcher accessed the field sites and the data collection and analysis methods. Later sections discuss the criteria for evaluating interpretive research and the ethical considerations that informed this study. The concluding section offers a summary and conclusion.

4.2 Research Paradigms

In this section, the leading research paradigms in the domain of information systems research are discussed. Various investigative or inquiry models underpin research in academia, whether inferred or explicitly stated by the researcher (Myers, 2013). Chalmers (1999) characterises a paradigm as comprising “the general theoretical assumptions and laws, and techniques for their application that the members of a specific scientific community adopt” (p. 108). Chalmers identifies five components of a paradigm:

- Explicitly articulated laws and theoretical assumptions.
- Standard methods of applying these fundamental laws across different situations.
- Instrumentation and techniques that apply the paradigm's laws to the real world.
- Broad metaphysical principles guiding work within the paradigm.
- Methodological guidelines on conducting work within the paradigm

A paradigm can be understood as a belief system, worldview, or framework guiding research and practice in an academic discipline. One common classification of research is the distinction between quantitative and qualitative methods. However, a more insightful classification considers the underlying philosophical assumptions steering the research. As Myers (2013) observed, regardless of being quantitative or qualitative, all research is grounded in certain philosophical assumptions about what is considered 'valid' research and which methodologies are deemed suitable. Thus, when conducting or assessing research, understanding these assumptions is crucial (Myers, 1997b). Articulating philosophical assumptions most relevant to a given study aligns with the research's epistemology. Derived from the Greek word 'episteme', meaning knowledge, epistemology concerns assumptions about knowledge and its acquisition (Hirschheim, 1992). Typically, a paradigm encompasses assumptions about knowledge, its acquisition, and the nature of the physical and social world (Hirschheim & Klein, 1989).

Epistemology can be defined as the theory of knowledge, encompassing its methods, validity, and scope. Curious minds intending on a research journey should understand the basis of their knowledge, especially concerning the validity and scope of the knowledge they obtain. Additionally, recognising the boundaries of this knowledge is crucial. Guba and Lincoln (1994) argue that a research paradigm embodies the core assumptions shaping researchers' worldviews,

influencing their ontological, epistemological, and methodological stances. Ontology delves into the nature of reality and what can be studied. Willcocks and Mingers (2004) echo this sentiment, defining ontology as foundational beliefs about ‘what is real’ that merits investigation. Depending on the selected paradigm, the ontology of a subject under study can be perceived as either external and independent of human interpretation or as a construct shaped by human understanding (Walsham, 1995a). Epistemology, conversely, examines the nature of the knowledge obtained about the reality being studied. Knowledge can be seen as objective if facts and knowledge are considered value-free or subjective when considered socially constructed (Walsham, 1995a). Conversely, methodology pertains to the specific procedures employed in empirical and logical research, detailing how one seeks knowledge about reality (Orlikowski & Baroudi, 1991; Walsham, 1995a).

Rooted in ontological, epistemological, and methodological assumptions, paradigms embody a worldview. They delineate the nature of the world for the individual, determine one’s position within it, specify the potential relationships one can have with the world and its components, and demarcate the boundaries of legitimate enquiry (Guba & Lincoln, 1994). Consequently, paradigms differ across research communities (Kuhn, 2012). To differentiate between various paradigms, Guba and Lincoln (1994) argue that the core beliefs underpinning inquiry paradigms can be distilled based on researchers’ answers to three pivotal questions. These triads of questions centred on ontology, epistemology, and methodology serve as distinguishing markers for research paradigms. Table 4.1 provides a summary of these paradigmatic questions.

Table 4-1: Guba and Lincoln's Three Paradigmatic Questions

Adapted from Guba and Lincoln (1994, p. 108).

Ontological question	What is the form and nature of reality, and consequently, what can be understood about it? For instance, if a “real” world is assumed, then what can be understood about it pertains to “how things truly are” and “how things function.” In this context, only questions related to “real” existence and “real” action are permissible. Questions concerning aesthetic or moral significance topics are not considered within the scope of legitimate scientific inquiry.
Epistemological question	What is the nature of the relationship between the individual seeking knowledge and the subject of that knowledge? For instance, if one assumes a “real” reality, then the stance of the individual seeking knowledge must be one of objective detachment or impartiality to accurately understand “how things truly are” and “how things genuinely function.”
Methodological question	How should the inquirer (the individual seeking knowledge) approach understanding what they believe can be known? The methodological consideration extends beyond merely choosing methods; the chosen methods must align with a pre-established methodology.

Philosophical assumptions regarding the nature of reality play a pivotal role in understanding the overarching perspective from which a study is conceptualised and executed (Krauss & Putra, 2005). A paradigm signifies the foundational framework employed to structure a scientific investigation. It comprises a coherent set of assumptions, concepts, and propositions underpinned by a core belief system that directs the investigation (Guba & Lincoln, 1994). In information system research, three predominant inquiry paradigms emerge: positivist, interpretive, and critical (Orlikowski & Baroudi, 1991). The subsequent section delves into these three paradigms to

determine the most suitable one for this study. The trio of questions based on Guba and Lincoln's criteria act as the central points for analysing these paradigms.

4.2.1 Positivist Paradigm

The positivist paradigm aims to discover or test universal laws to explain, control, or predict natural or social phenomena. Myers (2013) views this paradigm as the prevalent research approach in most business and management disciplines. Originating from the scientific approach used in the physical and natural sciences, it has been characterised as the natural science model for social research (Lee, 1994). Researchers within this paradigm believe that reality is objectively established and can be characterised by measurable properties independent of the observer and their instruments. Studies rooted in positivism typically aim to test theories to enhance the predictive understanding of phenomena. In practice, it is believed that the units of analysis constituting reality can be objectively categorised into subjects and predicates (Myers, 2013). This leads to propositions that depict the subject matter in terms of independent variables, dependent variables, and their interrelationships. In the context of information systems, Orlikowski and Baroudi (1991) categorised IS research as positivist if it displays evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and extrapolating inferences about a phenomenon from a sample to a specified population.

The basic posture of the paradigm is argued to be both reductionist and deterministic (Hesse, 1980). Ontologically, whether physical or social, reality exists externally to human interpretations of it (Orlikowski & Baroudi, 1991). Knowledge about the “way things are” is typically encapsulated in timeless and context-independent generalisations, some of which manifest as

cause-effect laws (Guba & Lincoln, 1994). Consequently, the epistemological perspective posits that the investigator and the investigated “object” are distinct entities. The researcher can study the object without influencing or being influenced in return. Knowledge is acquired solely by gathering and analysing impartial facts (Flowers, 2009; Schwartz-Shea & Yanow, 2012). From a methodological standpoint, positivists employ scientific methods modelled after those in the natural sciences, using survey instruments to study social phenomena (Chen & Hirschheim, 2004).

While the positivist paradigm has proven effective in exploring natural phenomena, its application in studying the social world has faced considerable criticism (e.g., Guba & Lincoln, 1994; Orlikowski & Baroudi, 1991). Discontent with the pronounced emphasis on quantitative methods has spurred interest in alternative paradigms. It is widely acknowledged that the positivist approach may not be suitable for examining social reality, which is inherently subjective. Tsoukas (1989) contends that the challenges in creating a controlled environment for research in the social sciences result in primarily explanatory rather than predictive theories. In information systems, a similar viewpoint suggests that “only a limited number of factors can be examined under laboratory conditions, and replicating a ‘real world’ environment in such settings is challenging” (Galliers & Land, 1987, p. 900). In their analysis of the various philosophical approaches employed in IS research, Klein and Lyytinen (1985) assert that IS will remain questionable if it aspires to mimic the scientific method as the sole benchmark for academic investigation. Orlikowski and Baroudi (1991) further highlight two frequently cited limitations of positivism. Firstly, the pursuit of universal laws often overlooks the historical and contextual factors that shape phenomena and the human participants in research. Secondly, the drive to explain and forecast an external reality, perceived as separate from humans, promotes deterministic methods that overlook the political

intricacies inherent in the social world. Notably, alternative paradigms, like interpretivism, have gained traction and broader acceptance in the field (Walsham, 1995).

4.2.2 Interpretivist Paradigm

In the social world, it has been posited that individuals and groups interpret situations based on their personal experiences, memories, and expectations. Consequently, meaning is constructed and continually re-constructed over time, leading to various interpretations (Flowers, 2009). Interpretive research aims to understand social phenomena in their context by examining the meanings people assign to them (Orlikowski & Baroudi, 1991). Interpretive researchers believe that access to reality, whether inherent or socially constructed, is achieved solely through social constructs such as language, consciousness, shared meanings, and instruments (Myers, 2013). As a result, the understanding derived from interpretive studies is socially or intersubjectively constructed between researchers and participants. In this perspective, both social reality and its associated knowledge are perceived to be socially constructed. Thus, achieving value-free knowledge is deemed unattainable (Orlikowski & Baroudi, 1991; Walsham, 1995). It is crucial, therefore, to uncover and understand these meanings and the contextual factors that influence and impact the interpretations formed by various individuals. Interpretivism posits the existence of multiple realities. Unlike traditional research methods, interpretive researchers do not predetermine dependent and independent variables. Instead, they concentrate on the intricate process of human sense-making as situations unfold (Kaplan & Maxwell, 2005). Typically, the research methods and tools used in the natural sciences are considered unsuitable for studying social and organisational phenomena. Many social scientists argue that they cannot merely observe their subject matter from an external vantage point; to truly understand a specific social or cultural

phenomenon, they must view it from within (Myers, 2013). Studies in information systems are categorised as interpretive if they exhibit non-deterministic propositions, aim to enhance understanding of the social phenomenon in its context and analyse the phenomenon in its natural setting from both the researchers' and participants' viewpoints (Orlikowski & Baroudi, 1991; Serrano et al., 2020; Walsham, 2006).

The interpretive paradigm's ontological stance posits that reality is intrinsically tied to human perceptions and constructions. Walsham (1995a) delineates two forms of reality within this paradigm: an intersubjective reality, co-constructed between researchers and participants, and a subjective reality, where each individual or group shapes their understanding of the world. This stands in stark contrast to the tenets of positivism. According to interpretive ontology, "there is no objective reality which can be discovered by researchers and replicated by others" (Walsham, 1993, p. 5). From an epistemological perspective, the interpretive paradigm asserts that knowledge is socially constructed and co-created intersubjectively between researchers and participants. This perspective diverges from positivist views. Interpretivists contend that facts and values are not distinct but are interwoven, leading to the belief that all knowledge is a human construct (Walsham, 1995a). This understanding is cultivated as researchers consider the historical, cultural, political, and social contexts and the behaviours of the individuals involved throughout their study.

Regarding methodology, interpretive researchers favour social methods over scientific ones typical of the positivist paradigm. Interpretivists contend that to truly understand the meanings inherent in human and social interactions, researchers must immerse themselves in the social settings they are examining. This immersion allows them to grasp how interactions unfold from

the participants' viewpoints (Chen & Hirschheim, 2004). Consequently, interpretive research in Information Systems (IS) seeks to provide a contextual understanding by delving into IS phenomena and exploring how they are mutually shaped by and shape their environments (Walsham, 1993). Blaikie synthesises the underlying purpose of an interpretive approach to social enquiry by noting that:

“the major task of interpretive social science is to discover why people do what they do by uncovering the largely tacit, mutual knowledge, the symbolic meanings, intentions ... the major task of interpretive social science is to discover why people do what they do and rules, which provide the orientations for their actions.” (Blaikie, 2007, p. 176)

To the interpretivist researcher, meanings are assumed to emerge from the study context. In summary, interpretivist studies could be observed through (1) evidence from a non-deterministic (free will) perspective, (2) researchers' engagement in the specific social and cultural setting investigated, and (3) analysis based on participants' viewpoints (Chen & Hirschheim, 2004; Orlikowski & Baroudi, 1991; Walsham, 1995a).

4.2.3 Critical Paradigm

A significant distinction concerning critical research philosophy is its evaluative dimension. According to Richardson and Robinson (2007), merely analysing the interpretivist and positivist paradigms supports a prevalent view that IS researchers are presented with a methodological choice between positivism and interpretivism as the two primary methods of researching and understanding the world. Through critique, the critical paradigm seeks to reveal illusions and

contradictions of social existence to foster and promote social change (Chua, 1986; Kincheloe & McLaren, 2005). More so than the positivist or interpretive research perspectives, the critical researcher endeavours to evaluate and critically transform the social reality under investigation (Orlikowski & Baroudi, 1991). While interpretive studies adopt a non-deterministic perspective to explore phenomena in their natural setting without imposing any predetermined understanding, critical studies strive to uncover deep-rooted structural issues, critique the status quo, and address contradictions in organisations and society (Waring & Casey, 2014). A central idea within critical philosophy is that our reality is historically constituted. This means we are not bound to a specific state as humans, organisations, or even societies (Chua, 1986). There is the acknowledgement of the potentials, albeit unfilled, that exist within animate or inanimate objects. Recognising these potentials empowers individuals to act and alter their material circumstances. However, while they can proactively work to modify their social and economic conditions, enhance their lives, and harness their potential, the critical perspective acknowledges that the ability to effect change is limited. This limitation arises because humans become distanced from their potential by dominant systems of economic, political, and cultural authority (Orlikowski & Baroudi, 1991).

4.2.4 Choice of Interpretivism

Interpretivism posits that organisations do not remain constant over time, and the relationships between people, organisations, and technology are dynamic, undergoing continual change. As a result, interpretive research aims to understand this ever-evolving target (Klein & Myers, 1999). In this study, an interpretive qualitative case study approach is employed. This method provides an opportunity to study subjects in depth, such as one or more organisations or a group of people, and typically involves the collection and analysis of data. The interpretive case study approach is

particularly apt for understanding the phenomenon under investigation in this study. It allows for diverse participants' perspectives to be revealed and emphasises the context as a crucial factor in understanding digital transformation over time and the impact of context (Myers, 2013; Walsham, 1995).

Orlikowski and Baroudi (1991) have highlighted the appropriateness of adopting diverse research approaches, emphasising the unique value of each paradigm in studying specific research problems. Research methodologies, such as interpretivism and qualitative methods, are valuable as they introduce fresh perspectives to the study of a topic, which the positivist approach and quantitative survey techniques might overlook (Chen & Hirschheim, 2004). While positivist research strives for generalisability, interpretivist research seeks to delve deeply into a phenomenon's meanings. Opting for a specific research paradigm does not suggest its superiority over others. Indeed, there is no universally right or wrong paradigm. Instead, the choice of a paradigm and its associated methodologies reflects the researcher's philosophical stance and the research topic, purpose, and objectives (Chen & Hirschheim, 2004; Orlikowski & Baroudi, 1991). Given that this research seeks to understand digital transformation within the context of a developing country, the interpretive paradigm is deemed suitable for three primary reasons.

First, the interpretivist approach to inquiry is better suited for understanding complex, conflicting, and emergent IS phenomena (Jain, 2003). This study focuses on understanding the institutionalisation process of digital transformation within health insurance. Such a phenomenon represents a multifaceted sociotechnical system encompassing the social interactions of people, institutions, and digital technologies. The researcher contends that this can be most effectively

understood by exploring the subjective meanings attributed by individuals and groups within their specific context.

Second, interpretive studies strongly emphasise context, as the meaning of a phenomenon is inherently situated within it (Myers, 2013; Schwartz-Shea & Yanow, 2012). This study seeks a profound understanding of digital transformation within the social milieu of the participants involved. Achieving such an understanding requires delving into the IS phenomenon's historical, political, and cultural backdrop, as these elements shape the participants' interpretations and actions (Kaplan & Maxwell, 2005).

Third, interpretive researchers typically adopt an open-minded stance, refraining from imposing prior knowledge at the outset but instead immersing themselves in the phenomenon to gain insights as the research progresses (Schwartz-Shea & Yanow, 2012). Consequently, the deterministic orientation inherent in other paradigms was deemed unsuitable for this study. The adaptability of the interpretive approach allows the researcher to adjust to field conditions as they evolve. For example, in interpretive studies, theories may guide the early phases of research but can be revised as deeper insights are gleaned from participants and documents.

4.3 Research Methodology

The methodology can be viewed as the strategy, plan of action, process, or design that steers the selection and use of specific methods, linking these actions to the anticipated outcomes (Crotty, 1998; Mingers, 2001). A research methodology is a strategy grounded in ontological and epistemological assumptions, which dictates the methods employed to gather, analyse, and

interpret data (Cecez-Kecmanovic, 2011; Schwartz-Shea & Yanow, 2012). Beyond merely outlining this strategy, there is a need to detail the methodology and elucidate its rationale for selecting methods and the specific manners in which these methods are utilised.

Research methodologies can be categorised into three types: quantitative, qualitative, and mixed (Myers, 2009). A quantitative methodology employs numbers to represent observations, aiming to describe or explain phenomena (Sukamolson, 2007). In contrast, a qualitative methodology utilises data in the form of words to grasp the actions and viewpoints of participants engaged in the situation under study (Kaplan & Maxwell, 2005; Krauss & Putra, 2005). Given that this study aims to comprehensively understand the institutional context of digital transformation, a qualitative approach was deemed more suitable (Patton, 2015).

Myers (2013) identifies four qualitative approaches frequently discussed and employed in IS and organisational studies: case study, ethnography, action research, and grounded theory. A case study examines a phenomenon within its natural context using multiple data sources, aiming to juxtapose theory with empirical observations (Keutel et al., 2014). Ethnography involves studying human groups in their authentic settings, with researchers immersing themselves in the lives of their subjects and striving to position the phenomenon of interest within its social and cultural milieu (Borkovich, 2022). Highlighting its aptness for examining technology within human contexts, action research facilitates practical problem-solving to deepen understanding of a specific social issue while contributing to scientific knowledge (Baskerville & Wood-Harper, 1996). Grounded theory, conversely, emphasises the emergence of categories and relationships from qualitative data, aiming for a systematic development of theory (Ivanov, 2018). Given the

three paradigms previously discussed, any of these research methods could be chosen to undertake the investigation.

In information systems research, the case study methodology is often the most frequently employed among the qualitative methodologies (Keutel et al., 2014; Orlikowski & Baroudi, 1991). Researchers also advocate using case studies when examining the interplay between technology and its operational environment (Baptista, 2009; Brocke et al., 2016; Currie, 2009). For instance, Effah (2016) demonstrated how context influenced both the process and service content of online banking in a developing country. Both Avgerou (2001) and Myers (1997a) have emphasised the significance of associating technology with its inherent context in information systems research and practice. Specifically, Myers (1997b) suggests that IS research primarily aims to study information systems within organisations. As the focus has shifted towards organisational challenges rather than purely technical ones, the case study method becomes particularly apt for IS research. Aligning with this perspective, this study identified digital transformation in health insurance as a research area where both organisational and technical aspects are paramount. As a result, a qualitative interpretative case study approach was selected, consistent with the interpretive paradigm previously outlined. The application of this method in the current research will be the subject of the subsequent section.

4.4 Choice of Interpretive Case Study Method

This research adopted a qualitative case study approach in line with the interpretative research paradigm. A case study is an empirical method that delves into a contemporary phenomenon within its real-life setting, mainly when the distinctions between the phenomenon and its context are

ambiguous (Yin, 2003). In the field of information systems, there are numerous areas where being attuned to context and conducting thorough context analysis are essential. Such areas encompass domains where the underlying mechanisms of processes or events are not well understood or where the viewpoints of individuals and the settings in which activities occur are paramount (Darke et al., 1998). Case studies can represent a research approach or a unit of analysis, such as a study focusing on a specific organisation. A typical case study researcher will craft research questions, utilise interviews and documentary sources, collect and analyse data, and produce a case report (Myers, 1997b; van der Blonk, 2003).

The interpretive case study methodology (Myers, 2013; Walsham, 2006) was selected as appropriate for this study's research purpose, as it facilitates a deep understanding of information system phenomena within their natural settings (Schwartz-Shea & Yanow, 2012). Case studies are typically favoured when addressing “how” or “why” questions, when the researcher has little control over events, and when the focus is on a contemporary phenomenon within a real-life context (Yin, 2003). Furthermore, the detailed accounts provided by case studies enhance understanding of a phenomenon and underscore the relevance of any related policy or practice recommendations (Ponelis, 2015). This study aimed to comprehensively understand digital transformation in health insurance by examining selected cases. The subsequent section will detail how the study employed the interpretive case study approach in shaping and executing the fieldwork.

4.5 Field Work and Case Selection

In interpretative research, securing and maintaining access to an organisation for fieldwork is crucial (Walsham, 2006). The quality of the data collected and the subsequent findings heavily rely on the insights gained into the organisation and its members (Shenton & Hayter, 2004). Such research can focus on a single case or span multiple cases. A single case is appropriate when it represents a unique or revelatory situation (Yin, 2003) and facilitates an in-depth description and understanding (Walsham, 1995b). Multiple cases in research design enable cross-case analysis, comparison, and investigation of a specific phenomenon across different contexts (Darke et al., 1998). In interpretative studies, research validity is closely tied to how researchers can access the organisation and use participants' prior knowledge and meanings to construct a credible account of their interpretations (Nandhakumar, 1997). The researcher gained access to the two case sites of the study—a public and a private health insurance provider—through two means: one, formal access, which involves establishing an understanding with the organisation about the specifics of data collection and potential outcomes; and two, personal access, where the researcher is familiar with key executives, managers, and individuals within the organisation (Laurila, 1997).

The first research site accessed was the National Health Insurance Authority (NHIA), which oversees the National Health Insurance Scheme (NHIS). The NHIA is the public agency established by the National Health Insurance Act, 2003 Act 650, and later revised by the National Health Insurance Act, 2012 Act 852. It is mandated to ensure the implementation of a national health insurance policy that guarantees access to basic healthcare services for all residents. Additionally, it is tasked with implementing the National Health Insurance Scheme and establishing private health insurance schemes. Subsequent to this, a request was made to access a

private health insurance site for cross-case analysis and comparison of the research phenomenon. This private provider is notable as the largest in terms of registered members, following the NHIS. Notably, the researcher has observed that the NHIA and the private provider have been subjects of numerous digitalisation and transformation efforts over the years.

Access to a study site is crucial and can vary considerably based on the nature of the research, especially when an in-depth investigation is required (Shenton & Hayter, 2004). The challenge intensifies when the research touches on sensitive topics or delves into politically charged public services (Johl & Renganathan, 2009). Specifically, the operations of the NHIS in Ghana have been deeply politicised, with issues surrounding appointments, fund disbursements, and political finger-pointing over its challenges (Kipo-Sunyezi et al., 2020). As Walsham (2006) noted, obtaining access often involves elements of luck and fate. However, this does not imply that any organisation will suffice. The researcher needs to access an organisation or organisations directly experiencing the research phenomenon. The pursuit of digital transformation within the NHIS has received varying degrees of focus and priority under different Chief Executive Officers (CEOs) since 2003. While some CEOs have been external appointments with no prior ties to the scheme, others have ascended through its ranks and were appointed by the incumbent president. Consequently, securing and sustaining access remains a continually evolving challenge.

Fortuitously, the researcher secured informal access to a “gatekeeper” (Shenton & Hayter, 2004) in the form of a Deputy Chief Executive Officer, facilitating negotiations for formal access. The literature emphasises the importance of researchers establishing relationships with such gatekeepers when seeking access to organisations (Johl & Renganathan, 2009). These pivotal

individuals, who control access, can act as key informants, introducing the researcher to potential participants (Shenton & Hayter, 2004). Subsequently, a letter dated 26th June 2018 from the University's Head of Department (Operations and Management Information Systems), introducing the researcher and seeking formal access, was hand-delivered to the NHIA offices. After numerous follow-up visits, an official response granting access for the study was received on 2nd October 2018. Similarly, a formal request for access to the second case organisation was made on 10th June 2019. Access was granted via phone on 30th August 2019 on behalf of the Chief Executive Officer, another "gatekeeper". This approval came after multiple follow-ups, including email correspondences and phone calls.

Following the briefing and the letters that outlined the researcher's intentions and the study's purpose, the gatekeepers were interviewed upon granting access. These interviews provided a general background and a high-level overview of the current digital interventions. Subsequently, the gatekeepers directed the researcher to elite informants (EIs). EIs are characterised as individuals occupying senior positions within the organisation. They are key data sources and decision-makers, possessing extensive and exclusive information. Furthermore, they can significantly influence organisational outcomes independently or in collaboration with others (Solarino & Aguinis, 2021). Within the case organisations, these EIs comprised directors, deputy directors, and senior managers of IT divisions. Guided by these elite informants, the researcher was introduced to other middle managers, officers, and staff who could offer supplementary information and context. This network of informants progressively expanded to include individuals overseeing information technology across the country's political regions and districts, health insurance members, healthcare providers, and IT service providers.

The study employs a multiple case study approach, focusing on the digital transformation of health insurance in Ghana's public and private sectors. The selection of cases was driven by their relevance to the research purpose and questions. The two organisations that served as the backdrop for this study are the National Health Insurance Scheme (NHIS) and Alpha Private Health Insurance (a pseudonym), representing the public and private sectors, respectively. Both organisations have undertaken numerous digital transformation initiatives to deliver health insurance, aligning with the national goal of universal coverage.

4.6 Data Sources and Collection

In line with the interpretative case study methodology, qualitative data were gathered from various sources. The primary source was interviews, while documents and observations were supplementary data sources (Myers, 2013; Walsham, 2006). Most of the field data, derived from key informants' interviews, was collected between October 2018 and December 2019. Additional data were gathered intermittently throughout 2019 and 2020 as data analysis and reporting advanced. The data collected encompassed texts, voice recordings, field notes, presentations, and project documents. The following section details the data sources and methods used during data collection.

Interviews: The identification and subsequent interview of participants were informed by purposive and snowball sampling techniques (Miles et al., 2014). The sampling was purposive in that it began with a specific purpose: to select individuals who knew about the study's phenomenon and to exclude those who did not align with this purpose (Etikan et al., 2016). Integral to this method is the concept of networking and referral. The research commences with a few informants

and expands as these informants introduce new and willing participants, a process known as snowball sampling (Parker et al., 2019). In the case organisation(s), this approach was facilitated through formal channels by the “gatekeeper” and the “elite informants” and later expanded to personal networks and word-of-mouth referrals. The primary data collection method was face-to-face semi-structured interviews, supplemented by virtual meetings, phone calls, email correspondence, and WhatsApp messages.

Interview guides were employed during the semi-structured interviews. These guides ensured that the discussions remained focused while also allowing participants the flexibility to introduce topics or issues they deemed significant. The guides facilitated the collection of insights regarding the technological and social dimensions related to the sequence of processes, activities, actions, and the historical context of IS phenomena. Interviews typically lasted thirty minutes to an hour and were audio-recorded after obtaining participants’ consent. Following transcription, interviewees were offered the chance to verify the accuracy of the content. This process, known as member validation or member checking, allows participants to review, comment on, or approve the researchers’ data or interpretations. The goal is to ascertain whether the interpretations align with the participants’ perspectives, thereby enhancing the validity or credibility of qualitative interpretative research (Bygstad & Munkvold, 2007; Iivari, 2018). Note-taking during the interviews complemented the audio recordings, summarising key points and aiding in developing follow-up questions. These follow-up questions were sometimes posed through other platforms, such as virtual meetings (via Microsoft Teams and Zoom), telephone calls, or social media apps like WhatsApp. Table 4.2 lists the key informants interviewed. Appendix C showcases the interview guide used for this study.

Table 4.2: List of Interview Participants

Case Study	Participants	Total Number of Participants
National Health Insurance	Internal Participants: Director of MIS (1), Deputy Director (2), Regional ICT Coordinators (10), Datacenter Administrators (3), Database Administrators (2), Manager ICT Business Systems (1), District MIS Officers (10), Application Developer (1) External Participants: Project Manager (1) Solutions Architect (1)	32
Alpha Private Health Insurance	Internal Participants: IT manager (1), CEO (1), Head of Claims (1), Head of Membership (1), Head of Actuarial and Statistics (1), Developer (1), Medical Practitioner (1), Membership Officer (2), Fulfilment Officer (2), Insured Member (1), IT Support Officer (2) External Participants: Project Manager (1)	15
	Total	47

For clarity in the table, designations have been simplified into participant groups: internal and external. ‘Internal participants’ refer to interviewees from within the case organisation, while ‘external participants’ denote those outside the organisation. The latter includes domain experts involved in various stages of digital artefact development and implementation and end-users of these systems. Data collection ceased when it became evident that the saturation point was achieved, which was identified when additional interviews yielded no new insights beyond what had already been collected (Patton, 2015).

Documents: Documentary evidence for this study was sourced from both print and electronic formats, encompassing text, audio, and video materials. The collected materials comprised operating manuals, project designs, reports from the case organisations, presentations, internet publications, online news sites, legislative and regulatory publications, press releases, and information bulletins. These documents supplemented the interviews by giving further insight into the setting, background data, and events surrounding the digital transformation of the case organisations.

Observation: The researcher observed participants in health insurance enrolment, verification, and service delivery processes. The researcher also participated in the biometric enrolment process and received a health insurance card. At the healthcare provider facility, interactions were made with attendants at the health insurance desk, and the procedure for validating members to access healthcare services was observed.

4.7 Data Analysis

During this research, data collection and analysis were conducted in line with the principles of interpretive case studies (Myers, 2013; Walsham, 2006). The analysis was conducted inductively, utilising the hermeneutic circle to identify recurring themes from the data. The hermeneutic circle posits that meaning is derived from texts (the parts) and context via an iterative process of back-and-forth movement (Boell & Cecez-Kecmanovic, 2014; Lee, 1994). Its core principle underscores the iterative process required to examine the interdependent meaning of a phenomenon's parts and their relationships to understand the phenomenon as a whole (Klein & Myers, 1999; Kurnia et al., 2019). Iterations between the parts and the whole persist until no further

insight into the phenomenon can be obtained. As the hermeneutic circle is widely recognised as the preferred method for analysing interpretive case data, it was selected for this research (Klein & Myers, 1999). Following the hermeneutic principle, the data analysis was executed in two stages: firstly, to construct the case descriptions and secondly, to analyse these descriptions.

In constructing case descriptions using the hermeneutic circle, the “whole” was linked to contextual information, such as historical context, case overviews, and significant events. For instance, “Understanding Digital Transformation in Health Insurance” represents the “whole” or context. The “parts” consist of various data sources that offer insights into the phenomenon from different perspectives. The hermeneutics-based approach formulated by Lukaitis and Cybulski (2004) in their study on airport baggage handling systems was adapted to analyse these “parts”. This study incorporated the general concepts of processes, activities, actions, and context related to the adoption and use of IS. A process which addresses the questions of how, who, and when (Wit, 2020) encompasses activities, events, and decisions undertaken by actors with the intention (Malinova et al., 2022) of producing a specific output for a target audience (Schuh et al., 2008). An activity comprises a series of actions and tasks that a subject consciously performs with a direct goal in view (Sun & Qu, 2015). An action is the smallest unit of activity that yields a result (Jones & Song, 2005). On the other hand, context refers to the environment in which these actions occur and can help interpret them (Myers, 2013).

For each data source, a table was constructed with columns labelled context, action, activity, and process. These tables facilitated the subsequent stages of data analysis and case description creation. As the text was reviewed, data was populated into the respective columns of each table.

From this structured information, the narrative of the case was crafted. Consequently, each data source and its resulting narrative offered a unique perspective (or a part) on the digital transformation phenomenon under investigation (the whole). As the case narratives on digital transformation were developed, the overarching case description was concurrently formulated and refined with each new narrative. Each narrative could either confirm, diverge from, or introduce new insights about the phenomenon relative to previous narratives. Through this method, a layered construction of each case description on digital transformation was achieved. Throughout this endeavour, the researcher went back and forth between the original data source, the organised information in the tables, the case narratives, and the progressively refined case descriptions. This ensured that the process remained iterative.

In the second stage of applying the hermeneutic circle principle, the case descriptions were analysed using concepts from institutional theory. Concepts from this theory served as the analytical “parts” for the constructed case description of digital transformation, which represented “the whole”. Instead of using the theory as a testing tool, as is typical in positivist research, it was employed as a “sensitising” device (Klein & Myers, 1999). The primary concepts of the institutionalisation process used for the analysis were deinstitutionalisation and reinstitutionalisation, considering the role of institutional factors such as cultural-cognitive, normative, and regulative elements. With these constructs in mind, the digital transformation phenomenon was examined in the specific contexts of health insurance, namely National Health Insurance (public) and Alpha Private Health Insurance (private).

Initially, the primary processes that manifest as digital transformation were identified. Consistent with the hermeneutic circle approach, digital transformation within various organisational contexts was considered the “whole”, and the individual elements contributing to it were the “parts”. For instance, after several iterations, the prevalent processes representing digital transformation were discerned as Member Identity Management (MIM) – which encompasses member registration, data capture, and the printing and issuance of health insurance cards; and Health Provider Management (HPM) – which includes credentialing, as well as the submission, processing, and payment of claims. Notably, the NHIA is legally mandated to register and oversee private health insurance schemes, such as Alpha Private Health Insurance, ensuring the interests of members of these private schemes are safeguarded.

Secondly, from an institutional viewpoint, digital technologies are not merely a collection of material features operating based on the functional rules programmed into them. Instead, they are seen as products deeply embedded within social institutions (Avgerou, 2002). In this regard, digital technologies are perceived as institutions interacting with other institutions in modern society. They are emergent, evolving, and deeply embedded (Orlikowski & Barley, 2001; Sawyer & Jarrahi, 2014). As a result, an analysis was conducted on the institutional conditions and the institutionalisation process for each identified health insurance process. This analysis delved into how institutions emerge, stabilise, change, and eventually phase out (i.e., sociotechnical) to understand the manifestation of digital transformation.

4.8 Principles for the Conduct and Evaluation of Interpretive Field Research

A set of principles governs interpretive research, and this study adhered to these ethics and standards. Interpretivism cannot be evaluated using the same standards of reliability, replicability, validity, and generalisability as positivism because they differ fundamentally. Therefore, it is necessary to assess qualitative interpretative case studies, such as this one, using the appropriate criteria (Myers, 2013). For instance, the reliability criterion is unsuitable for interpretive studies, as repeating the data gathering at a different time and place would not ensure the same outcome. This section presents a widely accepted set of criteria for evaluating interpretive research in IS, comprising seven principles proposed by Klein and Myers (1999). However, since their principles do not encompass all evaluation areas, other criteria assess the study's contribution to knowledge, selecting an appropriate methodology, and ethical considerations. The seven guiding principles for evaluation are detailed in Table 4.3 below. While seven principles are proposed, only the first six are considered relevant for evaluating this study. The authors argue that the seventh principle, "suspicion", is more fitting for investigations classified as critical research. Nevertheless, their principles have been highly endorsed by other IS interpretive researchers (e.g., Myers, 2013; Walsham, 2006).

Table 4.3: Principles for the Conduct and Evaluation of IS Interpretive Field Studies

Adapted from Klein and Myers (1999)

Principle	Description
Hermeneutic Circle	This principle posits that human understanding is derived from the iterative relationship between the individual meanings of parts and the collective whole they constitute. This foundational principle underpins all other principles.

Contextualisation	Critical reflection on the social and historical context of the research setting is essential, enabling the intended audience to understand how the situation under investigation has evolved.
Interaction Between the Researchers and the Subjects	It is essential to critically reflect on how the research materials, or “data”, were socially constructed through the interaction between the researcher and participants.
Abstraction and Generalisation	It necessitates linking the specific details uncovered by data interpretation, applying the first and second principles, to broader theoretical concepts that describe human understanding and social action.
Dialogical Reasoning	It demands sensitivity to potential contradictions between the theoretical preconceptions that guide the research design and the actual findings (referred to as “the story which the data tells”), leading to subsequent revision cycles.
Multiple Interpretations	It necessitates sensitivity to potential variations in interpretation among participants, as these are often conveyed in multiple narratives or accounts of the same sequence of events under study. This is akin to multiple witness testimonies where each recounts events as they perceive them.
Suspicion	It demands sensitivity to potential “biases” and systematic “distortions” in the narratives obtained from the participants.

4.8.1 Contribution to Knowledge

To be a successful Doctoral researcher, one must possess the insight to identify areas where they can make original contributions. The concept of originality in the context of a PhD is multifaceted and remains insufficiently defined (Phillips & Pugh, 2005). However, a key criterion for assessing research quality is its ability to augment existing knowledge (Ågerfalk, 2014). Furthermore, examiners must be persuaded that the work reflects genuine effort from the candidate and embodies some measure of empirical originality. This is particularly pertinent for a PhD endeavour

like this study, which is expected to provide an original contribution to knowledge. Consequently, it is crucial to recognise that the evaluation of research outcomes and the contributions of a specific research piece will be judged differently, based on varying criteria, by researchers aligned with different paradigms (Cecez-Kecmanovic & Kennan, 2018).

A study can enhance the body of knowledge in various ways. These include introducing a novel theoretical perspective that helps elucidate previously puzzling findings, observing the limited research conducted on a particular topic, citing recommendations from esteemed publications that advocate for a deeper exploration of a subject, merging diverse areas of study to provide fresh insights and a deeper understanding of a phenomenon; identifying and emphasising the discrepancies between existing knowledge and areas that require further exploration to either forge new conceptualisations or build upon the current ones; and proposing significant implications for practical applications (Paré et al., 2015; Watson & Webster, 2020; Webster & Watson, 2002).

Research results do not inherently convey their significance. Instead, researchers are tasked with framing their findings within the ongoing dialogue of the research community (Boell & Hovorka, 2019). Within the interpretive research tradition in IS, Myers (1997b) posits that the evaluation of an author's contribution to knowledge can be based on whether they have developed or applied new concepts or theories and if they have provided profound insights into the human, social, and organisational facets of IS development and application. Drawing from empirical interpretive research in specific IS contexts, Walsham (1995a) identifies four types of contributions for interpretive case studies: the development of concepts, the generation of theory, the delineation of specific implications, and the provision of rich insights. In IS interpretative case studies,

Walsham's typologies of knowledge contribution are widely recognised (Andrade, 2009; Barrett & Walsham, 2004; Ponelis, 2015). Given that this study aligns with the IS interpretative case study tradition, it leans on the frameworks set out by Myers and Walsham to evaluate its contribution to knowledge. The final chapter offers a more comprehensive discussion of the study's contribution to the field.

4.8.2 Principles for Ethical Considerations

Despite the profound impact of advancements in information and communication technologies (ICTs) on societies globally, a limited amount of research on ethics has been published in journals deemed authoritative in information systems (Mingers & Walsham, 2010). Nonetheless, interpretive studies inherently encompass ethical dilemmas and challenges (Walsham, 2006). Furthermore, the interplay between technology and human actors raises ethical concerns (Wakunuma & Stahl, 2014). Research ethics debates focus on applying moral principles throughout the research process. For researchers, ethical responsibilities encompass adhering to institutionally prescribed ethical guidelines, ensuring the rights of research participants are upheld, and adeptly addressing any potential conflicts that might emerge (Myers, 2013).

Walsham (2006) highlights three domains where researchers must be particularly vigilant about ethical considerations: confidentiality and anonymity, operating within an organisation, and reporting in academic literature. He provides guidance on addressing these concerns. To safeguard participants' privacy and uphold anonymity, researchers should reassure participants and ensure they are not directly identifiable in study reports, either by name or position. However, even with such precautions, anonymity does not always equate to absolute confidentiality. There remains a

possibility that those acquainted with the research context might discern the identities of case organisations or unnamed individuals. Despite these challenges, Walsham emphasises that maintaining confidentiality and anonymity is an ethical imperative.

Engaging in research within an organisation brings its own set of ethical challenges. One such challenge is the potential revelation of information that the organisation might prefer to remain undisclosed or the risk of portraying subordinates negatively to the management. Both situations present ethical difficulties. Issues like power dynamics and internal politics might be prevalent within an organisation, even if the senior management would instead they remain unpublicised. While Walsham recognises that interpretive researchers are bound to encounter these ethical dilemmas, he also underscores the absence of definitive guidelines to navigate them. The final chapter delves deeper into the ethical considerations that shaped the execution of this study (see section 8. 2).

4.9 Chapter Summary

This chapter delved into the research methodology, introducing the interpretive case study as the chosen approach for this study. It also outlined the criteria for case selection and the methods employed to gain access for fieldwork. Further, the chapter detailed the techniques used for data collection and analysis. A set of guidelines for evaluating interpretative research was presented, along with a discussion on the ethical considerations that impacted the research process. The next chapter will describe the cases selected for this study.

CHAPTER FIVE

CASE DESCRIPTION

5.1 Chapter Overview

Chapter four outlined the research methodology and justified employing an interpretive case study approach. This chapter delves into the detailed descriptions of two digital transformation cases within the health insurance sector: public and private. In presenting the case for this thesis, events are delineated chronologically. Subsequent sections offer comprehensive case descriptions. Consequently, each case traces notable developments from a historical perspective to the present, emphasising key events related to digital technology development, implementation, use, and outcomes within the digital transformation journey of the two cases.

5.2 Case A: The Case National Health Insurance Scheme

The NHIS was a key campaign manifesto pledge of the NPP presidential candidate, John Agyekum Kuffour, in the lead-up to the December 2000 presidential elections. After a triumphant victory in the second round of voting on December 28 2000, the stage was set to fulfil his campaign commitments. In 2003, the government of Ghana, through an act of parliament, Act 650, founded the National Health Insurance Scheme (NHIS). This initiative aimed to replace the prevailing cash-and-carry system, ensuring that every citizen could reasonably protect themselves against financial burdens stemming from essential medical treatments. The Act's primary objective was to

guarantee the provision of basic healthcare services to residents in the country via mutual and private health insurance schemes. Concurrently, the Act instituted a corporate entity named the National Health Insurance Council, which was later rebranded as the National Health Insurance Authority (NHIA). The NHIA's principal mission is to ensure the effective execution of a national health insurance policy that guarantees all residents access to basic healthcare services. Among its core responsibilities, the NHIA is tasked with:

- Implement, operate and manage the National Health Insurance Scheme
- Register members of the National Health Insurance Scheme
- Register and supervise private health insurance schemes
- Issue identity cards to members of the National Health Insurance Scheme
- Grant credentials to healthcare providers and facilities to provide healthcare services.
- Receive, process and pay claims for services rendered by healthcare providers.
- Ensure that healthcare services rendered to beneficiaries of schemes by accredited healthcare providers are of good quality;
- Provide a decentralised system to receive and resolve complaints by members and providers;

5.3 Structure of the National Health Insurance Scheme

Before the National Health Insurance Council was established to oversee the National Health Insurance Scheme, the responsibility for spearheading the scheme fell to the Ministry of Health. Consequently, the Ministry directed the District Assemblies to “select promoters to initiate procedures for registering the scheme as entities limited by guarantee” (as stipulated in Section 29

(2) of Act 650). To initiate this process, the District Assemblies nominated individuals to constitute an Interim Governing Board. The board's composition was set to include no fewer than seven (7) and no more than fifteen (15) members. These members were to be drawn from distinct groups, namely: One (1) representative of GNAT/GES, one (1) representative of the Christian Council of Churches, one (1) representative of the Muslim Community, one (1) representative of Traditional Authority, one (1) representative of NGOs working in the district, the District Chief Executive, the District Budget Officer, the District Director of Health Services, an eminent member of the district, etc.

The district assemblies were also requested to hire staff for the scheme's management at the district level. However, the majority did not respond favourably to this directive. Consequently, the Ministry publicised several vacancies, including positions for a Manager, Accountant, MIS Officer, Claims Officer, Publicity Officer, and Data Entry Clerk. Qualified individuals were encouraged to apply for these roles in the districts where they were keen on serving as Health Insurance Officers. Assisted by the Ministry of Health's Human Resource Division, interviews were conducted across different districts. Successful candidates were subsequently selected for appointment. In collaboration with the District Assemblies, the respective Boards issued appointment letters to these chosen applicants.

The DMHIS (District Mutual Health Insurance Schemes) operated with a degree of autonomy. However, their activities were coordinated by the Council through its dedicated units. By law, their primary agents were mandated to provide regular reports to the National Health Insurance Council detailing their operations, finances, and health service utilisation in relation to the insured

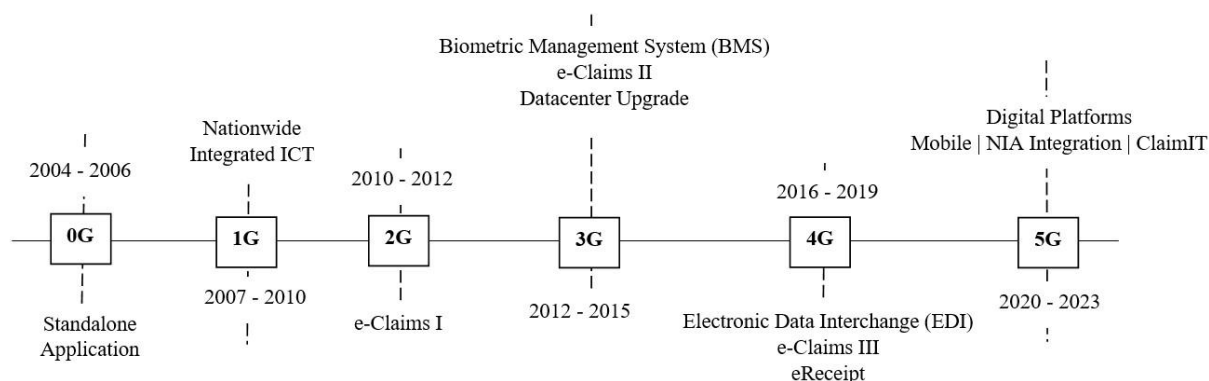
members. The District Health Insurance Management Team comprised the Scheme Manager, Accountant, Claims Officer, MIS Officer, Publicity Officer, and Data Entry Clerk/Secretary. This team oversaw the daily administration and management of the scheme at the district level, with a particular emphasis on member registration.

5.4 Pre-Transformation

Integrating information technologies in the health insurance sector has not been without challenges. Nevertheless, over time, the development, implementation, and utilisation of these technologies have progressively grown, aiming to transform health insurance services' delivery, management, and reimbursement processes. In Ghana, the digital transformation journey within the NHIS began around 2007, four years after the inception of the NHIS in 2003, which was established to provide affordable health insurance to the Ghanaian populace. Subsequent to this, information technologies have been harnessed to enhance the efficiency and reach of health insurance and healthcare services.

Several pivotal institutional policies and strategies have played either a catalytic role or as driving forces in ensuring the successful incorporation of digital solutions into the healthcare sector, specifically within the NHIS. These include the ICT4AD policy (2003), the health sector ICT policy and strategy (2005), and the national e-health strategy (2010). Government-driven initiatives, such as the Ghana e-Transform project (2013), have been instrumental in the transformative journey of health insurance. A comprehensive overview of these digital interventions is depicted in Figure 5.1.

Figure 5.1: Overview of Deployment of Digital Technologies in NHIS



This case description chapter will explain how IT-enabled and digital transformations have impacted the NHIS, including the challenges and opportunities arising from this transformation.

After establishing the NHIS through the National Health Insurance Act 2003, Act 650, operationalisation of the scheme started across District Mutual Health Insurance Scheme (DMHIS) offices spread across the ten regions of the country as well as the regional offices. Table 5.1 shows the number of DMHIS offices across the ten regions as of 2006. In total, there were 144 district offices.

Table 5.1: Number of NHIS DMHIS & Regional Offices

Regions										
DMHIS Offices	Ashanti/R	Brong Ahafo	Central	Eastern	Greater Accra	Northern	Upper East	Upper West	Volta	Western
(144)	24	19	13	17	10	17	6	8	15	15

Regional Offices (10)

The NHIS was initially conceived as a District Mutual Health Insurance Scheme. The law establishing the scheme mandated that each district should have a mutual health insurance entity serving its indigents and residents. This became the foundation for establishing the DMHIS across various regions and districts. The establishment of each DMHIS typically took the form of a pilot under the district assembly. Consequently, most DMHIS were housed within the office complexes of the district assemblies. Regarding the piloting of the DMHIS, an information systems officer from a Greater Accra DMHIS commented:

Establishing the health insurance offices commenced with the Ejisu Mutual Health Insurance Scheme and the Kpeshie pilot schemes. I was a part of the Kpeshie team, and our coverage spanned the LA, Teshie, and Nungua enclaves and areas near the airport and cantonments.

In the pre-transformation era, the schemes started with paper-based and manual processes. For example, schemes primarily employed the issuance and use of manual booklets. On the use of manual processes, a district officer shared his experience:

People are required to have a form of identification to access health facilities and receive medical care. The challenge is in verifying the authenticity of the NHIS client. To tackle this, they were provided with booklets. These booklets included the individual's name, specific personal details, and a hard-copy photograph, similar to a passport photo. This photograph was securely attached to the booklet, signed and given to the individual.

The process extends to the healthcare provider. At the health facility, they receive a compilation of names on paper submitted by the DMHIS to the health facility for use as a reference. When a health insurance subscriber presents their identity booklet to the health provider, the provider

cross-checks it against their list to verify its inclusion in the DMHIS-provided list. If a match exists, the healthcare provider offers health services to the insured member.

Upon completing health services for the insured member, the healthcare provider generates a hard copy of the claim form. Figure 5.2 shows the physical storage of manual claim forms received from healthcare facilities. This form is subsequently submitted to the DMHIS for processing and payment. Once the claim has undergone processing, the healthcare provider is notified of the availability of their claim payment in the form of a cheque, which they then collect and present to their bank.

Figure 5.2: Physical storage of NHIS claims forms.
Source (NHIS 2019)



In summary, the process involves the sorting of health insurance clients, issuance of booklets, distribution of a manual list to healthcare providers to verify the authenticity of health insurance clients, submission of hard copy claim bills by healthcare providers, processing and payment of claims by the DMHIS, thus concluding the cycle.

5.5 IT-Enabled Transformation of the National Health Insurance Service

With the paper-based and manual processes posing operational and efficiency challenges, DMHISs introduced information technologies to automate the workflow. DMHIS engaged consultants and software developers to create and implement health insurance applications to manage membership and claims procedures.

The deployed IT solution comprised membership applications linked to a backend database, either a Microsoft Access or Microsoft SQL database. This setup was hosted on a single computer. It was mandated that, as part of collecting personal and demographic information from health insurance members, their photographs were also to be captured. However, this requirement posed several challenges, as health insurance members were requested to provide a passport-sized photograph to complete their member registration. An MIS officer at a scheme office shared his experience:

When I joined the scheme, membership applications functioned on a standalone basis. We asked individuals to supply passport photographs. Later, we adopted the use of a digital camera to capture an image of the provided photograph before transferring it to the computer. This image was then cropped and integrated into the application. However, the resulting image on the ID card frequently appeared distorted and blurred. This gave rise to many complaints about the quality of the images on the card, primarily attributed to the physical handling.

In response to the challenge mentioned above, it was suggested that the applications be updated to enable the direct capture of images from a flatbed scanner, which would likely result in better photo quality than a digital camera.

To automate health insurance processes, the deployment of standalone applications was expanded to healthcare providers to facilitate verifying health insurance members at the point of service delivery. During the initial stages of deployment, health facilities under the Kpeshi DMHIS in the Greater Accra region received the healthcare provider version of the application. These facilities included LA General Hospital, Teshie Health Centre, Manna Mission Hospital, and Police Hospital. Subsequently, the deployment was extended to encompass the 37 Military Hospital.

However, it is worth noting that not all healthcare facilities were conducive to introducing health insurance applications into their environment. Some reluctance was observed, stemming from conflicts with the management of the healthcare facility and a general unwillingness to embrace the idea. As a result, certain healthcare providers were more favoured, as they displayed greater receptivity to the proposed changes.

Another challenge that emerged was the lack of networking between the application and database and the absence of information exchanges with healthcare providers. On this matter, an MIS officer within a DMHIS provided the following insight:

We engaged consultants who, regrettably, lacked proficiency in business systems. Their expertise was primarily in programming. Thus, they encountered difficulties when confronted with the business facets of IT. In particular, they lacked the knowledge to develop applications with shared databases that facilitate instantaneous access.

A digital version was introduced instead of providing healthcare providers with a hard copy list. The scheme developed a process whereby all active or eligible members from the DMHIS database were extracted, transferred to an external storage medium, and sent to the healthcare provider.

Subsequently, a program routine was executed to update the hospital's database. Healthcare facilities also utilised the application to authenticate health insurance members by not merely relying on ID cards but by employing a barcode reader integrated with the application to scan the barcodes on the ID cards, thereby confirming the eligibility of the health insurance member.

In the initial years following the establishment of the NHIS, District Mutual Health Insurance Schemes (DMHIS) operated as distinct corporate entities, each governed by its board and operating under the oversight of the district assembly. Consequently, they initiated and adopted various operating models, processes, and health insurance applications. Between 2004 and 2005, DMHISs in the Greater Accra, Central, and Western regions began establishing Local Area Networks (LANs), engaging different software developers to develop applications for membership, claims, and healthcare providers, and configuring user setups to commence operations. Reflecting on the establishment of the DMHIS, a staff member at one scheme made the following observations:

We entered into a subcontract with an individual based on a pre-finance arrangement. Under this agreement, the district would compensate them for setting up a local area network. A specialist would install the requisite software, establish the network, and configure user accounts. Only upon the completion of these steps would the scheme officially begin. We carried out such projects for several districts, including Ga District, Ablekuma, Okakoi, and Ashiedu Keteke. The consultant we partnered with was tasked with 65 districts in Ghana. Their responsibilities were extensive: they had to secure office space, set up a local area network, recruit and train staff, and install the essential system or software. Once these elements were in place, the registration process could commence.

DMHISs were not interconnected with or sharing data with healthcare providers or health facilities. The applications were standalone instances, lacking any mechanism for automated data exchange. As a result, manual updates were required between the contracted healthcare providers

and the scheme for managing health insurance membership and claims applications to ensure consistency in membership records and authentication.

Regarding handling health insurance claims when a member sought care at a health facility, the membership application generated an authentication code, which was then written on the manual claim form before submission to the DMHIS. Upon receiving the manual claim forms, often in large numbers for processing, the code had to be manually entered into the district application to establish a match. This practice frequently led to disputes with healthcare providers, as the data between the two entities was not consistently synchronised through manual updates. A claims officer further elaborated on the challenges associated with this process:

In verifying claims received from healthcare providers, our initial intent was to scrutinise each individually. However, due to the overwhelming volume, we occasionally resorted to random checks, delegating the remainder to manual processing. Ideally, we should have employed software to capture these claim details, consolidating aspects like attendance, services provided, diagnoses, and treatments, including prescribed medications. However, we were overwhelmed by the responsibilities associated with registration. Our primary focus was member registration, especially given the pressure from political bodies. As a result, we largely overlooked the claims processing module within our system.

Various vendors developed software applications for use by DMHIS across the 144 districts, leading to significant political considerations when choosing and implementing a specific vendor's software. Consequently, in some regions, a particular vendor's software application dominated the districts within that region, often influenced by the vendor's political connections. This diversity in software solutions resulted in varying member registration and claims processes among the DMHISs.

DMHISs issue their member identity cards, which are distinct from those used by other DMHISs. This diversity of cards created confusion among healthcare providers, who sometimes refused services to cardholders due to their unfamiliarity with the presented cards. Residents resorted to multiple registrations to bypass this issue, inadvertently inflating the health insurance database across DMHISs.

It is essential to highlight that during this period, the council, which later evolved into the Health Insurance Authority, did not have a fully functioning IT division. This summary encapsulates the key actors, environmental context, decisions, actions, and processes involved in establishing the 144 DMHISs before 2006.

5.5.1 Outcome of IT-Enabled Transformation of the National Health Insurance Service

When health insurance legislation took effect, municipal and district assemblies were tasked with creating and implementing the scheme, overseen by locally established boards. However, the overseeing authority lacked a fully functioning ICT directorate to provide strategic IT guidance. Consequently, the development, implementation, and use of information technologies were decentralised and uncoordinated, leading to several problems, including manual member authentication, an inefficient ID card issuance system, weak portability, manual claims management, high provider claims, inadequate controls, and heightened fraud.

Effective authentication of eligible scheme members at the point of healthcare service delivery was hindered due to the absence of suitable information technologies. This often resulted in

eligible members being denied healthcare services or unauthorised individuals benefiting from the service, contributing directly to high provider claims and claims fraud.

The inefficiency of the identity system arose from multiple disconnected and isolated information systems and processes used for capturing, registering, producing, and distributing membership identity cards. Portability within health insurance, referring to a member's ability to access services under their policy regardless of their location, was compromised when healthcare providers could not adequately authenticate and assess the eligibility of a person holding a health insurance membership card. Consequently, members outside their district or region could not access health insurance services, resulting in a weak health insurance portability system.

Claims processing was also labour-intensive and manual, as the applications designed for claims processing could not correctly vet claims submitted by healthcare providers. In cases where such applications existed, they often had weak controls and insufficient business rules to process claims accurately or identify fraudulent submissions. Instances of fraudulent claims were numerous, exacerbating the overall challenges faced by the NHIS.

By the end of 2005, a widespread public outcry had arisen from citizens who had registered for health insurance but had not received their membership cards for extended periods, ranging from six months to one year. The production of membership cards involved a series of manual and time-consuming processes, including agent-led community identification and mapping. The community map entailed the creation of a coding system for each community, encompassing codes for community, street, and houses. This system, known as the community code, served as the map for

identifying residents eligible for registration into the Scheme. After establishing the necessary registration conditions, residents' actual registration commenced. Regarding the registration process, a regional ICT coordinator shared the following insights:

Initially, individuals were not visiting the NHIS district offices at all. Instead, agents undertook this role. They would collate the names and present them to us for entry, after which we would generate what we referred to as a 'photo-taking register'. Using this register, we would then return to the community, locate the individuals, and take their photographs.

The situation described above necessitated the Scheme to return to the office and initiate the process of matching the pictures with names. Unfortunately, this registration process was riddled with inconsistencies, duplications, and errors. An MIS Officer shared his experience with this procedure, highlighting the challenges faced:

We utilised a digital camera to capture images and kept track of the sequence, labelling them as 'picture1', 'picture2', and so on. We recorded this sequence on the form of the resident being photographed. However, issues arose when downloading. Sometimes, we would open the folder and discover an image had been mislabelled or had "jumped" sequence. We proceeded, believing the indications on the form were correct, only to realise later that the cards we generated had mismatched pictures and names.

After the challenges encountered with the photo-taking process, it was decided that collecting passport pictures would be a more practical approach than taking photographs during registration. Agents were equipped with registration forms to facilitate this change and sent to the communities. During household member registration, Agents would affix a picture of their passport to the back of the registration form, along with their name and date of birth, for identification purposes.

While this adjustment resolved one issue, it inadvertently gave rise to another problem—the cost incurred by households for obtaining passport pictures. This additional expense burdened some low-income families who could not afford it. An MIS Officer with a Scheme in the Greater Accra region expressed the following concerns regarding the photo-taking aspect of the registration process:

Indeed, the process of handling the pictures was exceedingly challenging. I recall instances during mass registration – where we registered many Ghanaians – that working with the photographs made data processing arduous. We often found ourselves working late into the night to manage the images. Each picture had to be processed for every individual: cropped, named, and appropriately labelled before we could begin data entry. If this preliminary process was not meticulously executed, it would invariably lead to errors, and any subsequent errors by the data entry clerk would compound the issue.

The procedure described above was the approach adopted by DHMIS for the core health insurance process of member registration. However, it was far from efficient, leading to widespread public dissatisfaction. This inefficiency was the primary reason why the turnaround time for individuals to receive NHIS membership cards and access health services extended beyond six (6) months.

Recognising the pressing need for improvement, the newly established ICT Directorate faced several critical questions. These questions revolved around the challenges of harmonising the seven (7) different types of software and the seven (7) different processes across the 145 districts. They also sought solutions to ensure a standard ID for health insurance, among many other issues.

In response to these challenges, the Nationwide Integrated ICT Solution concept was formulated in 2006, with its implementation commencing in 2007. This marked the inception of a series of stages in the digital transformation journey.

5.6 Digital Transformation of the National Health Insurance Service

Upon assuming the ICT (Information Communication Technology) Director role at the NHIA in 2007, the incumbent was tasked with crafting a digital transformation strategy outlining the approach and direction for acquiring, developing, and implementing ICT systems. An assessment conducted in preparation for this strategy revealed the need for application systems to be an integral part of the transformation effort. These systems were meant to facilitate the modernisation of operations at the district and sub-metro levels, supporting essential business activities such as member registration, premium collection, ID card issuance, claims management, financial accounting at the scheme level, generation of periodic and ad-hoc reports, corporate governance, education, and publicity.

A team of ICT experts was assembled to brainstorm the technology platform that would underpin the NHIS operations. It was envisioned that any implemented solution would address several key objectives, including:

- Facilitating effective communication between schemes, regulators, and service providers for critical data collection.
- Managing risk, controlling fraud, and ensuring sustainability.
- Addressing the portability requirement.

- Capturing and storing the biometrics of members during registration.
- Verifying the details of active members before they receive benefits.
- Issuing member ID cards immediately after registration, with an effective date for benefit receipt.
- Ensuring efficient claims management to effect payment within 30 days after submission.

An evaluation of existing software applications nationwide revealed their limitations in delivering a nationwide integrated solution. The assembled team of ICT experts concurred that to meet the challenges above and opportunities, the organisation needed to procure and implement the following ICT solutions:

- Applications comprising ERP (Enterprise Resource Planning), identification management, security (biometric and bar-coding), and business intelligence.
- IT infrastructure, including data centres, Voice over Internet Protocol (VoIP), and a wide area network.
- Recruitment and training of competent ICT staff.

The digital transformation strategy thus provided a framework for ICT scope planning, development, implementation, project management, and support to transform NHIS operations efficiently and effectively in line with the objectives outlined in the National Health Insurance Act, 2003 (ACT 650).

The strategy was underpinned by ten guiding principles: flexibility, collaboration, integration, innovation, simplification, standardisation, responsiveness, scalability, cost-effectiveness, and efficiency. These principles were considered essential to enhance the long-term value of ICT solutions in planning, development, implementation, and eventual use. A ‘buy’ rather than ‘build’ philosophy was adopted for ICT acquisition. This choice was based on the belief that commercially acquired ICT solutions were generally current, well-supported, and free of bugs, as opposed to the time and resources required for in-house development, which might not result in commercially available solutions.

Post-strategy development and before the implementation and rollout of the nationwide integrated ICT solution, a number of activities took place. A contract for web development was awarded to a vendor after a competitive bidding process to launch the NHIS website at www.nhis.gov.gh. A tender in the form of a request for proposal (RFP) was published seeking to procure IT infrastructure hardware and services, enterprise applications, setting up of a data centre with servers, VoIP, etc. Through a competitive procurement process involving presentations, demonstrations and site visits to some parts of the country, the contract for a turnkey solution involving the nationwide ICT infrastructure, data centres, VoIP connectivity between all DMHIS, ERP (Enterprise Resource Planning), etc was awarded to A1 Technologies (pseudonym).

5.6.1 Digital Transformation: Phase One

The initial phase of the digital transformation process took place between 2007 and 2010. This phase aimed to achieve specific objectives related to technology, processes, personnel, and data. Adopting digital technologies involved establishing a decentralised network comprising very small

aperture terminals (VSAT) or satellite dishes, which were centrally managed. This network connected all DMHIS and approximately 736 healthcare providers nationwide to a primary data centre. The primary data centre possessed replication capabilities to ensure data redundancy and a secondary data centre for disaster recovery and business continuity.

Based on the Oracle e-business suite, the central platform was configured with multiple modules designed to address key business processes to minimise data duplication within the scheme and streamline essential health insurance procedures. These modules included membership registration, claims administration, health provider accreditation, and handling user complaints. Moreover, digital technologies were implemented at healthcare providers' facilities to enable authentication of the newly introduced single NHIS card, which was integrated into the overall solution.

To ensure that the Oracle e-business suite, an off-the-shelf ERP (Enterprise Resource Planning) application, aligned effectively with NHIS business processes, the system's implementers and the vendor engaged in a series of configuration and customisation stages. A business analyst from the Scheme and a member of the implementation team provided insights into these configuration and customisation efforts:

We underwent an extensive rollout, executing three levels of configurations. We conducted what are termed 'conference room pilots', or CRPs, an integral component of business process management. The CRP approach is especially suitable when opting for an off-the-shelf application or suite. During a CRP, stakeholders gather for a round-table discussion. They get a preview of the system, and the developers or providers might say, "We are introducing this feature," to which stakeholders might respond, "No, we do not want this; we would prefer that instead." Based on this feedback, the developers make the necessary adjustments. We conducted a total of three such CRPs.

The vendor established deployment teams responsible for progressively rolling out the network infrastructure at the DMHIS offices and healthcare provider sites, moving from one region to another. One of the central challenges the implementers faced was addressing: “How can we transfer the data stored in the standalone applications across the 145 district offices, which contain members’ health insurance data, into the Oracle database?” An extraction and migration plan was meticulously devised and executed to tackle this issue.

The plan entailed collaboration with the developers of the individual applications. It involved mapping the data structure, identifying and marking the pertinent fields for extraction, and performing data cleansing and extraction procedures. Upon successfully extracting and migrating DMHIS data to the Oracle database, a freeze was enforced on using the old DMHIS application, and the individual DMHIS units transitioned to the new system. Three distinct environments were established to facilitate the implementation of the Oracle platform: the development environment, where developers implemented user requirements; the training environment, where end users conducted system testing; and the production environment, which represented the live system. Once DMHIS data had been migrated to the production environment, the old system was discontinued, and the existing server was decommissioned.

5.6.1.1 Outcomes of Digital Transformation: Phase One

Phase one of the digital transformation yielded several positive outcomes. Firstly, it enabled health insurance subscribers to relocate from one district to another to access services, effectively resolving the issue of service portability. This achievement was made possible by implementing a

centralised membership digital platform. Secondly, the production of membership ID cards became standardised. In the past, each DMHIS independently printed its membership cards, causing health providers difficulty verifying the legitimacy of a subscriber's membership card. Introducing a uniform membership identity card simplified the verification process at the point of service delivery. Thirdly, the reporting across various business processes, including complaints, claims, accreditation, and finance, was enhanced.

However, alongside these benefits, some unforeseen challenges emerged. Most notably, as the number of enrolled individuals and service utilisation within the Scheme increased, the volume of claims also experienced a surge, reaching its peak around 2010. The system, designed to handle claims via the integrated computing platform, proved inadequate in anticipating the overwhelming number of claims and the resources required for effective management. Consequently, there was a significant delay in reimbursing claims submitted by healthcare providers. This delay stemmed from the absence of real-time electronic claims processing configuration, resulting in a substantial backlog in claim processing. The following four sections will explore adverse outcomes related to membership card production, claims management, data integrity, and healthcare provider authentication.

Challenges with Membership Card Production: Following the implementation of the centralised membership platform, DMHIS adopted this platform for enrolling new members and renewing memberships that had expired. As a result, the responsibility for printing membership cards at district offices was shifted to card production facilities located in Accra, the capital of

Ghana. These facilities were contracted to multiple entities. Notably, the technology used for the membership cards was updated from laminated paper cards to magnetic cards.

To facilitate data transfer from the database to the card production facility, a script was developed for extracting records earmarked for card production. Once the cards were produced, they were distributed to various district offices nationwide. However, there was a significant delay in the process, as by the time the cards were transported back to the district offices, several months had typically passed, making it difficult to trace the cardholders. The swiftness associated with data entry on a standalone application did not seamlessly translate into speed when using a centralised and intricate application interface. Longer loading times occurred over satellite connectivity, leading to delays in the registration process. A District MIS Officer shared their perspective on these emerging issues:

Certain issues that we had previously addressed resurfaced when we transitioned to the nationwide ICT solution. This was because the new system did not incorporate the controls that we had meticulously developed in the standalone solutions at district offices over a span of three to four years. The Oracle system seemed to have its limitations. Firstly, being an off-the-shelf product, extensive customisations proved costly, leading them to leave many aspects unaddressed. As a result, these shortcomings reintroduced challenges. For instance, even the receipt field in the Oracle e-business suite lacked validation controls – if one entered ‘Kofi Mensah’, the system would erroneously accept it.

Non-Use of Claims Module: The digital platform was anticipated to streamline the claims process, enhance accuracy and efficiency, and offer valuable data insights. However, several issues impeded the realisation of these goals.

Firstly, the front-line officers responsible for capturing claims data found the application interface confusing and labour-intensive. As a result, it took at least 20 minutes to complete the entry of a single claim form. This extended duration was exacerbated by sluggish network connectivity, particularly over satellite connections, which further prolonged the time required for each entry.

Secondly, claims managers preferred manually completed claim forms for vetting purposes and were not inclined towards electronically vetting claims submissions. This preference led to a situation where the claims section of the platform was considered unusable and was eventually abandoned.

Manifestation of Data Integrity Issues: Data integrity issues were evident in various ways within the NHIS data repositories, mainly stemming from ineffective controls implemented across the core applications. As previously mentioned in the account of a District MIS Officer and corroborated by other reports, specific fields within the membership application allowed for inputting any data type, disregarding their specified data format. For instance, the receipt number field, which should have accepted only numeric entries, allowed the input of text and other non-numeric characters.

Beyond these weak controls, the most significant factor contributing to the unreliability of NHIS data was the occurrence of multiple registrations. The membership application could not track these duplicate registrations, and the claims application was unable to detect duplicate claim entries. A business analyst from the IT Division provided the following insights regarding the data integrity issues:

Despite the implementation of the Oracle e-business suite, we continued to grapple with challenges, particularly concerning data integrity. We could not rely on or vouch for the data. How could we use corrupted data for making projections or budgets? I consistently raised this concern until it was finally acknowledged. However, by then, there was a shift in administration: the NPP had left, and the NDC had taken over. Regardless of the administration in power, my stance remained unaltered, reiterating that “Our data is corrupted.” I can provide insights into why the data was compromised, having been involved in the conversion process and being aware of the issues leading to the integrity problems.

Following numerous stakeholder meetings and brainstorming sessions, a decision was reached to address the data integrity issue by introducing biometrics. However, this decision was not without controversy. Some stakeholders proposed scrapping the entire database and starting anew. In contrast, others suggested that NHIS continue working with the existing data while resolving the integrity issue as members renewed their memberships or underwent new registrations with biometric markers. Ultimately, these proposals underwent rigorous debate by senior management and the NHIS board, with a preference for adopting a gradual approach.

This paved the way for the commencement of the second phase of digital transformation, aimed at implementing a biometric membership system known as the BMS (Biometric Membership System). This initiative involved acquiring new devices capable of capturing subscribers’ biometric features, enhancing the data centre to accommodate the new processes, procuring biometric scanning machines, fingerprint scanning machines, and card readers, and replacing the existing membership cards with new ones. Regarding card transition, NHIS evolved from manual booklets to laminated cards and from magnetic to biometric cards.

Health Provider Authentication: During the initial phase of digital transformation, digital technologies were employed to establish a decentralised network connecting approximately 736 healthcare providers nationwide. This network relied on very small aperture terminals (VSAT) or satellite dishes. It provided healthcare providers with essential equipment, including desktop computers, network devices, authentication tools, and a front-end application for verifying active health insurance membership, granting access to health insurance services. Initially, these resources were utilised by healthcare providers, but unfortunately, they eventually became obsolete, often referred to as “white elephants,” and were completely abandoned.

There were several contributing factors to this abandonment. First and foremost was the connectivity issue, particularly related to satellite communication. Second, personnel-related challenges played a significant role, as operational support became a major hurdle due to a lack of qualified staff or IT capabilities, and even those with the necessary skills often displayed apathy towards technology and its implementation. Thirdly, the system encountered deliberate interference and disruptions, often stemming from personal agendas.

Personnel shortages emerged as a paramount barrier, with individuals initially trained to oversee the system frequently unavailable during subsequent visits to healthcare facilities. Additionally, healthcare providers generally showed little interest in digitally verifying the eligibility of health insurance subscriptions. Instead, they preferred advising patients to bring photocopies of their membership cards, a practice identified as a means of generating false health insurance claims. Remarkably, even without a patient’s visit to the hospital, healthcare providers could exploit

multiple copies of photocopied membership cards to generate health insurance claims. A District MIS Officer shared their insights on these developments at healthcare facilities:

When we visited the hospitals to assess the system, they often told us they lacked the personnel to operate it. They would mention that the national service person we had trained had completed their service and departed. This was a recurring challenge we faced with the hospitals. Thus, regarding the system's implementation at the hospitals, I would assert that it was a significant failure.

Ultimately, there were pros and cons to the digital transformation phase one. While it did make services more easily accessible across different locations, there were also some adverse outcomes.

A Director within the IT Division recounts:

We soon recognised the pressing need to address our membership data. Indeed, we had brought all the DMHIS data into a singular, unified database. However, we were acutely aware that the numbers were inflated due to duplicates; many people had registered multiple times. Consequently, it became imperative to devise a strategy to effectively clean the data. We surmised that the optimal approach would be to introduce biometrics, thereby facilitating the generation of unique identifications.

In response to the widespread problem of multiple registrations stemming from delays in ID card production after the nationwide integrated ICT system implementation, the National Health Insurance Scheme (NHIS) acknowledged the necessity of introducing a biometric membership system between 2012 and 2015. The primary objective was to rectify the membership database by eliminating duplicate records. It can be noted that the pursuit of the next stage of implementation began even before the preceding phase was formally completed. Unfortunately, the expected impact of this initiative did not materialise as significant bottlenecks emerged within two key business processes related to membership and claims.

5.6.2 Digital Transformation: Phase Two

In 2012, the Scheme encountered system slowness and significant downtimes. These issues were attributed to a surge in daily transactions and reporting requirements, increased district offices and users, and an ageing data centre system with persistent data integrity problems. Before 2012, there had been discussions about implementing a Biometric Membership System (BMS) to address these data integrity challenges.

The deployment of the BMS aimed to achieve the following objectives:

- Instant issuance of membership ID cards during renewal or registration.
- Cleansing the NHIS membership database by utilising biometric data to eliminate duplicate records.
- Implementing an effective identification and authentication system at the point of healthcare service delivery.
- Establishing a connection between facility visitation and claims management.
- Enhancing the quality of data available for policy decision-making.

To facilitate the integration of biometrics, several prerequisites had to be met. These included upgrading the data centre core servers from 32-bit to 64-bit platforms, transitioning the Oracle database from 10g to 11g, upgrading applications from 11i to 12i, and expanding storage capacity by 6TB.

An improved version of the Oracle e-business suite for membership was introduced to capture biometric information on-site, including card reading and fingerprint scanning. The implementation of this new system underwent a rigorous process, including a user acceptance test, training sessions, and eventual rollout. The introduction of biometric cards led to the immediate issuance of membership cards, eliminating the need for district offices to handle card production. Additionally, provider authentication devices were procured for approximately 1,700 healthcare facilities.

5.6.2.1 Outcomes of Digital Transformation: Phase Two

The new system was introduced to the public at designated district centres, allowing individuals to instantly register and receive biometric cards. Both first-time subscribers and those renewing their subscriptions completed their registration by providing biographic information directly on the new biometric system platform. During the biometric registration process, data capture personnel used desktop and laptop computers running the BMS client application to capture and record the client's biographic information. Subscribers' biometric data, including up to ten fingerprints and facial features, were captured using scanners and digital cameras connected to the BMS workstation.

The ongoing registration was validated in real-time through a wide area network link connecting the various registration points to the backend BMS systems hosted at the NHIS data centre. Real-time validation of biometrics helped prevent multiple registrations under the same individual in the database, a primary objective of the BMS in resolving the underlying data integrity issues of the previous system. After capturing and validating the necessary data, a biometric card with a

unique 8-digit member ID was printed using a card printer connected to the BMS workstation and issued to the subscriber. This card contained the subscriber's biometric data and basic biographic information stored in its internal memory.

Biometric kits were installed at selected health facilities to verify subscriber identities accurately before healthcare services. These kits included a tablet computer running biometric client software, a card reader, and a fingerprint scanner. To verify a subscriber's identity, they had to insert their biometric card into the card reader and place their fingers on the scanner. When a match was found, the system displayed the member's ID, name, date of birth, portrait picture, and a 13-digit claim check code (CCC) as proof of their attendance at the health facility. The introduction of the BMS in 2013 coincided with the implementation of a re-engineered electronic claims system (e-claims) to expedite the claims fulfilment process and address fictitious claims. Similarly, healthcare providers using a front-end e-claims submission portal were required to submit claims electronically.

The implementation of the biometric enrolment process was not without its challenges. Despite its benefits, such as enhanced data integrity, several hurdles had to be addressed. These challenges included technical issues, such as ensuring the proper functioning of biometric devices, a shortage of registration kits, and poor network connectivity that hindered real-time validation. There were also logistical concerns, such as managing the enrolment process for many people. The scheme's activities were widely publicised in print and online media, and the rollout of NHIS biometric ID cards was no exception. Figure 5.3 below provides examples of media coverage during the rollout

period, sourced from various online media outlets, while figure 5.4 shows early morning queuing (6:54 am) at a health insurance office.

Figure 5.3: Media Coverage of NHIS Biometric Deployment.

Figure 5.4: Queuing at NHIS Office for Biometric Registration. Source: (Captured by researcher)

Source : (Internet)



5.6.3 Digital Transformation: Phase Three

Process transformation has been a central concern for the NHIS. While significant progress was achieved in enhancing service delivery, the transformation journey had been slow and cumbersome, and tangible outcomes had remained elusive. Despite the value of digital transformation, various obstacles continue to hinder the smooth flow of operations and reduce efficiency. These challenges encompass insufficient capabilities for processing insurance claims, resulting in a substantial portion of insurance claims still being processed using paper claim forms. The transition to a paperless system remains unattained. Producing and distributing membership identification cards has also been beset with persistent challenges that demand attention. System slowness and downtime have persisted, leading to long queues at district offices.

Health insurance coverage has remained stagnant at an all-time low, leaving many individuals and families without the necessary protection and access to medical care. Historically, the NHIS has sought to leverage digital technologies to transform specific processes. However, this approach has proven to have a significant drawback: it has created siloed and disconnected systems. Consequently, the potential benefits of these transformation attempts have not been fully realised. This concerning trend has underscored the need for integration. Therefore, in this phase of digital transformation starting in 2016, the NHIS aimed at process transformation through integration, leveraging digital platforms and services. This was articulated as the imperative need to align Information Systems (IS) with the business's needs and the goals of the transformation.

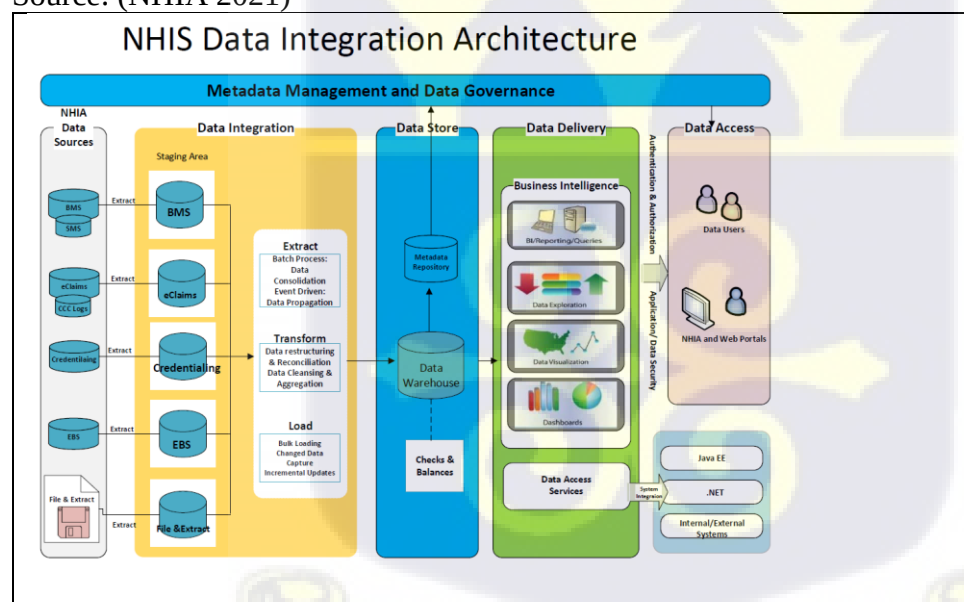
With data integration, digital platforms, and services at the forefront of digital transformation phase three, the NHIS endeavoured to consolidate the various islands of information, disparate processes, and isolated applications to enhance the delivery of health insurance services and foster a deeper understanding of existing processes. Two major projects in this phase were an Electronic Data Interchange (EDI) Project based on a data integration architecture and the utilisation of digital platforms.

The EDI project aimed to bring together previously disparate information sources, processes, and applications into a unified platform. This, in turn, was expected to provide expedited access to comprehensive information, reduce paperwork, enhance productivity, improve business visibility and intelligence, and eliminate duplication of efforts. This integration primarily focused on aligning the NHIS back-office systems with core front-end processes. Significant improvements were anticipated in member management, claim accuracy, and reduced errors and fraudulent

activities. Furthermore, the introduction of a business intelligence (BI) system offered a holistic view of organisational data and a better understanding of existing processes. Figure 5.5 illustrates the NHIS data integration architecture, outlining a four-step process: Data Integration, Data Store, Data Delivery, and Data Access. Information is extracted, transformed, and loaded into a centralised Data Warehouse from diverse data sources. This stored data is then utilised for Business Intelligence tasks, such as visualisation and dashboard creation. Finally, various platforms and users access the data, with the entire system emphasising metadata management and data governance. This architecture serves as a framework to streamline data processes, ensure data integrity, and facilitate ease of access within the context of business process transformation.

Figure 5.5: NHIS Data Integration Architecture

Source: (NHIA 2021)



The NHIS Data Integration served as the cornerstone for developing digital platforms and services. At its core, it consolidated data from numerous sources, resulting in a unified data repository in

the form of a data warehouse. This ensured that digital platforms had access to consistent and reliable data, expediting analytics and insights while enabling seamless connectivity with various digital services and ensuring interoperability.

The systems introduced before 2016 were not designed with user convenience in mind. Consequently, subscribers were required to be physically present at DMHIS offices, leading to extended queues and wait times nationwide. In 2017, a digital platform for mobile renewal was conceived, securing funding from the International Labour Organization (ILO) to strengthen membership registration to align with the United Nations' universal health coverage goals. Following the initial development of a prototype version, the platform underwent a scaling process, transitioning to pilot testing and, subsequently, full-scale production. Figure 5.6 depicts a systems-level transformation plan outlining various systems and processes involved in the registration and administration of health insurance services with the goal of rolling out digital renewal and e-receipt, integration with the National Identification Authority (NIA) and scaling up e-claims.

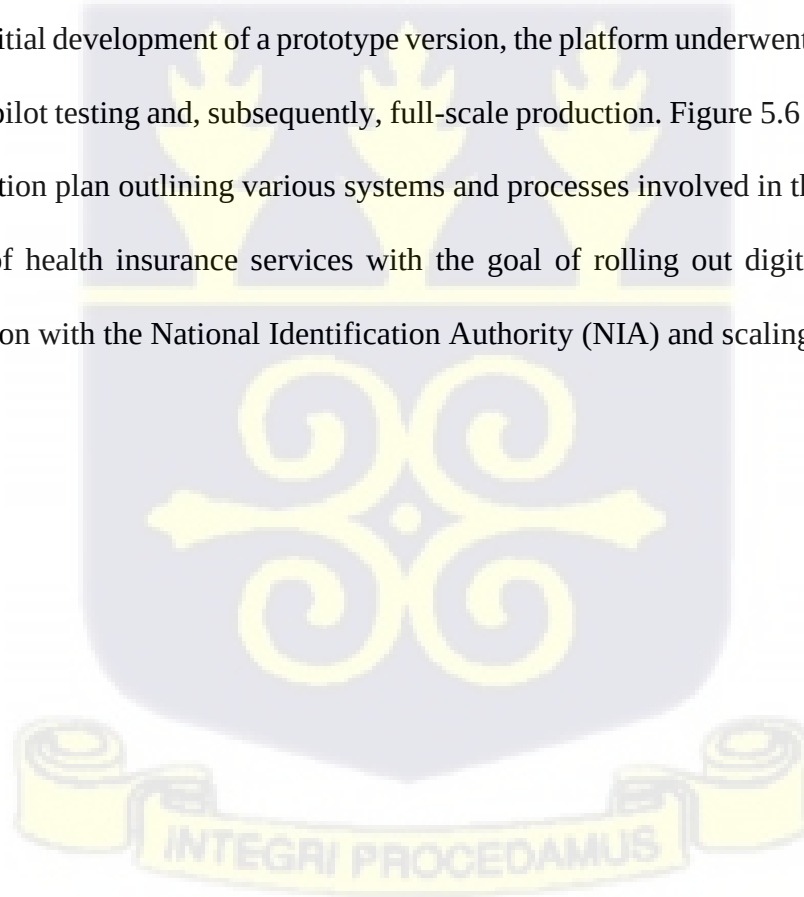
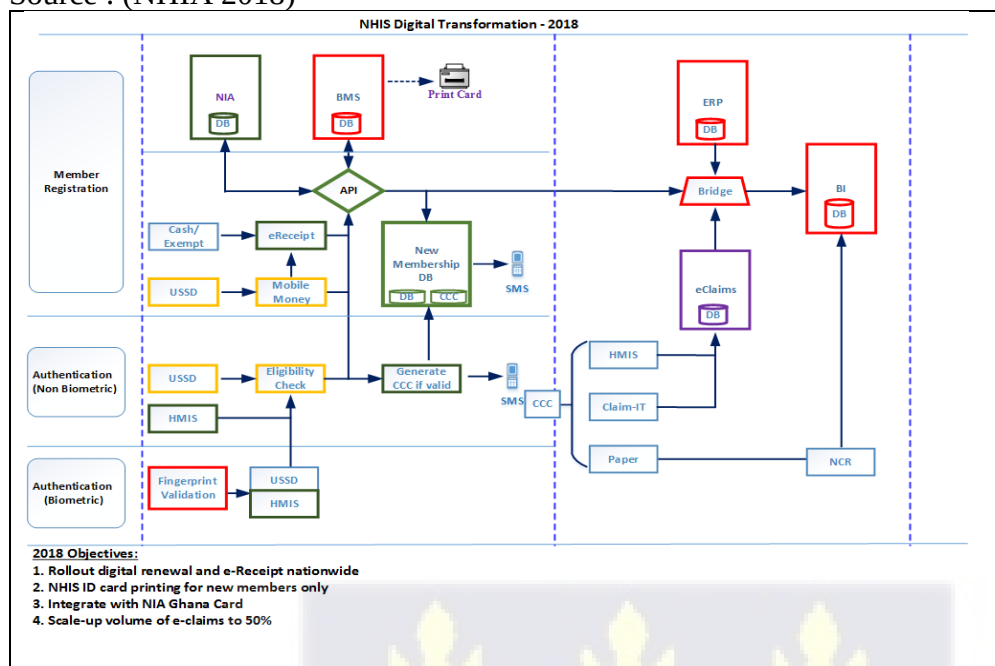


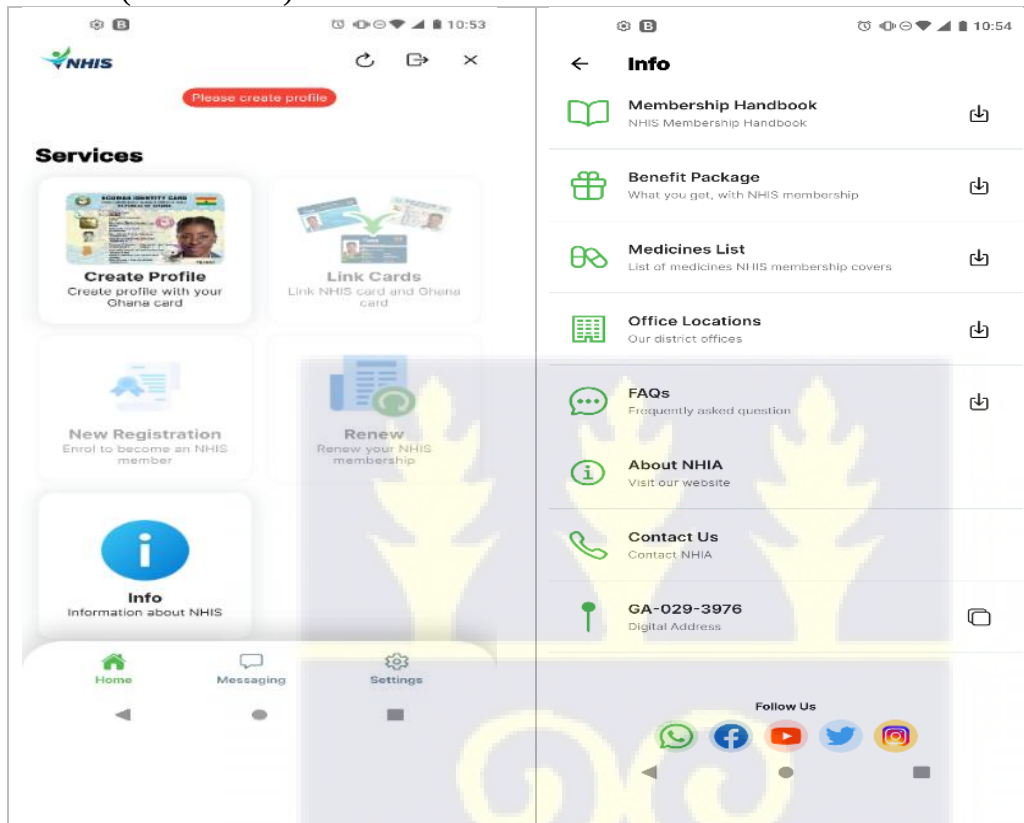
Figure 5.6: Process Transformation Flowchart
Source : (NHIA 2018)



The platform comprises various modules, including a payment system linked to a mobile service aggregator. The payment module allows NHIS members to pay their premiums using their mobile phones through the networks of participating telecom companies: Vodafone, MTN, and AirtelTigo. Additionally, the system incorporates application programming interfaces (APIs) that enable integration with health provider platforms for authentication purposes. After a successful pilot implementation in two districts of Ghana, the mobile platform was gradually rolled out nationwide, commencing in December 2018. The mobile renewal component of the platform leverages Unstructured Supplementary Service Data (USSD) to provide messaging services to health insurance members. This includes functionalities such as membership renewal and premium payment. Figure 5.7 displays a screenshot of the MyNHIS mobile application. The first screen allows users to create a profile, link their NHIS card to the Ghana card, engage in new registration, and renew memberships. By selecting “info” from this screen, users are directed to the second

screen (info screen), which offers a menu of options, including the membership handbook, benefits package, medicines list, and more.

Figure 5.7: MyNHIS Mobile Application
Source : (NHIA 2021)



5.6.3.1 Outcomes of Digital Transformation: Phase Three

Placing NHIS subscribers at the forefront, the digital platform incorporates a range of features to enhance their experience. One of its central functions is to send SMS reminders to subscribers before the expiration of their eligibility, offering them the opportunity to promptly complete insurance premium payments following the receipt of the reminder. Health insurance policyholders can conveniently verify the expiration date of their coverage. In addition to its primary functions, the application provides supplementary features, including access to benefits

packages and an extensive list of available medicines. Users can easily access and view this information within the application for their convenience.

The platform is expected to deliver several service benefits to members, including streamlined member renewal and registration processes and reduced waiting times at DMHIS offices. As part of its mission to achieve universal health insurance coverage, the digital platform is pivotal in eliminating process bottlenecks and expanding NHIS penetration in Ghana. The platform aligns with the scheme's overarching goal by enabling members to conveniently renew their policies from their homes without queueing at district offices.

5.7 Case B: The Case of Alpha Private Health Insurance (APHI)

To replace the cash-and-carry system and ensure that all residents have suitable access to financial protection against the costs of essential medical treatment, the Ghanaian government established the National Health Insurance Scheme (NHIS) in 2003 through Act 650, a parliamentary act. This was initiated to guarantee that all citizens have adequate access to health insurance. The aim of the Act was to ensure that every citizen and resident of the country could access basic medical care, both through public and private health insurance.

Consequently, Alpha Private Health Insurance (pseudonym) was founded the following year. The establishment of Alpha Private Health Insurance (APHI) involved complying with legal requirements and obtaining licensing from the National Health Insurance Authority (NHIA), the regulatory body responsible for overseeing health insurance operations in Ghana. Additionally, APHI had to meet specific financial and operational standards set by the NHIA to be approved as

a licensed health insurance provider. This involved demonstrating that the company had sufficient financial resources to pay out claims and provide quality healthcare services to its members. APHI also had to develop a comprehensive benefits package that complied with NHIA regulations and met the healthcare needs of its target market. Once these requirements were met, APHI was able to begin offering its medical insurance products to the public.

The primary objective of its establishment was to provide Ghanaians with health insurance that was both cost-effective and easily accessible. Supervised by a Health Maintenance Organisation (HMO) with expertise in diverse areas, including information and communication technologies, APHI has emerged as one of Ghana's foremost private health insurance organisations. As the largest private health insurer, it represents a suitable case organisation for understanding digital transformation.

5.8 Structure of Alpha Private Health Insurance

Alpha Private Health Insurance's organisational setup comprises a managerial staff and a board of directors. Furthermore, the firm emphasises adopting a technology-driven strategy to enhance and optimise its systems and processes. APHI is a prominent entity in the health insurance industry, boasting a considerable presence in Ghana. With a subscriber base of over 70,000 individuals and a network of 800 healthcare service providers, APHI demonstrates a robust organisational structure that effectively oversees its operations and caters to its subscriber base.

The working relationship between the NHIA, the regulator and APHI would be characterised by collaboration, oversight, and adherence to regulatory guidelines. As APHI operates within Ghana's

private health insurance sector, the NHIA plays a crucial role in regulating and supervising health insurance activities in the country. Table 5.2 describes the role of the NHIA in relation to APHI.

Table 5.2: Structure of APHI

Role	Description
Licensing and Regulatory Compliance	To operate as a private health insurance provider in Ghana, APHI would be required to obtain a licence from the NHIA. The licensing process involves submitting detailed information about the company's operations, financial stability, management team, and insurance plans offered. The NHIA would ensure that APHI complies with regulatory requirements, including financial solvency standards, capital adequacy, and operational procedures.
Regulatory Oversight	The NHIA exercises regulatory oversight over APHI to ensure compliance with standards. This oversight includes monitoring APHI's operations, conducting regular audits, and reviewing financial reports to assess the company's financial stability and adherence to regulatory guidelines.
Compliance Monitoring and Enforcement	The NHIA has the authority to monitor and enforce compliance with regulatory requirements. This includes conducting on-site inspections, reviewing documentation, and investigating any complaints or concerns raised against APHI.
Collaboration on Policy and Scheme Design	The NHIA manages the National Health Insurance Scheme (NHIS), a government-sponsored program that provides health coverage to the Ghanaian population. While APHI operates in the private sector, there are instances where the NHIA collaborates with private health insurers, including APHI, on policy and scheme design. This collaboration ensures alignment between private insurance offerings and the broader healthcare objectives set by the NHIA.

Alpha Private Health Insurance (APHI), therefore, presents a compelling case for studying digital transformation owing to its proactive adoption of digital technologies, client-centric digital initiatives, and a culture that fosters innovation.

5.9 Pre-Digital Transformation at Alpha Private Health Insurance (APHI)

The early APHI operations were marked by manual processes, personal interactions, and paper-based transactions, starkly contrasting to the digital-enabled operations that would later define them. APHI managed its operations in its early years using rudimentary technology, such as paper files and manual systems. Manual and paper-based processes resonated through each core health insurance process. To successfully handle the claims administration, a core process for APHI's insurance operation, stacks of paper, manual sorting, adjudication, and signatures were required. Before arriving at the final approval stage, each claim went through a series of steps in which it was analysed, evaluated, and either accepted or rejected. The paper trail was incredibly drawn out and complicated.

The pre-digital era was not without its challenges. The manual processes, while meticulous, were time-consuming and resource-intensive. This convoluted paper trail often resulted in delays and errors, causing frustration for the policyholders and the insurance company. In addition, the manual nature of the process made it difficult to track and monitor the progress of each claim, leading to further inefficiencies. It became clear that APHI needed to transform its claims administration system to streamline operations and improve customer satisfaction. Internal operations and membership management also bore the hallmark of manual processes. However, as APHI grew, the membership base expanded, and the volume of data increased, APHI understood the limitations of manual processes and the potential for errors serving as the catalyst for change.

5.10 IT-Enabled Transformation at Alpha Private Health Insurance

In the context of Alpha Private Health Insurance (APHI), information technology-led transformation focused on improving various aspects of the business processes and operations using information technology. Here, the objective was to help streamline and automate the core operations of Alpha Private Health Insurance (APHI), such as enrolment, claims, billing, and health service access. By implementing IT systems and software solutions, manual and time-consuming tasks were expected to be minimised, improving efficiency and reducing operational costs.

The enrolment process for APHI is a crucial step for individuals and organisations seeking health insurance coverage for their staff. It involves capturing and verifying information, assessing eligibility, and ensuring a smooth transition from the application stage to policy activation. Between 2004 – 2008, APHI used a Microsoft Access-based database and application software for capturing enrolment information. It was understood that at inception, the subscriber strength of APHI was not significant, and so several activities under enrolment were done manually. The MIS Manager for APHI noted that:

For instance, the registration and card printing depended on manually handling and formatting subscribers' names. Once an individual's enrolment was completed, their information was collected and stored electronically. However, for the printing of insurance cards, names had to be manually extracted from the system and formatted correctly on the card. This manual task was both time-consuming and susceptible to errors.

In 2011, however, a significant growth event precipitated a rethink and a need for change in the reliance on manual processes. A corporate entity requested health insurance policies from APHI

for over four thousand (4000) employees. Regarding this significant event, the MIS Manager for APHI had this to say:

Back then, the total membership of APHI stood at approximately 9,000. When faced with a request to enrol over 4,000 staff from a single organisation, we recognised that the system was inadequate. Consequently, our initial response was to automate certain straightforward areas, such as member administration and card production.

Following the automation of the enrolment process, corporate client could directly register their staff. APHI will then access this information, verify the entries, and process the membership card to be physically delivered to the organisation. For APHI, increased enrolment and utilisation resulted in a significant increase in transactions related to claims fulfilment. In the case of APHI, there were year-on-year increases in claims, and the claims management was still a predominantly manual process. The Head of Claims for APHI recounts:

In 2014, our office was inundated with paper claims. At that time, we had approximately 40,000 clients. This situation became problematic as we ran out of space, and managing the paperwork became increasingly challenging. It even reached a point where, after receiving a paper claim, it would take us three months to process it.

The above description highlights specific challenges and issues private health insurance faces in relation to premium determination based on utilisation. In contrast, a public health insurance system operates differently.

The primary challenge encountered by APHI was the reliance on utilisation-based premiums. One problem is that health providers took approximately two months to complete the necessary claims forms and submit them to APHI. Subsequently, it took an additional three months for APHI to process the forms before the actuarial team could obtain the relevant data required for utilisation

calculations. Consequently, there was a significant delay of about five months from when a member sought medical treatment until the actuarial team obtained the data. Considering APHI's policy duration of one year, this resulted in insufficient and inaccurate data for determining the appropriate premium. As a result, APHI consistently provided unrealistic premiums, which varied from being too low to too high. When the premiums were exceptionally high, individuals were less inclined to pay and would often terminate their policy. APHI recognised these challenges and the necessity of implementing a fully automated system for claims.

In 2015, APHI embarked on a pilot program in Accra. This phase involved collaborating with around ten carefully selected healthcare providers. The phase further revealed the necessity to expand APHI's scope and capabilities. Consequently, APHI automated their operations, encompassing membership registration, claims filing, processing, and payment procedures. APHI developed an automated system that facilitated end-to-end processing of these tasks. By leveraging information technology, APHI aimed to streamline workflow and deliver a superior user experience.

By 2016, APHI had successfully transitioned approximately 50% of healthcare providers to the newly implemented electronic claims processing system. Figure 5.8 shows a screenshot of the healthcare provider claims portal. The system is web-based, allowing for accessibility and convenience. Furthermore, recognising the potential challenges of intermittent internet connectivity, APHI incorporated offline capabilities into the system. This safeguard ensured uninterrupted service delivery, even in instances where internet access was temporarily disrupted or for more extended periods, which were challenges faced by more remote healthcare providers.

Moreover, APHI harnessed the power of cloud technology by adopting a cloud infrastructure-as-a-service model. This strategic choice enabled APHI to leverage the cloud environment's scalability, flexibility, and cost-effectiveness. APHI could efficiently manage the system's infrastructure by utilising cloud-based resources, ensuring seamless performance and efficient resource allocation.

Figure 5.8: Healthcare Provider Claims Portal
Source: (APHI 2019)

Batch No	TypeOfBatch	TypeOfClaims	MonthOfClaim	DateOfClaim	NoOfClaims	ProviderClaimed	SystemAward	Status	Queries
49969	Regular Batch	Electronic Claims	Oct, 2019	04-Nov-2019	43	8,104.98	0.00	Send to Claims from Batching	Queries
49328	Regular Batch	Electronic Claims	Sep, 2019	01-Oct-2019	28	5,215.70	5,199.38	Sent to Accounts	Queries
48733	Regular Batch	Electronic Claims	Aug, 2019	02-Sep-2019	27	5,521.94	5,383.74	Sent to Accounts	Queries
48079	Regular Batch	Electronic Claims	Jul, 2019	01-Aug-2019	34	6,665.24	6,399.54	Paid	Queries
47453	Regular Batch	Electronic Claims	Jun, 2019	30-Jun-2019	34	6,506.84	6,185.36	Paid	Queries
46976	Regular Batch	Electronic Claims	May, 2019	03-Jun-2019	34	6,505.83	6,199.27	Paid	Queries
46471	Regular Batch	Electronic Claims	Apr, 2019	01-May-2019	36	7,044.24	6,660.74	Paid	Queries
45993	Regular Batch	Electronic Claims	Mar, 2019	01-Apr-2019	34	6,252.29	6,161.69	Paid	Queries
45317	Regular Batch	Electronic Claims	Feb, 2019	01-Mar-2019	28	5,411.83	5,357.79	Paid	Queries
44816	Regular Batch	Electronic Claims	Jan, 2019	01-Feb-2019	27	5,109.95	5,109.95	Paid	Queries
44270	Regular Batch	Electronic Claims	Dec, 2018	02-Jan-2019	17	3,218.55	3,218.55	Paid	Queries
43794	Regular Batch	Electronic Claims	Nov, 2018	03-Dec-2018	27	4,784.64	4,725.36	Paid	Queries
43315	Regular Batch	Electronic Claims	Oct, 2018	01-Nov-2018	31	5,458.56	5,458.56	Paid	Queries

5.11 Outcomes of IT-Enabled Transformation at Alpha Private Health Insurance

One of the initial challenges APHI encountered was the acceptance of the IT-led transformation by healthcare providers. Overcoming resistance to change proved to be a complex task. Some healthcare providers even preferred traditional paper-based processes, citing the tangible aspect of personally writing down information. The MIS Manager for APHI recounted one such engagement with healthcare providers:

I recall that our initial challenge was persuading the hospitals to embrace the change. Altering people's habits and perspectives proved to be quite difficult. There was a time when some individuals expressed a preference for paper over electronic methods simply because they were accustomed to writing things down themselves. It required significant effort to convince them otherwise.

To address these concerns, APHI dedicated significant efforts to persuade and demonstrate the advantages of the IT system. They emphasised its speed and efficiency by enabling immediate access to claims upon entry. Moreover, healthcare providers were assured that if they required prompt payment, it could be facilitated on the same day, as the system allowed expedited retrieval and processing of the necessary claim. Electronic vetting further reinforced the ability to disburse funds to healthcare providers swiftly. Despite the challenges, APHI persevered in convincing prominent hospitals to embrace the transition and integrate into their IT network.

In the context of Ghana's IT landscape and the relatively underdeveloped state of the health insurance industry, APHI encountered a distinctive scenario in trying to develop a solution to address unique challenges. The absence of standardised software tailored to local health insurance requirements prompted APHI to explore options from regions such as South Africa, Israel, and the United States. Unfortunately, none of these solutions aligned adequately with their needs. As a result, APHI embarked on an in-house development process, creating a software solution from scratch to cater specifically to its objectives.

However, during development, an intriguing realisation emerged. The challenges APHI sought to overcome were not exclusive to APHI; other health insurance providers faced similar issues. Consequently, APHI adapted their development approach to ensure that other entities in the health insurance sector could readily adopt the resulting solution. To achieve this, APHI collaborated

with external professionals, effectively outsourcing the development process to a trusted third party. While providing guidance and oversight, they facilitated the creation of a transparent system that could be shared among multiple health insurance companies. The collaborative effort ensured that the software solution met the unique needs of APHI while also serving as a viable option for the broader health insurance industry. What led APHI to take this position? The MIS Manager for APHI notes:

Although we recognised our position within the health insurance industry, we anticipated that healthcare providers' successful adoption of our solution would likely motivate other insurance companies to pursue similar initiatives. Consequently, a potential problem loomed: the proliferation of multiple software applications serving the same function within a single healthcare facility.

At that time, we deemed it essential to mitigate the potential consequences of a fragmented software landscape, wherein each insurance company would deploy its distinct software at healthcare facilities.

Ultimately, the system implementation fell short of expectations, with only a few stakeholders embracing its usage. Even in cases where the system had been successfully deployed in specific hospitals, other insurance companies did not take advantage of its capabilities.

APHI's motivation to adopt an industry-wide approach stemmed from its prominent position as a market leader in private health insurance, processing approximately 20,000 monthly claims. However, this strategic vision did not resonate with other insurance companies, primarily due to their comparatively modest membership and utilisation rates. This outcome in adoption highlights a significant challenge in realising a comprehensive and collaborative system across the health insurance industry. Despite APHI's sizable market presence, the overall impact on industry-wide

integration and utilisation was limited. Nevertheless, APHI continued to evolve in the competitive private health insurance sector into the next phase of its transformation efforts.

5.12 Digital Transformation of Alpha Private Health Insurance

As one of Ghana's leading private health insurance organisations, APHI continued to grow, serving about a hundred thousand subscribers a year with a more extensive partner network of hospitals, pharmacies, and a host of allied healthcare providers. Although IT-enabled transformation resulted in appreciable improvements in business operations and processes, APHI understood the need to fully embrace digital technology to improve customer experiences further and maintain a competitive edge in a health insurance market with a high policy attrition rate. This section examines APHI's efforts to leverage digital technology to achieve these objectives.

In contrast to public health insurance, private health insurance companies operate in a highly competitive market with very fluid onboarding and offboarding of members. For APHI, the desired outcome was efficiency throughout the value chain, delivering a better experience for members, and gaining a competitive advantage. To achieve the intended outcomes, APHI leveraged the increased mobile phone usage, the provision of services centred on mobile technology in Ghana and the development of complementary digital platforms. One key area of focus was extending platform services across several mobile channels. Due to this development, members could make premium payments via mobile money platforms.

One notable outcome of this transformation was the introduction of a streamlined and convenient transactional experience accessible through mobile devices. By leveraging Unstructured

Supplementary Service Data (USSD) codes, members could carry out various transactions directly from their phones. USSD codes provided a simple and user-friendly interface allowing members to access various services and functionalities, including policy inquiries, claims submission, premium payments, and enrolment updates. This mobile-enabled approach eliminated the need for members to visit physical offices or rely on traditional channels, empowering them with the flexibility and convenience to manage their health insurance-related activities anytime, anywhere. The adoption of USSD codes as part of the digital transformation strategy enhances accessibility, promotes self-service capabilities, and improves overall member satisfaction by providing a seamless and efficient transactional experience.

The APHI mobile app, available for download from both Google PlayStore and the Apple Store, is a pivotal component of the digital transformation efforts undertaken by the private health insurance company in Ghana. Figures 5.9 and 5.10 show different features of the health insurance mobile application. The first figure shows features for insurance policyholders, providing them with an overview of their medical expense utilisation and easy access to various features related to their health insurance policy. The second figure shows a feature for users to rate the services they have used. This user-friendly application offers a multitude of features designed to enhance member engagement and empowerment. One notable capability of the app is the ability for members to conveniently locate healthcare providers within their network. By utilising the app's intuitive search functionality, members can easily find nearby hospitals, clinics, and healthcare facilities, enabling them to easily access quality care. Furthermore, the app provides a platform for members to rate and provide feedback on the services they receive from healthcare providers, fostering transparency and accountability in the network. Another valuable feature of the APHI

mobile app is its access to members’ historical medical records, associated costs, and other essential health data. This empowers individuals to actively manage and monitor their health, make informed decisions, and track their healthcare expenses effectively. On the use of the mobile app, an IT Support Officer had this to say:

We designed the system to be user-friendly. Upon logging in, users are directed to the menu with no hidden options. They can easily view their claims. Furthermore, we ensured clarity in terminologies such as ‘claims’, ‘service provider’, and ‘enrolment’. Our clients are already familiar with these terms.

Figure 5.9: Member Utilisation App
Source : (APHI 2019)

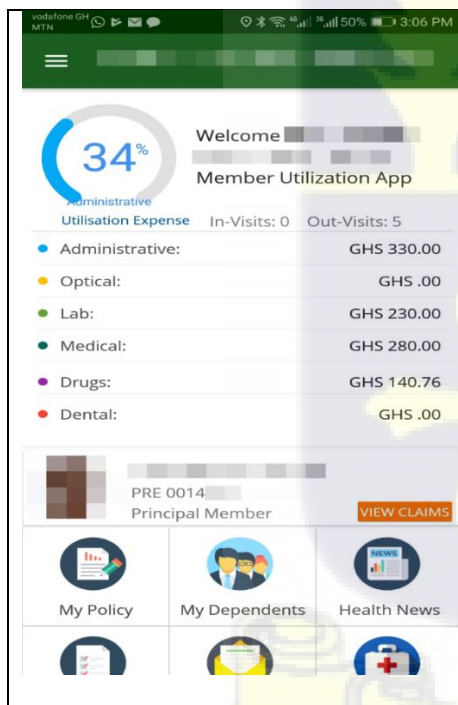
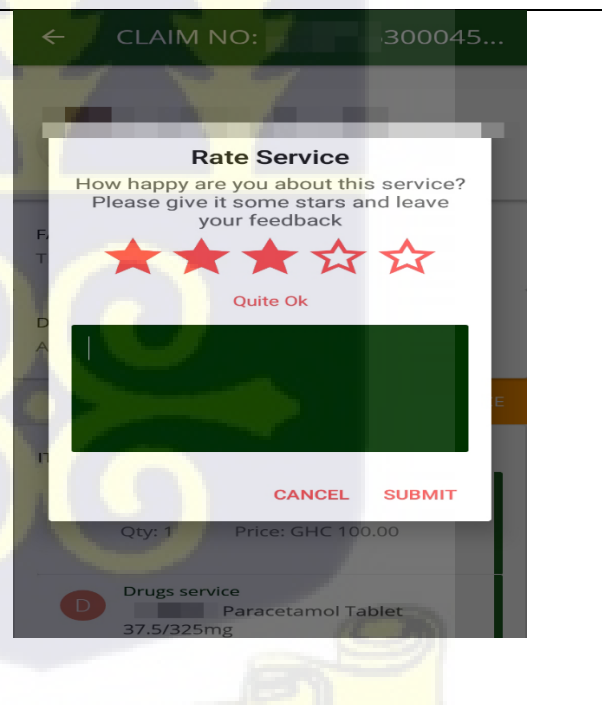


Figure 5.10: Member Utilisation App – Service Rating. Source: (APHI 2019)



By placing critical health information at members' fingertips, the app promotes transparency, facilitates personalised care, and ultimately enhances member satisfaction and overall healthcare outcomes.

Previously, A PHI faced challenges related to data privacy when utilising WhatsApp as a means of delivering prescription-related services to its members. However, as part of its digital transformation, the company successfully introduced a supplementary service on the A PHI mobile channel to address these challenges and provide a secure and convenient solution. This innovative mobile delivery service allows members to effortlessly fill prescriptions without compromising data privacy. Through the A PHI mobile app, members can easily upload their prescriptions onto the secure mobile platform. Once uploaded, the company's dedicated mobile delivery service ensures that the prescriptions are promptly processed and delivered directly to the members. This streamlined process eliminates physical pharmacy visits, saving members time and effort. By leveraging the mobile channel for prescription delivery, the private health insurance company enhances convenience, promotes medication adherence, and improves the overall member experience. This digital solution ensures that members can access their prescribed medications securely and efficiently, contributing to better health outcomes and member satisfaction.

5.13 Outcomes of Digital Transformation at Alpha Private Health Insurance

The A PHI digital technology-enabled transformation effort brings forth numerous outcomes that significantly enhance the private health insurance company's operations and the experiences of its members. The A PHI digital transformation effort introduces a mobile application that provides a comprehensive platform for members to access various services and functionalities. Members can

use the mobile app to perform multiple tasks such as policy inquiries, claims submission, premium payments, enrolment updates, locating healthcare providers, rating services, accessing medical records, and even receiving prescription deliveries. The app acts as a centralised hub, providing convenience and accessibility to essential health insurance services.

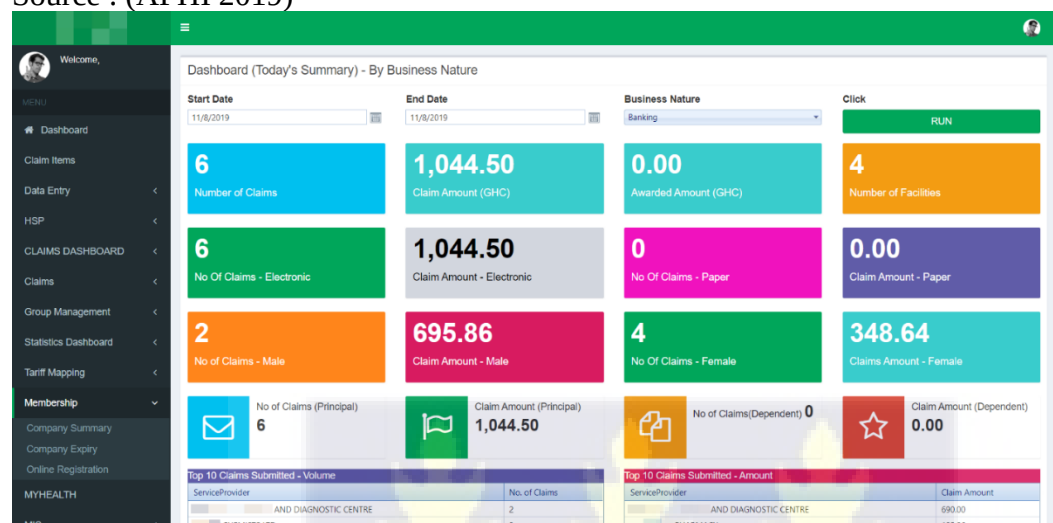
The outcomes of the APHI digital transformation effort are manifold. Firstly, members benefit from streamlined and efficient transactional experiences, eliminating the need for physical visits or reliance on traditional channels. They can conveniently manage their policies, access information, and engage with healthcare providers directly from their mobile devices. Secondly, the mobile app gives members access to their historical medical records, associated costs, and other health-related data, enabling them to make informed decisions about their health. Additionally, the ability to rate and provide feedback on healthcare services promotes transparency and accountability within the network, improving overall service quality.

The APHI digital technology-enabled transformation effort has far-reaching impacts on various stakeholders. For members, it enhances their overall healthcare experience by providing personalised and convenient services, empowering them to take control of their health. Leveraging its data analytics capabilities, APHI was able to view claims data in real-time, monitoring the day-to-day operations and performing trend analysis. These helped in detecting anomalies that may indicate fraudulent activity. If certain claims or facilities stand out from established patterns, they can be flagged for further investigation. Figure 5.11 shows an analytic dashboard with various metrics and statistics regarding health insurance claims segmented by different categories. This facilitates a better understanding of the insurer's risk exposure. Ultimately, these data-driven

insights helped APHI set realistic premiums to improve financial performance and competitive advantage within the private health insurance sector.

Figure 5.11: Data Analytics Dashboard

Source : (APHI 2019)



The digital transformation effort also streamlines administrative processes, reducing manual efforts, paperwork, and associated costs for the private health insurance company. By leveraging digital technologies, the company improves operational efficiency, accuracy, and data security. Moreover, the transformation positions the company as an innovator in the industry, fostering a competitive advantage and attracting new customers who value the convenience and digitised experience. Overall, the APHI digital technology-enabled transformation effort revolutionises how health insurance services are delivered and experienced. It enhances member engagement, simplifies administrative processes, promotes data-driven decision-making, and elevates the overall quality of services. The impacts are felt by both members and the private health insurance company, leading to improved customer satisfaction, operational efficiency, and a strengthened position in the dynamic healthcare industry.

5.14 Chapter Summary

The chapter described two digital transformation of health insurance cases from the public and private sectors in Ghana. Each case described the digital transformation process, the environments before and during the transformation, the use, and the outcomes. In the next chapter, these descriptions are analysed using the institutional theory.



CHAPTER SIX

CASE ANALYSIS

6.1 Chapter Overview

The previous chapter presented the two cases of digital transformation in health insurance services. The first case explored the digital transformation of a public insurer, the National Health Insurance Scheme (NHIS). In contrast, the second centred on its occurrence in Alpha Private Health Insurance, a private health insurer. This chapter offers a detailed analysis of these digital transformations, highlighting findings on the nature of digital transformation, the relationship between institutional elements, the process of institutionalisation, and the outcomes. The chapter employs the framework of institutional pillars and the institutionalisation process, which encompasses deinstitutionalisation and reinstitutionalisation, to understand the case descriptions. This analytical approach is significant as it aligns with the theoretical and hermeneutic methods adopted in this study.

Figure 6.1 shows the institutional analysis framework underpinning the analysis of this study. It shows the individual and collective influence of the institutional pillar elements on digital transformation initiatives and the need to eliminate constraining institutions that hinder more effective operations and service delivery. leading to the establishment of a new institutional order that supports and sustains digital transformation. The framework highlights the importance of continuous evaluation, enhancement, and adjustment of institutional practices fundamental to digital transformation as a process of continuous and incremental changes.

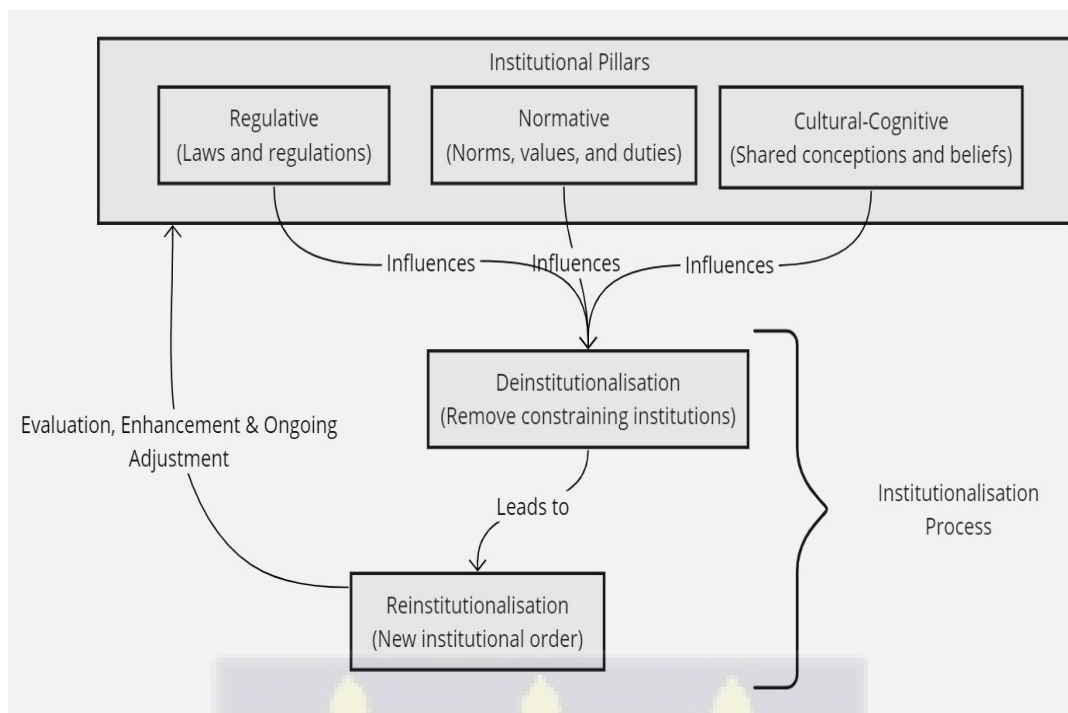


Figure 6.1 Institutional Analysis Framework

6.2 Institutional Analysis of the National Health Insurance Scheme (NHIS)

This section offers an institutional analysis of the National Health Insurance Scheme and elucidates its relevance to understanding the digital transformation of public health insurance services in Ghana. Essentially, the analysis seeks to demonstrate how the interpretations of institutional agents (human agents) and the presence of regulative, normative, and cultural-cognitive institutions influenced the process of institutionalisation in digitally transforming the National Health Insurance Scheme. It further examines how these factors shaped the desired outcomes and their overarching effect on the institutional environment of the national health insurance scheme.

6.2.1 Existing Institutional Environment of National Health Insurance Scheme

Regulative, normative, and cultural-cognitive institutions constituted the National Health Insurance Scheme's institutional environment. These institutions encompassed a myriad of institutional elements, practices, and outcomes. Table 6.1 showcases the institutions, their associated institutional elements, and the consequent outcomes on National Health Insurance services before digital transformation. The institutional elements specific to the National Health Insurance Scheme included institutional structures, accredited healthcare providers, registration agents, physical interactions, offline and paper-driven processes, standalone systems, and stakeholder perceptions.

From a regulatory perspective, several legal frameworks underpinned the foundation and operation of the National Health Insurance Scheme. This scheme comprised decentralised payers, termed District Mutual Health Insurance Schemes (DMHIS). Key legal documents steering this initiative were the National Health Insurance Act, 2003 (Act 650), the National Health Insurance Regulation, 2004 (L.I 1809), and the National Health Insurance Policy Framework. The process of enrolling members into the scheme was multifaceted:

- 1) Residents presented themselves at the DMHIS, manually completed registration forms, and had their photos taken.
- 2) Registration agents go into communities to find household members for registration.
- 3) Mass registration events.

All the practices mentioned above necessitated the physical completion of forms and the reliance on paper-driven procedures. The employment of registration agents became an embedded practice. However, this came with difficulties, notably the issue of unaccounted registration funds.

Table 6.1 Institutional elements and outcomes before digital transformation.

Institution(s)	Indicators	Institutional Elements	Outcomes
Regulative	laws, codes, rules, directives, regulations, and formal structures of control	Institutional Structure or Devolved Payers (District Schemes)	• Weak portability system • Non-uniform registration processes • Weak enforcement of the gatekeeper system (Referral system) • Governing body (political interference)
Normative	Values, norms, accreditations standards, goals, objectives	Health Access (Accredited Healthcare Providers)	• Provider equipment repairs • Ineffective Authentication system
		Community Registration by Agents	• Delay returning registration forms • Misappropriation of registration monies • Not issuing receipts or counter-foiling • Not delivering some identity cards
		Physical Interactions	• Physical filling of registration forms • Manual payment at the district office • Transporting volumes of claims forms to NHIS offices
		Offline and Paper-based processes	• Poor ID Card Management • Data integrity challenge • Inability to generate the required reports • Manual Claims Processing • Long registration queues • High cost of storage paper forms • Delayed claims payment

		Standalone Systems	• Premium Collection In-efficiencies • Weak controls and fraud • Multiple registrations by subscribers
Cultural-Cognitive	Common beliefs and shared logic of action, evaluations, judgments	Stakeholder Perceptions and Reactions	• Lack of ICT ownership at healthcare provider sites • Healthcare providers' irrational prescribing behaviour • High rate of complaints • Perceived poor quality of service

Accredited healthcare providers ascertained the membership of individuals associated with a specific DMHIS by manually examining a registry provided by the DMHIS. This registry underwent periodic updates. Once a healthcare service was rendered to an insured individual, the provider would dispatch a physical copy of the claim forms to the DMHIS for evaluation. After this evaluation, the healthcare provider would either be alerted about the payment via phone or when they proactively checked the status of their submitted claim. If the claim were approved, the healthcare provider would be directed to collect a cheque, which they would deposit at a bank.

The prevailing National Health Insurance Scheme's institutional environment resulted in many outcomes. These included inconsistent registration procedures, limited portability, misappropriation of funds, extended registration and identity card issuance delays, insufficient oversight mechanisms, fraudulent activities, and protracted claim payment durations. Given these institutional limitations of the prevailing system, the National Health Insurance Council (NHIC) at the time embarked on multiple digital initiatives to overhaul the processes and enhance service delivery within the National Health Insurance Scheme.

6.2.2 Institutional Pillars Analysis of the NHIS Before Digital Transformation

This section examines the three pillars of institutional theory - regulative, normative, and cultural-cognitive - and their influence on the institutional environment of the National Health Insurance Scheme before digital transformation. The case study anchored the regulative pillar in formal rules, laws, and sanctions. Key among these were the National Health Insurance Act, 2003 (Act 650) and the National Health Insurance Regulation, 2004 (L.I 1809). These legal instruments provided the blueprint for the foundation and management of the DMHIS. In this regulative framework, prominent institutional elements included the decentralised payers: these regulatory provisions laid down specific procedures, notably member enrolment and claims processing. The predominant registration method was manual, wherein locals enrolled at DMHIS offices, and agents embarked on community visits to register members of households. Additionally, mass registration events were organised. However, these conventional methods, reliant on offline and paper-driven systems, confronted numerous hurdles. Registration funds occasionally went missing, and the system was prone to consequences such as financial misappropriation and fraudulent activities.

As depicted in the case, the normative pillar encompasses values, norms, accreditation standards, goals, and objectives. The institutional elements of this pillar include access to health services (via accredited healthcare providers), community registration by agents, face-to-face interactions, and offline and paper-driven procedures. Within this context, accredited healthcare providers identified registered members through manual lists sourced from DMHIS. Once medical services were dispensed, these providers forwarded physical claim forms to DMHIS for evaluation. Although elements within this pillar had become ingrained practices, they faced many challenges. These encompassed delays in form submissions, mismanagement of registration funds by agents, the

cumbersome nature of form-filling, manual payment procedures, and the transportation of bulk claim forms to NHIS offices. Standalone systems further exacerbated inefficiencies in premium collection, weak oversight, increased risk of fraud, and issues like duplicate registrations by subscribers.

The cultural-cognitive pillar of the National Health Insurance Scheme's institutional landscape encapsulated widespread beliefs, shared behavioural patterns, evaluations, and judgments. This manifested in the public's perceptions and responses to the inefficiencies within DMHIS's operations and the shared perspective of healthcare providers towards the NHIS information systems implemented at healthcare sites. A telling sign was the absence of ICT ownership at healthcare provider locations, hinting at a hesitancy or unreadiness to adopt technological solutions. Some healthcare providers showcased questionable prescribing habits, potentially mirroring the community's shared behavioural norms or beliefs. A significant volume of complaints pointed towards a prevalent dissatisfaction and distrust towards the system, coupled with perceptions of subpar healthcare quality under the insurance scheme.

Before IT-enabled transformation, the National Health Insurance Scheme grappled with challenges spanning the regulative, normative, and cultural-cognitive pillars. While the regulatory framework was comprehensive, there were inefficiencies and inconsistencies. Manual operations, mismanagement, and inefficiencies burdened the normative mechanisms. In contrast, the cultural-cognitive pillar underscored the need to recalibrate stakeholder perceptions, behaviours, and receptiveness towards technology. The cumulative weight of these challenges across all three pillars underscored the imperative for a digital overhaul of the NHIS.

6.2.3 National Health Insurance Scheme Process of Deinstitutionalisation

From the case study, deinstitutionalisation was primarily geared towards identifying and eradicating the constraining institutions, elements, and outcomes impeding efficient service delivery within the National Health Insurance Scheme. Within the regulative framework, decentralised payers, specifically the District Health Insurance Schemes, which numbered 144 and were dispersed across ten regions, presented challenges. These schemes had distinct processes, health insurance identity cards, and affiliated healthcare providers. This diversity bred a range of constraining outcomes. Notably, there were inconsistencies in the registration processes and a compromised portability system. This limited system meant that an insured member could not access healthcare services outside their district of registration. Additionally, gaps in oversight mechanisms made the system susceptible to fraudulent activities.

Each DMHIS entered into individual contracts with accredited healthcare providers within the normative framework. Consequently, an insured member was restricted to seeking healthcare only from the provider associated with the scheme where they were registered. These healthcare providers would identify insured individuals affiliated with a specific scheme by referencing a list provided by the DMHIS, which was updated periodically. When a patient's name was not on the list, they were denied healthcare services. The DMHIS vouching for the patient's valid membership via phone could occasionally resolve such issues. A significant repercussion of this system was the challenge of verifying service eligibility. Faced with these verification challenges, some healthcare providers opted for a direct fee-for-service approach. This shift led to a surge in complaints and widespread public dissatisfaction.

Additionally, the engagement of registration agents for community registration had become an institutionalised practice across DMHIS. This role was perceived as vital for accessing and enrolling households located in distant communities into the scheme. However, this practice brought several unintended repercussions, including prolonged delays in submitting registration forms, complications with counter-foiling, and misappropriation of registration funds. The persistent dependence on multiple offline and paper-driven processes gave rise to obstacles in managing ID cards, prolonged waiting times during registration, and apprehensions regarding the accuracy and reliability of data. Even though computers were integrated into DMHIS operations, the absence of interconnectedness among standalone software applications designed by various local vendors sustained manual interventions in primary operational activities. The implications were manifold: managing vast stacks of paper forms, extended lags in submitting, processing, and settling claims, and challenges in identifying fraudulent activities and exploitation. These impediments critically undermined the efficacy and efficiency of the National Health Insurance Scheme, thrusting it into a vortex of considerable challenges. In light of these constraints, the subsequent phase, reinstitutionalisation, was geared towards supplanting these limiting institutions by pivoting towards a digital transformation.

6.2.4 National Health Insurance Scheme Process of Reinstitutionalisation

This section examines the digital transformation undertaken by the National Health Insurance Scheme. The National Health Insurance Scheme embarked on reinstitutionalisation by introducing digital technologies to expand its service delivery and streamline operations. This move was catalysed by the recognition of pervasive inefficiencies inherent in the existing institutional

framework, earmarking them for deinstitutionalisation. The genesis of this reinstitutionalisation can be traced back to the drafting of the digital transformation strategy. This strategy delineated the roadmap for procuring, crafting, and rolling out digital technologies, considering the challenges pinpointed during a comprehensive nationwide situational evaluation and a meticulous exercise in requirements gathering.

The endeavours towards reinstitutionalisation birthed a holistic, integrated ICT solution to counter the challenges emanating from a weak portability system and the inconsistent registration processes, which were by-products of the elements within the regulative pillar. The solution was also engineered to mitigate issues deeply rooted in the normative and cultural-cognitive frameworks. A digital backbone was laid as part of this transformation, comprising a wide-area network (WAN) that connected all DMHIS to a central data centre. In tandem, DMHIS offices nationwide installed local area networks (LAN) to link essential work areas, encompassing membership registration and claims processing. The integrated ICT solution incorporated an enterprise resource planning (ERP) system to solidify this digital overhaul, introducing modules catering to membership, claims, complaints, accreditation, financial management, and more. The production and distribution of identity cards were also centralised and standardised.

Through reinstitutionalisation, information technologies were ushered in, transforming the previously discrete systems into a unified platform. This centralisation was pivotal for creating a standardised national membership ID card, which replaced the outdated manual booklet system and laminated cards. With biometric capabilities, the newly issued ID card emerged as a hallmark of a new identity under a reinstitutionalised National Health Insurance Scheme. It offered a

consistent and universally recognised means of identification for members nationwide. Furthermore, as a by-product of the revamped membership processes, insured individuals were no longer tethered to seeking healthcare exclusively within their immediate localities. The introduction of a centralised database paved the way for universal portability, enabling members to utilise their health insurance cards seamlessly across different locations. This significant change in accessibility ensured that members could access healthcare from any accredited provider nationwide. In the past, the predominant approach was offline and paper-centric. An institutionalised manual claims process often culminated in protracted delays in claim processing, adjudication, and eventual payment. The considerable storage expenses linked with the vast amounts of paper claim forms necessitated a revamp. The objective of reinstitutionalisation was to transition from the cumbersome practice of managing vast stacks of paper claims to a more streamlined, accurate, and timely health insurance claim processing system.

To this end, the reinstitutionalisation phase heralded the introduction of a digital claims platform. This platform had advanced business rule configurations, automated workflows, and data management capabilities. The initial system, conceived during the information technology-driven transformation, was tailored for claims staff at DMHIS. It facilitated the capture and processing of paper claims from accredited healthcare providers. However, the ERP system underpinning this activity was perceived as too complex and not user-friendly. As a result of these shortcomings, it was subsequently deinstitutionalised. In its stead, as part of the reinstitutionalisation effort, a digital claims platform was introduced. Through a web interface, this platform enabled healthcare providers to input claims online directly, thus avoiding the requirement for paper-based claims.

A paramount objective of reinstitutionalising the claims process was to expedite the settlement of health insurance claims. In practice, associations of healthcare providers often held press conferences, during which they would voice threats of suspending services to health insurance beneficiaries, primarily due to outstanding payments for services rendered to scheme members. The newly introduced digital platform presented a more efficient means for claims submission, verification, and adjudication, markedly curtailing processing durations and mitigating delays. The new system equipped healthcare providers to electronically submit claims, translating to faster and more accurate data relay.

Furthermore, the reinstitutionalisation aimed to enhance the precision and reliability of the claims processing, and to this end, the platform incorporated validation checks to decrease errors and inconsistencies. It enabled instantaneous cross-verification of member eligibility and coverage, ensuring that only valid claims advanced through the processing pipeline and received due compensation. Such innovations were geared towards rooting out fraudulent or ineligible claims, bolstering transparency and trust within the National Health Insurance Scheme. Moreover, the digital platform provided a feature allowing healthcare providers to monitor the progress of their claim submissions, granting them real-time updates. Before this, it was commonplace for healthcare providers to frequently contact the National Health Insurance Authority's (NHIA) offices via phone and physical presence, inquiring about their claims' status and eventual payment. The reinstitutionalisation of the claims procedure symbolised a comprehensive drive to dismantle entrenched institutional bottlenecks and usher in digital innovations that optimised operational efficiency.

Despite multiple attempts and iterations of deinstitutionalising and reinstitutionalising, the vision to transition entirely to paperless claims has not been fully realised. The study's findings indicate that the dominant manual claims processing and paper-centric institutional elements have not been completely supplanted. What has emerged is a hybrid model encompassing both electronic and manual claims processing mechanisms. As a result, the aspiration for an exclusively electronic claims processing system has only been partially fulfilled. The study sheds light on various determinants culminating in this partial or incomplete reinstitutionalisation. A salient factor is the prevalent uncertainty exhibited by healthcare providers towards embracing digital innovations. Their unwillingness to adapt and a lingering reluctance to integrate novel technologies or automated systems have thwarted the holistic adoption of digitally driven processes. Many healthcare providers, driven by the comfort of familiarity and the perceived straightforwardness of the traditional paper-based approach, continue to favour it. This has led to the coexistence of digital and manual claim submission institutions. Moreover, the financial demands of deploying the requisite digital infrastructure for expansive electronic claims processing pose a significant barrier to thorough reinstitutionalisation. The investment needed in financial outlay and the essential infrastructure and resources impedes the unmitigated transition to a digital claims system. Smaller healthcare providers, in particular, are constrained by these economic considerations, limiting their ability to embrace digital solutions fully.

Another impediment to the reinstitutionalisation is the uneven distribution of quality internet connectivity across the country. Inadequate internet infrastructure and recurrent connectivity disruptions undermine the seamless use of electronic claims. Especially in more isolated regions, the absence of consistent and dependable internet services challenges the electronic submission of

claims information. Such circumstances often necessitate a reversion to the traditional paper-driven processes. While there have been commendable advancements towards achieving an overarching electronic claims system, the coexistence of manual and digital methods highlights the enduring hurdles in realising a complete reinstitutionalisation.

Other issues for reinstitutionalisation pertained to the challenges hampering easy access to health services under the National Health Insurance Scheme. A primary goal of public health insurance is to pave the way for a more inclusive universal health insurance system, ensuring accessibility to all citizens. However, obstacles such as a weak portability system, the cumbersome or sometimes impossible task of renewing health insurance membership post-expiry, and the inability of healthcare providers to ascertain a patient's eligibility for health services under the insurance scheme all act as impediments to timely and appropriate healthcare delivery. To address these barriers and edge closer to the aspiration of universal health insurance coverage, the reinstitutionalisation process saw the introduction of digital platforms specifically designed to allow members to renew their health insurance policies conveniently. Gone were the days of enduring lengthy queues at district offices; members could now renew their policies using the convenience of their mobile devices. A cornerstone of this reinstitutionalisation initiative was the development of an intuitive mobile application. While streamlining the renewal process, this mobile application also came equipped with various features to amplify user convenience and experience.

A standout functionality of the mobile application is its ability to send SMS reminders to subscribers as their eligibility nears expiration. This forward-thinking feature was designed to keep

members up-to-date, ensuring they have ample notice to renew their policies before they lapse. With these timely alerts, subscribers are better positioned to avoid breaks in their coverage, providing uninterrupted access to their health insurance benefits. In addition to this, the mobile application allows for direct insurance premium payments. This added convenience negates the need for subscribers to present themselves in the offices or transact through conventional payment methods. With the integration of payment gateways within the app, subscribers can effortlessly and securely settle their premiums, guaranteeing they remain continuously insured.

Beyond policy renewals, the mobile application served as a tool of essential information for subscribers. It presented a detailed overview of the benefit packages tied to their health insurance coverage, granting members insight into their policy's range of services and treatments. This clarity equipped them to make informed decisions about their health insurance coverage. Prior to this, members often relied on the discretion of healthcare providers to discern which services were or were not covered under the National Health Insurance Scheme. Furthermore, the mobile application introduced a comprehensive directory of medicines pertinent to health insurance benefits. This invaluable feature provided subscribers with information about specific medications, shedding light on their inclusion within the National Health Insurance Scheme and availability. In the past, there were instances where healthcare providers charged members for medications, alleging they were not covered under the scheme. Lacking a reliable source of information, subscribers could not challenge or verify these assertions. With this data at their fingertips, members are better positioned to make informed decisions about their health insurance coverage.

In recap, the primary objective of reinstitutionalisation was to transform the service delivery and operational facets of the National Health Insurance Scheme through the development, implementation and use of digital technologies. Key steps in this direction encompassed the formulation of a digital transformation strategy, the roll-out of a unified nationwide ICT solution, and the inception of a standardised national membership ID card system. The resultant digital platform amalgamated formerly disparate systems, establishing a framework for universal portability and ensuring unhindered healthcare access nationwide.

Furthermore, reinstitutionalisation significantly transformed the efficiency, precision, and promptness with which health insurance claims were processed. The introduction of digital platforms streamlined claim activities, from submission to validation and adjudication, curtailing processing delays and reducing error rates. However, the study pinpointed that the vision to transition away from the institutionalised manual and paper-centric practices has not been fully realised. Notably, the digital transition in claims processing stands only partially implemented. However, with the advent of digital platforms, members gained the means to renew their insurance policies via mobile devices, enhancing user convenience and accessibility. It is evident that while certain institutional elements have undergone a thorough reinstitutionalisation, others linger in a partially transitioned state. The next section explores the transformed institutional environment of the National Health Insurance Scheme after these reinstitutionalisation efforts.

6.2.5 New Institutional Environment of the National Health Insurance Scheme

The National Health Insurance Scheme's institutional environment has changed due to the continuous digital transformation. Consequently, the institutional backdrop of the digitally-

enabled National Health Insurance service has transitioned from earlier manual, offline, and paper-centric operations. Table 6.2 outlines the post-transformation institutional elements and the resultant outcomes of this digital transformation. Notably, while certain institutional elements from the pre-digital transformation phase of the National Health Insurance Scheme have been retained, several others have changed post-transformation. As a result, some health insurance members prefer to use the traditional channel, while others opt for the digital channels. For instance, while some subscribers embrace the convenience of their mobile devices to renew memberships and effect payments, others prefer in-person visits to district offices for analogous tasks. Thus, certain practices from the previous environment persist. A case in point is the inclination of some healthcare providers to submit claims via paper forms, avoiding the digital route. In some instances, manual processes have not been entirely abandoned but are in use with their digital counterparts. In summation, the emergent institutional elements reflect a growing influence of digital technologies, even as traces of older practices endure.

Capitalising on digital technologies, essential operations within the National Health Insurance Scheme, particularly at the district level, underwent transformation to improve service delivery. The primary goal of introducing the Biometric Membership System (BMS) was to enhance the integrity of membership data. Nonetheless, its implementation posed challenges. Members often had to travel great distances to district offices to provide their fingerprints for membership enrolment, resulting in notable congestion and delays. Subsequently, an SMS renewal platform was introduced, enabling existing members to renew their insurance membership using the short code *929# on their mobile phones. This innovation decreased the congestion and delays linked to membership renewals by 80%. However, the platform had limitations, such as the absence of

real-time user interactions. Moreover, logistical issues continued, with overcrowding at district offices since some member categories were required to register in person and access other health insurance services.

The 'MyNHIS' App was introduced as a central component of the public health insurer Mobile Application (NMA) Project to address these challenges. This app offers a digital platform for the general public and members to access membership services with the Ghana Card, eliminating the need to visit a district office. This initiative aligns with the public health insurer's goal of achieving Universal Healthcare Coverage (UHC) by 2030. The MyNHIS App comprises the following modules: 1) digital card, 2) member registration, 3) messaging, 4) health provider locator, and 5) preferred primary provider (PPP). The MyNHIS App is a pioneering digital platform, revolutionising how the public health insurer engages with members, service providers, and other stakeholders. This change is designed to boost the accessibility of health insurance services, making the scheme more appealing to a broader range of socio-economic demographics. Furthermore, the app enables the public to register or renew their health insurance membership and make payments through the payment gateways.

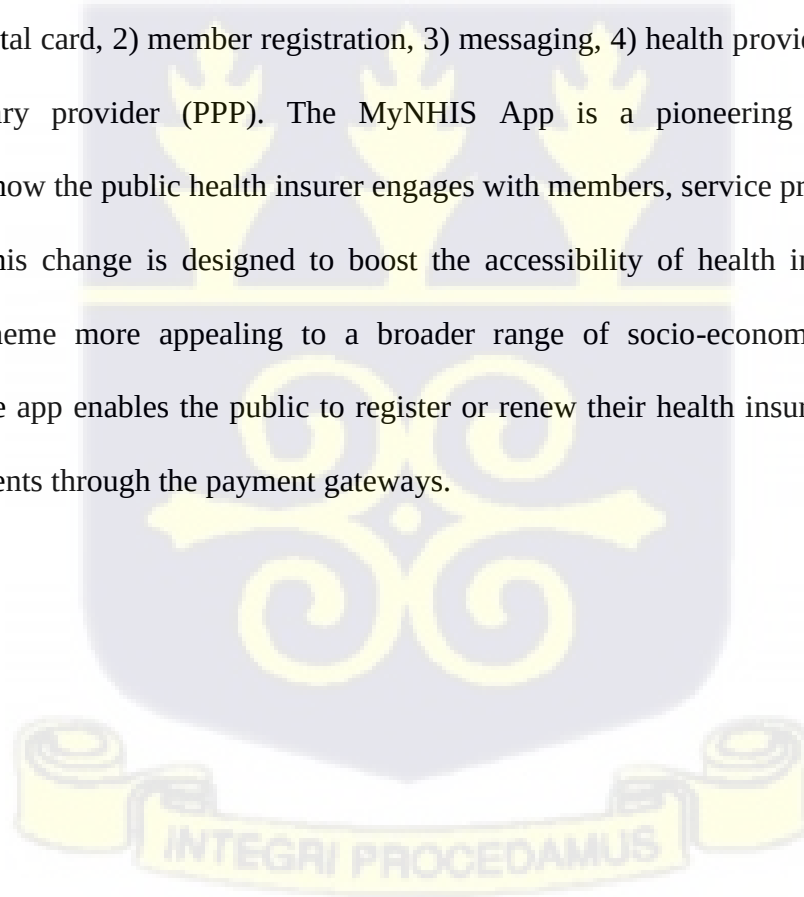


Table 6.2 Institutional elements and outcomes after digital transformation.

Institution(s)	Indicators	New Institutional Elements	Outcomes
Regulative	laws, codes, rules, directives, regulations, and formal structures of control	Single Centralised Payer -NHIA (Deconcentration) (Act 852 – 2012)	• Health insurance portability • Uniform technology platform • Uniform Registration processes • Standard member ID card
Normative	Values, norms, accreditations standards, goals, objectives	Health Access (Accredited Healthcare Providers)	• Reduced maintenance of biometric devices • Biometric Authentication system • Effective utilisation monitoring
		Dissolved Registration Agents	• Increased presence at DMHIS by residents from remote communities
		Physical Interactions	• Increased physical interactions during biometric data capture • Long registration queues
		Digital Platform and Processes	• Instant Membership Card • Increased operational cost from consumables • Electronic claims submission, vetting, adjudication, and payment • Reduced storage cost of paper forms • Faster claims payment • Improved fraud controls • Paperless membership registration
		Electronic Payment & Mobile Platform	• Secure premium collection and electronic payment
Cultural-Cognitive	Common beliefs and shared logic of action, evaluations, judgments	Stakeholder Perceptions and Reactions	• Enquiries, complaints, and suggestions channelled to the NHIS call centre • Increased enrolment

The reinstitutionalisation led to multiple transformative changes. Firstly, the integration of a standardised technology platform has guaranteed uniform, efficient, and cohesive service delivery across all regions. This has minimised system inconsistencies and improved data accessibility.

Secondly, the roll-out of an instant membership card and a uniform registration process has transformed membership enrolment. It has removed regional disparities, ensuring everyone follows the same standardised process, thereby promoting transparency. Thirdly, the transition to electronic operations, encompassing tasks like claims submission, vetting, adjudication, and payment, has notably improved efficiency and expedited claim settlements. Finally, the debut of a standard member ID card, a concrete result of this reinstitutionalisation, provides a collective identity for all members, facilitating easier identification and service delivery.

Despite the aforementioned benefits, the transformation driven by digital technology led to a rise in operational expenses, especially related to consumables for biometric devices and workstations. This was accompanied by initial resistance and adaptation challenges faced by IT staff, administrative personnel, and insured members. Though aimed at fostering long-term efficiency, the transformation to digital platforms and standardised processes initially posed difficulties for those familiar with the older systems. This resulted in operational hitches, delays, and extended waiting periods. Moreover, some members, particularly those from rural areas or segments of the population less familiar with technology, perceived the new processes as daunting or exclusionary. They felt alienated by the sudden changes necessitating new learning and adaptation. However, a silver lining has been the significant cut in storage expenses, given that towering stacks of paper forms have now become redundant.

6.2.6 Institutional Pillars Analysis of the NHIS After Digital Transformation

This section examines the three pillars within the institutional environment of the National Health Insurance Scheme post-digital transformation. Beginning with the regulative pillar, changes in this

domain fostered a more centralised and harmonised system equipped with standardised procedures. Such centralisation ascertains uniformity, thereby enhancing the efficiency and transparency of the health insurance service. With the adoption of Act 852 – 2012, the NHIS evolved into a single centralised payer system. This regulatory shift marked the departure from a decentralised system to a more consolidated structure, with a central governing body ensuring standardisation. A uniform technological infrastructure guaranteed that data management, member registration, and related functions remained consistent. This resulted in a standard registration and identity system where every individual undergoes an identical enrolment procedure regardless of location. Moreover, introducing a standardised ID card streamlined the identification process. From this, members can avail of services across various regions without any administrative hurdles, reinforcing the portability of health insurance.

Moving on to the normative pillar, changes in this area resulted in notably refined processes marked by enhanced efficiency. Though there was a surge in operational expenses, the benefits, such as expedited claim payments, decreased storage expenditures, and improved fraud prevention mechanisms, more than compensated for these costs.

The cultural-cognitive pillar centres on the perceptions and responses of the general public and health insurance members. The shift to digital platforms met some resistance, especially among groups with limited technological know-how. However, directing feedback to the NHIS call centre ensured members' concerns were addressed promptly, a previously unavailable medium. On the other hand, the rise in enrolment suggests that many recognise the advantages of digital transformation, leading to increased trust in the system. Yet, there is also a substantial amount of

positive and negative feedback. This suggests that while many adapt to the changes, a portion of the population still requires additional support, education, and assurance.

The digital transformation of the NHIS represents a complex interplay between its institutional pillars. The regulative pillar provides a framework of guidelines, whereas the normative pillar ensures continual adaptation to societal needs. The cultural-cognitive dimension primarily captures the personal experiences of individuals, serving as a gauge for the acceptance and reception of the transformation. Notably, the challenges arising from the cultural-cognitive aspect highlight the importance of sustained engagement and education to ensure a thorough and inclusive transformation.

6.3 Institutional Analysis of Alpha Private Health Insurance

This section provides an institutional analysis of Alpha Private Health Insurance's digital transformation of health insurance services. The analysis aims to show how interpretations by institutional agents (human agents) and the regulative, normative, and cultural-cognitive institutions influence the digital transformation process in private health insurance services. It further examines how these factors shaped the intended outcomes and the broader impact on the institutional environment of health insurance services.

6.3.1 Existing Institutional Environment of Alpha Private Health Insurance

Regulative, normative, and cultural-cognitive institutions shaped the institutional environment of Alpha Private Health Insurance. These institutions encompassed a range of institutional elements,

practices, and outcomes. Table 6.3 illustrates the institutions, institutional elements, and their respective outcome on Alpha Private Health Insurance before its digital transformation.

Within Alpha Private Health Insurance's institutional environment, key institutional elements comprised institutional structures, accredited healthcare providers, registration agents, face-to-face interactions, traditional offline and paper-driven processes, and an emerging IT sector specialising in health insurance information systems.

From a regulatory perspective, the establishment and functioning of private health insurance were governed by various legal instruments. Notably, the National Health Insurance Act of 2003 (Act 650), the National Health Insurance Regulation 2004 (L.I 1809), the National Health Insurance (Amendment) Act of 2012 (Act 852), and the National Health Insurance Policy Framework. Furthermore, the National Health Insurance Authority (NHIA) has been entrusted with formulating specific policy guidelines and overseeing the regulation of Alpha Private Health Insurance.

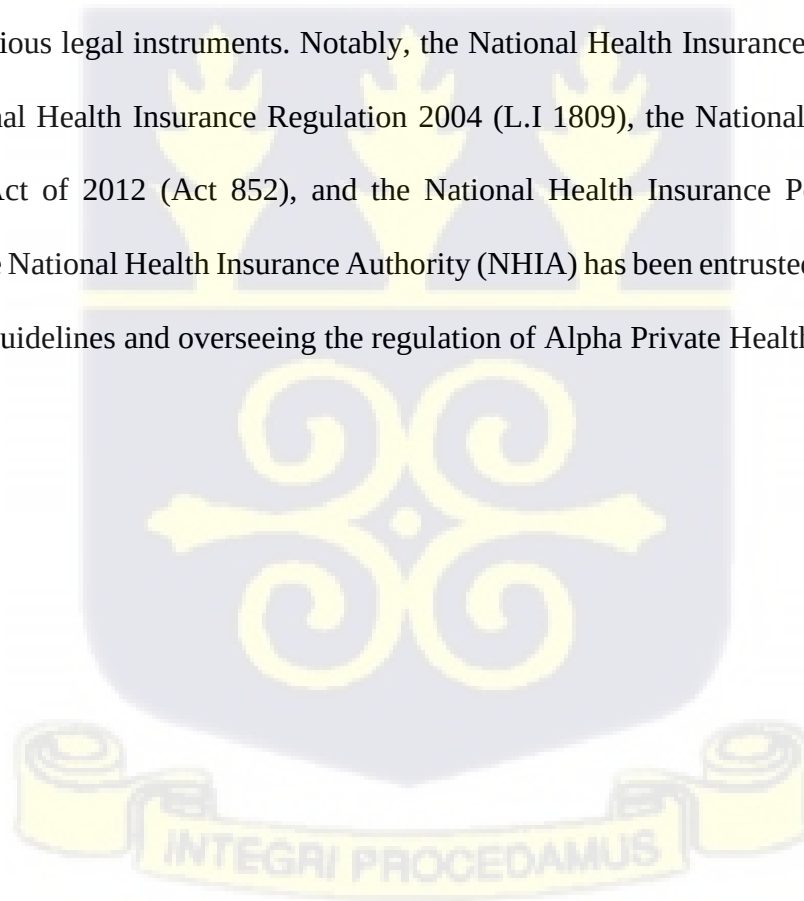


Table 6.3 Institutional elements and outcomes before digital transformation.

Institution(s)	Indicators	Institutional Elements	Outcomes
Regulative	laws, codes, rules, directives, regulations, and formal structures of control	Institutional Structure or Devolved Payers (Private Health Insurance Schemes) (Act 650 – 2003)	• Competition • Low penetration • Supplement public health insurance • Oversight and monitoring by NHIA
Normative	Values, norms, accreditations standards, goals, objectives	Heath Access (Accredited Healthcare Providers)	• Ineffective verification system • HCP resistance to change • HCP generating fraudulent claims
		Physical Interactions	• Physical filling of registration forms • Transporting volumes of claims forms to insurance offices • Transcription errors • Limited data entry staff • Manual Payments (Cheques) • Use of registration agents
		Offline and Paper-based processes	• Unrealistic premiums setting • High member attrition • Information Asymmetry • Validating corporate membership • Absence of accurate or real-time utilisation • Manual Claims Processing • High cost of storage paper forms • Delayed claims payment
		Nascent IT Industry for Health Insurance IS	• Non-availability of standard software for health insurance • Internet connectivity at the hospitals
Cultural-Cognitive	Common beliefs and shared logic of action, evaluations, judgments	Stakeholder Perceptions and Reactions	• Institutional trust • High rate of complaints • Perceived poor quality of service

Alpha Private Health Insurance's operations function in parallel with the public health insurance system. While the latter is designed to offer more comprehensive coverage to Ghanaians, some individuals choose private health insurance for various reasons. These reasons may include accessing a broader spectrum of health services or aiming for more prompt and specialised care. The typical operations of Alpha Private Health Insurance encompass enrolment and premium collection, risk pooling, claims processing, forming contracts with healthcare providers, ensuring quality control and assurance, and delivering customer service.

Before the extensive adoption and utilisation of digital technologies, Alpha Private Health Insurance's operational framework was heavily anchored in paper-driven and manual processes. This traditional environment manifested several unique features:

- **Paper Applications:** Applicants must complete extensive paper-based forms to apply for private health insurance coverage. The forms mentioned above were subjected to manual review, resulting in extended periods required for approval or rejection.
- **Manual Claims Processing:** Healthcare providers had to fill out paper-based claims forms detailing the services provided to the insured member. These forms were then physically transported to the private health insurer, where staff would manually review and process each claim.

- **Physical Policy Documents:** Once an insurance application was accepted, the policyholder would get a physical booklet or card that explained their coverage. Losing these could mean going through another lengthy process to get a replacement.

Additionally, in-person cash payments for premiums were commonplace, and vast physical storage areas were required to accommodate all the application forms, claim forms, and policy documents. Locating a specific document typically entailed rummaging through numerous files, resulting in operational inefficiencies and time lags. Furthermore, risk assessment and underwriting were manually conducted, often culminating in determining impractical premiums. This profound dependence on paper-based and manual operations made Alpha Private Health Insurance less streamlined and more prone to mistakes. The approach also posed hurdles to expanding services to meet the needs of an increasing clientele. In the context of Alpha Private Health Insurance, these factors paved the way for the commencement of deinstitutionalisation.

6.3.2 Institutional Pillars Analysis of APHI Before Digital Transformation

This section examines the three pillars of institutional theory (regulative, normative, and cultural-cognitive) and their role in shaping the institutional environment of Alpha Private Health Insurance before its digital transformation. The regulative pillar represents the formal, structured dimension of Alpha Private Health Insurance's institutional environment. It dictates the “dos” and “don'ts” and ensures organisational accountability. Grasping the essence of this pillar is crucial as it defines the boundaries within which the organisation functions, competes, and caters to its members. Act 650 of 2003, among other legal instruments, primarily governs the establishment, operation, and oversight of private health insurance companies in Ghana. These legal directives demarcate the

permissible boundaries for entities like Alpha Private Health Insurance. The regulative pillar positions Alpha Private Health Insurance as a complement to public health insurance. Due to its ancillary nature, private health insurance might witness lower adoption rates than its public counterpart, leading to restricted market outreach. This scenario posed both an opportunity and challenge for APHI. The limited market reach suggests a vast, yet-to-be-explored potential within the health insurance sector. Moreover, it emphasises the pivotal role of Alpha Private Health Insurance in addressing the gaps inherent in the public health insurance system, whether in service range, quality standards, or promptness of service delivery.

The normative pillar within Alpha Private Health Insurance underscores the “ought-to” behaviours, shedding light on the ethical and societal frameworks governing its functions. This pillar encapsulates a balance between time-honoured practices and the evolving demands of modern health insurance. For Alpha, deciphering and manoeuvring within this pillar was essential to uphold its distinct identity and ensure its sustained growth and relevance in an ever-changing private health insurance sector.

Key institutional elements of this pillar encompass health access via accredited healthcare providers, face-to-face interactions manifested through registration form completion, the transportation of extensive claim forms to insurance offices, manual payment procedures, reliance on registration agents, and traditional offline and paper-oriented processes. The inefficacies inherent in the normative pillar were evident from results like setting unrealistic premiums, heightened member attrition, and the absence of real-time data. Such issues not only impede

operational efficiency but also detrimentally impact the trust and contentment levels of the subscribers.

The cultural-cognitive institution embodied a somewhat negative perception, as stakeholders voiced concerns over trust and reported a high frequency of complaints. This perceived subpar service quality signalled a misalignment between Alpha's operations and the anticipations of its stakeholders. The evident shortcomings and disparities within these pillars underscored the pressing necessity for a transformative strategy to cater to stakeholders and refine operational processes more effectively.

6.3.3 Alpha Private Health Insurance Process of Deinstitutionalisation

In the context of Alpha Private Health Insurance, the deinstitutionalisation process entailed a conscious dismantling of prevailing institutional frameworks, practices, and norms that hampered the efficacy and operations of the private health insurer. Specifically for Alpha Private Health Insurance, this meant eliminating impediments in its membership procedures and claims adjudication mechanisms to enhance client experiences, optimise internal workflows, and sustain a competitive advantage.

Among the pillars, the normative institutional element exhibited the most negative outcomes warranting deinstitutionalisation. Traditional offline and paper-centric methods yielded challenges such as the establishment of unrealistic premiums, a lack of timely or precise data utilisation, high member turnover, manual claims handling, protracted claim settlements, and challenges verifying employees of corporate entities affiliated with Alpha Private Health Insurance. Physical

interactions, a predominant institutional element, manifested in manual registration form completion, bulky paper claim transportation, transcription inaccuracies in documenting doctor's observations, and manual cheque-based payments to healthcare providers for claim settlements.

To illustrate, consider a scenario wherein an insured individual visits a hospital. Occasionally, they might be pressed for time and unable to wait for the healthcare provider to complete the claim form. Despite having signed the form, their departure leaves a window for the healthcare provider to input arbitrary details, paving the way for potential claim falsification. The scrutiny and validation of such claims occasionally spanned over two months. Consequently, in certain situations, patients struggled to recollect specific details during a claim validation. Moreover, Alpha Private Health Insurance was positioned within the regulatory framework as supplementary to the public health insurer. This not only meant competing with other private health insurance entities for a segment of the populace not catered to by public health insurance but also contending with limited market penetration. The deinstitutionalisation process was expanded to include Alpha Private Health Insurance's business model, enabling it to maximise the benefits of digital technologies, pioneer innovative approaches, and offer superior services to individual and corporate clients and accredited healthcare providers.

Alpha Private Health Insurance acknowledged the imperative to adopt a digital-first transformation strategy to stay relevant and competitive in the dynamic private health insurance sector. The organisation aimed to usher in substantial operational changes by addressing and reforming these business model limitations. It incorporated digital technologies to enhance its service offerings, streamline operations, and elevate customer experiences. Challenges like obsolete legacy systems,

rudimentary digital proficiencies, and inflexible service delivery models were earmarked for deinstitutionalisation.

6.3.4 Alpha Private Health Insurance Process of Reinstitutionalisation

Transitioning from an overwhelmingly manual and paper-centric system with minimal reliance on information technology, Alpha Private Health Insurance discerned the pressing need to pivot towards a more digitally-enabled transformation. A significant drive for this change was the insurer's challenges in scaling services to meet the demands of an expanding clientele. For instance, the Microsoft Access-based database and application software utilised for capturing enrolment details and manually producing membership identification and policy-related information proved insufficient when a mining firm approached Alpha Private Health Insurance to register and integrate 4000 of its employees.

Alpha Private Health Insurance launched a project to digitally transform its operations. This effort commenced with thorough feasibility studies to ascertain such a transition's potential advantages and drawbacks. Subsequently, they undertook a system analysis and design phase to ensure the suggested digital solutions aligned with the insurer's operational goals. Observing the broader industry trends and the emerging IT industry for health insurance information systems, Alpha Private Health Insurance embraced an all-encompassing, industry-wide strategy. This approach sought to introduce a robust digital infrastructure and platforms that would not only enhance the delivery of services and streamline processes, such as membership registration for Alpha Private Health Insurance, but also provide an opportunity for smaller private health insurance firms to understand and utilise the digital solution as platform-as-a-service.

An essential component of this transformation was the digital distribution of identity cards, establishing online enrollment portals, and adding new digital channels via mobile applications. This reduced manual paperwork and administrative tasks, resulting in quicker processing, enhanced accuracy in record-keeping, and more efficient workflows. To address the issue of setting premiums without reliable utilisation data, Alpha Private Health Insurance utilised data-driven insights and analytics to access and analyse information on membership trends, preferences, and behaviours. This facilitated personalised product offerings, focused outreach initiatives, and informed decision-making grounded in a deeper understanding of customer requirements. For Alpha Private Health Insurance, the rise in enrolment and utilisation led to a marked growth in transactions related to claim settlements. Consequently, reinstitutionalisation incorporated a pilot programme with healthcare providers to launch digital claim submissions. By 2016, Alpha Private Health Insurance had successfully migrated approximately 50% of healthcare providers to the newly established electronic claims processing system.

Addressing the constraints that hindered Alpha Private Health Insurance's capacity to innovate within the fast-changing private health insurance sector, it became evident that new measures were necessary. These measures aimed at transitioning from conventional, inflexible business models to embrace a more extensive digital transformation, fostering greater value and a customer-centric approach. During the reinstitutionalisation process, several challenges, including outdated legacy systems, limited digital proficiencies, and rigid service delivery frameworks, were pinpointed for overhaul. By harnessing digital platforms, mobile applications, and analytics, Alpha Private Health Insurance harmonised crucial service areas, encompassing healthcare providers, health insurance

members, individual and corporate clientele, and external medical practitioners. For example, medical practitioners remotely assess medical claims that require expert evaluation. The new membership platform afforded representatives of corporate clients access to member details, facilitating self-management tasks such as adding or removing employees. This also encompassed features allowing members' health plan upgrades and electronic requests for new cards.

The process of reinstitutionalising the business model also encompassed capitalising on the widespread use of mobile technology in Ghana. To this end, Alpha Private Health Insurance expanded its service offerings across various mobile channels, incorporating mobile money platforms for premium payment. This integration was achieved through Unstructured Supplementary Service Data (USSD) codes. The functionality of these USSD codes presented a convenient and intuitive method for members to utilise services directly from their mobile devices. Furthermore, Alpha Private Health Insurance launched a mobile app available for download on both Google PlayStore and Apple Store, thereby advancing the user experience. This app provides members with several features, enabling them to quickly identify healthcare providers and furnish invaluable ratings and reviews based on the care they received. The application also granted members access to their past medical records, associated expenses, and other pertinent health information, equipping them with the knowledge to make informed choices regarding their health insurance plans.

The integration of digital technologies transformed the premium payments and enrolment process between Alpha Private Health Insurance and its members, encompassing individuals and corporate entities. The multifaceted features of the Alpha Private Health Insurance mobile app considerably

elevated the ease of access and efficiency of its health insurance provisions. Alpha Private Health Insurance achieved notable innovation by reinstitutionalising its business model via digital transformation. By harnessing digital technologies, the organisation enhanced its operational efficiency, tailored its service offerings, made decisions based on data-driven insights, and improved member engagement.

6.3.5 New Institutional Environment of Alpha Private Health Insurance

Institutional elements within the case of Alpha Private Health Insurance have experienced notable changes due to the ongoing digital transformation. Consequently, the conventional methods employed by Alpha Private Health Insurance, previously dominated by offline legacy IT systems and a strong dependence on paper-based operations, have been transformed. They now incorporate the advantages and potential of digital technology-enabled transformation. Table 6.4 highlights these institutional elements, showcasing the changes and resulting outcomes following the digital transformation at Alpha Private Health Insurance. Some institutional elements from the previous setup were maintained, while others faced substantial revisions due to the digital transition. As a result, traces of certain age-old practices remain evident even in this updated institutional setting. For instance, a healthcare provider submitting paper claim forms to the private health insurer, even in the digital era, can be understood using institutional theory as a retained institutional element from the broader institutional framework. Present ideas within institutional theory are perceived as insufficient in explaining this outcome.

Increasingly, digital technologies have shaped new institutional elements. These advancements have enabled, for example, the ability to set realistic premiums. The attendance, utilisation, and

claims platforms provide extensive data collection and aggregation capabilities. This has empowered Alpha Private Health Insurance to gather a wealth of data from these sources, giving a holistic perspective on a member's health profile, associated risks, and probable expenses. When integrated with its data analytics system, Alpha Private Health Insurance could discern patterns and connections previously unnoticed. Such insights enhanced the precision in gauging the risks of insuring particular individuals or groups. As a result, the organisation was able to set more realistic premiums for its policyholders, leading to a boost in enrolment and retention. This transformation led to changes in the normative institutional elements, culminating in a decidedly positive outcome.

To develop insurance plans tailored for individual and corporate clients, data analytics platforms were deployed to evaluate health insurance-associated risks. Additionally, systems to manage membership and verify attendance were put in place. An insured member initiates a transaction within the attendance verification system to produce a unique pin upon consulting a healthcare provider. This pin is then relayed to the healthcare provider for entry into the system. In the absence of this pin, the healthcare provider is unable to raise a claim. Upon claim submission, clients instantly receive an SMS containing the claim details, including the date, time, and financial value. Clients are also given the choice to ring a toll-free centre to validate claims information. This protocol was integrated with the digital claims processing infrastructure, enabling faster claim resolutions for recognised healthcare providers. The result was an acceleration in disbursements and a reduction in overhead costs.

Table 6.4 Institutional elements and outcomes after digital transformation.

Institution(s)	Indicators	Institutional Elements	Outcomes
Regulative	laws, codes, rules, directives, regulations, and formal structures of control	Institutional Structure or Devolved Payers (Private Health Insurance Schemes)	• Dominant private health insurer • Supplement public health insurance • Oversight and monitoring by NHIA
Normative	Values, norms, accreditations standards, goals, objectives	Digital-Enabled Healthcare Providers	• Effective identification and verification system
		Limited Physical Interactions	• Physically transporting claims forms. • Registration agents with tablet devices
		Digital Claim Processing	• Online claims submission, fulfilment, and adjudication • Digital payment channels
		Mobile Application Platform	• Access to attendance and claim history • Location services for finding HCPs closer to member
		Data Analytics	• Data-informed premium setting
		Digital Processes	• Self-service portal for corporate membership • Deactivate exited staff member's card • E-cards
			• Increased enrolment and retention
Cultural-Cognitive	Common beliefs and shared logic of action, evaluations, judgments	Stakeholder Perceptions and Reactions	• Mobile app to rate the quality of service

Alpha Private Health Insurance's embrace of digital technology signifies a profound change to its operations designed to meet the unique requirements of both individual and corporate clientele.

When viewed through the lens of institutional theory, this transformation process can be seen through the regulative, normative, and cultural-cognitive dimensions of institutional structures.

6.3.6 Institutional Pillars Analysis of APHI After Digital Transformation

This section delves into the triad of pillars (regulative, normative, and cultural-cognitive) within institutional theory to discern their role in shaping the institutional environment of Alpha Private Health Insurance after digital transformation. Beginning with the regulative pillar, the private health insurer's new procedures, such as the introduction of data analytics platforms, proof of attendance modules, and digital claims processing, signify shifts in formal regulations and procedures. By ensuring that claims are generated only upon verification through a unique pin, the insurer has put a regulative measure in place, promoting transparency and reducing fraudulent activities. The SMS verification process and the toll-free centre strengthen this regulative framework by ensuring clients are kept in the loop about their claims.

Turning to the normative pillar, the transformation underscores evolving norms and values in private health insurance. By personalising insurance plans through data analytics, the insurer acknowledges and adapts to the changing expectations of individual and corporate clients. The move to provide mobile applications allows clients direct access and communication, meeting the normative expectation of instant digital accessibility and service responsiveness. For healthcare providers, streamlined digital claims mean they can expect quicker payouts—a shift in the normative practices that traditionally saw very prolonged waiting periods.

Lastly, the cultural-cognitive pillar, embodying the shared understanding of how private health insurance operates, underwent a shift. The activity of a client generating a pin during a healthcare visit and subsequently verifying a claim through an SMS signifies a cultural shift from passive to active participation in their own healthcare journey. This active participation instils a sense of ownership and trust, altering the cultural understanding of the client-insurer relationship.

For clients and healthcare providers, these transformative changes offer many benefits. Whether individual or corporate, clients enjoy more tailored plans, greater transparency, and direct access to their details and claims processing. Healthcare providers, on the other hand, experience expedited claims processing, reducing their administrative burden and ensuring more timely reimbursements. Alpha Private Health Insurance's digital transformation, rooted in the three institutional pillars, has also ushered in enhanced efficiency, a stronger sense of trust, and a more modern approach to private health insurance that caters to all parties' evolving needs and expectations.

The transformative changes introduced by Alpha Private Health Insurance serve the immediate private health insurer's stakeholders and align with the institutional field's broader objectives, aiming for universal health insurance coverage. This can be observed in four broad areas. 1) Increased Accessibility and Trust: By leveraging digital technologies such as mobile applications and SMS verifications, the private health insurer makes health insurance services more accessible to a larger demographic. This inclusivity and transparency foster trust, which is pivotal in encouraging more people to enrol in health insurance, moving closer to the universal coverage goal. 2) Efficiency and Response: Streamlined digital claims processes ensure quicker payouts to

healthcare providers. This efficiency encourages more healthcare providers to collaborate and offer services under insurance schemes, thus broadening the network available to potential beneficiaries. 3) Personalised Plans: Data analytics-driven personalised insurance plans cater to diverse needs, ensuring that more individuals and corporations find suitable plans. By catering to varied requirements, the uptake of insurance plans increases, promoting broader coverage. 4) Reduction in Fraudulent Activities: Regulative measures like the pin generation for claims reduce potential fraud. Minimised fraud means reduced losses for insurers, enabling them to potentially offer more affordable plans and making insurance more accessible to a broader population. In summary, while serving immediate stakeholders, Alpha Private Health Insurance's digital transformation resonates with the larger institutional field's ambition of expanding health insurance coverage. The steps taken improve trust, access, and affordability, all of which are cornerstone elements in achieving universal health insurance coverage.

6.4 Cross Case Analysis

The present section presents the cross-case analysis to advance a thorough and nuanced understanding of the relationships between institutional elements, institutionalisation, and the outcome of the digital transformation of health insurance services. The cross-case analysis aims to elucidate the congruences and disparities among the cases examined. Employing institutional theory frameworks, a comparative analysis was conducted to discern emergent themes. These emerging themes are articulated as generalisations derived from the examined cases pertaining to the digital transformation of health insurance services.

6.4.1 Why and What Motivates Insurance Entities to Digitally Transform its Services

This section presents a cross-case analysis of why developing country health insurance entities embark on the digital transformation of health insurance services. Digital transformation within the Ghanaian health insurance sector, represented by the NHIS (public insurer) and APHI (private insurer), provides a compelling narrative of change and adaptation in response to institutional, contemporary challenges and opportunities. The findings from the two cases indicate that the motivation behind the digital transformation of health insurance services stems from the challenges associated with the existing system. In particular, health insurance entities embark on digital transformation-led intervention for 1) operational efficiency, 2) improved service delivery, 3) data management and integrity, 4) competitive advantage and market differentiation, 5) stakeholder satisfaction and engagement, and 6) reducing fraud. While both organisations had common drivers, their specific contexts and the nature of their members or target population —public versus private—meant that their digital transformation process had unique challenges and focal points. NHIS had to navigate political and regulatory landscapes, while APHI's journey was more about market-driven innovation and differentiation. Through these cases, it is apparent that the impetus for digital transformation in health insurance organisations is multifaceted. It stems from internal efficiencies and service improvements to institutional influences. NHIS was motivated by the need for a unified, centralised system that could handle the complexity of a public health scheme. At the same time, APHI sought to leverage digital technologies to provide value-added services and maintain its market leadership position. What is evident from the cases is that two different meaning frames underpin this outcome as both public and private health insurance entities—conceive, implement, and adapt to change. While a “social logic” prioritising equity can be

observed in public health insurance, a “market logic” focusing on profit maximisation is seen in private health insurance.

6.4.2 Institutional Context of Digital Transformation

This section presents a cross-case analysis of how the institutional environment shaped digital transformation and vice versa. Analysis of both case studies showed the role of institutional agents and the influence of regulative, normative, and cultural-cognitive institutions on the digital transformation processes. Each case demonstrates a series of phase transitions from traditional, manual, and paper-centric systems through combinations of information, computing, communication, and connectivity technologies. Both NHIS and APHI went through a process of deinstitutionalisation, shedding outdated practices, followed by reinstitutionalisation, adopting new digital technologies and processes. The analysis indicates that NHIS’s digital transformation was part of a broader, more centralised national initiative, while APHI’s transformation appears to have been driven by competitive pressures and the need to scale services.

The NHIS’s institutional environment witnessed significant changes due to its digital transformation. The shift from manual, offline, and paper-centric operations to digital platforms led to a mix of retained and transformed institutional elements. The regulative pillar also underwent a change, leading to a more centralised and standardised system with improved efficiency and transparency. The adoption of Act 852 of 2012 transitioned the NHIS from a decentralised to a consolidated single-payer system, ensuring uniformity across the board. The standardisation of technology infrastructure resulted in consistent data management, registration,

and administrative processes. The introduction of a standardised identity system and interoperable digital platforms led to improved service delivery and operational efficiency.

Similarly, changes in APhi's institutional environment occurred through digital transformation. The move away from offline legacy systems and paper-based operations to digital technologies altered many institutional elements. The regulative, normative, and cultural-cognitive pillars played a role in shaping APhi's new institutional environment. New procedures like data analytics platforms, proof of attendance modules, and digital claims processing indicate formal changes in regulations and procedures. These changes aimed to promote transparency and reduce fraud, improving operational efficiency and financial performance. Personalised insurance plans based on setting realistic premiums and enhanced customer engagement strategies reflect shifts in norms and values, contributing to improved customer satisfaction. In summary, the cross-case analysis reveals that while digital transformation offers substantial benefits to health insurance services, its success is heavily contingent on a comprehensive and adaptive approach that considers the multifaceted influences of the institutional environment.

Figure 6.2 displays the cross-case analysis diagram which provides a comparative framework for understanding the digital transformation of NHIS and APHIS. It outlines the common purpose, emergent themes, institutional outcomes, and phase transitions, highlighting the differences in institutional logic between public and private health insurance contexts. In terms of common purpose, health insurance organisations' digital transformation is driven by the need to attain operational efficiency, improve service delivery, enhanced data management, member satisfaction, and fraud reduction. However, it is observed that, in achieving these outcomes, both

entities are driven by different meanings and logic. NHIS, operating as a public health insurer, is driven by social logic, focusing on equity and universal health coverage. The aim is to ensure that all citizens have access to basic healthcare services, aligning with public health goals. For APHIS, operating in the private health insurance space, it is driven by market logic, aiming at profit maximization. The focus is on offering competitive services to attract and retain members, ensuring financial sustainability.

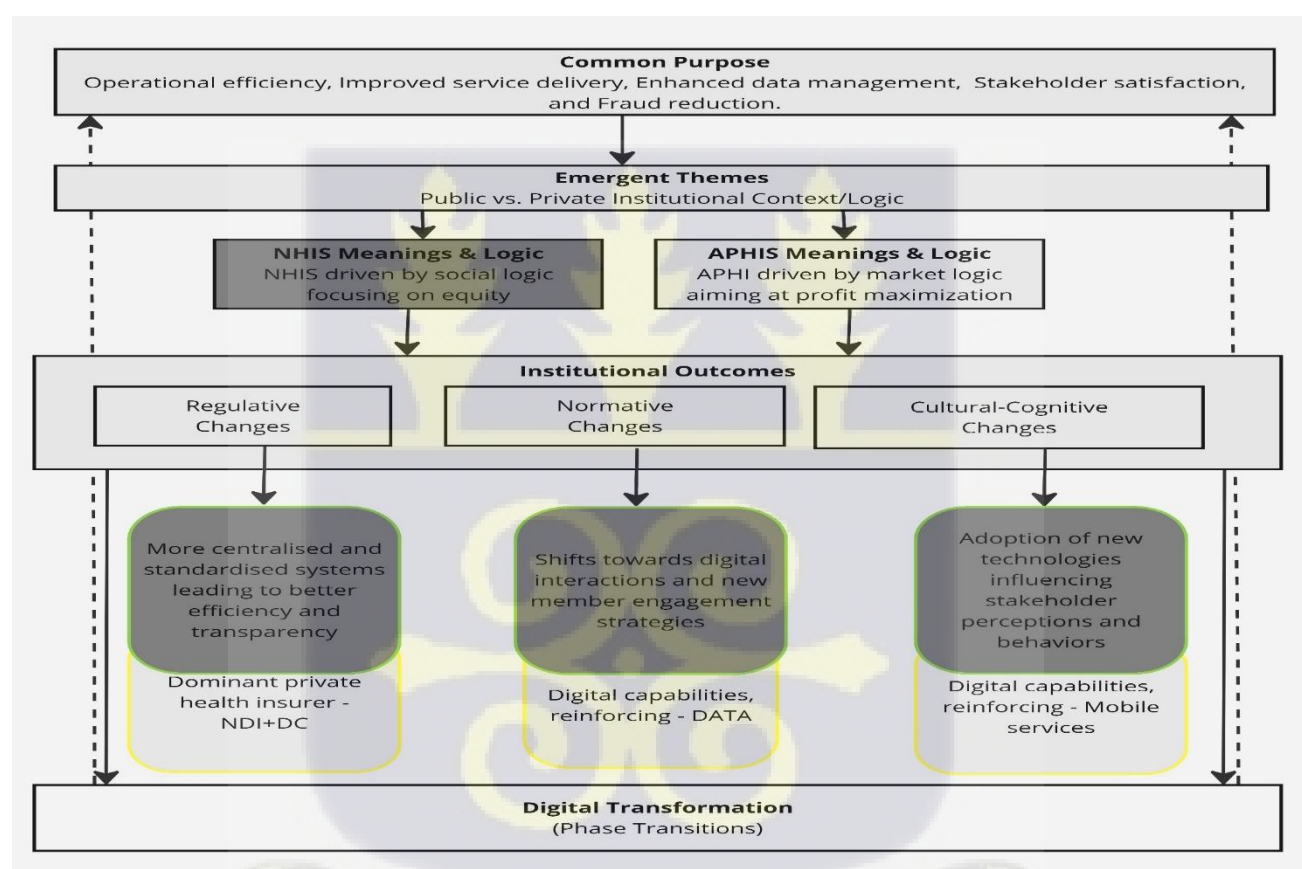


Figure 6.2 Cross-Case Analysis

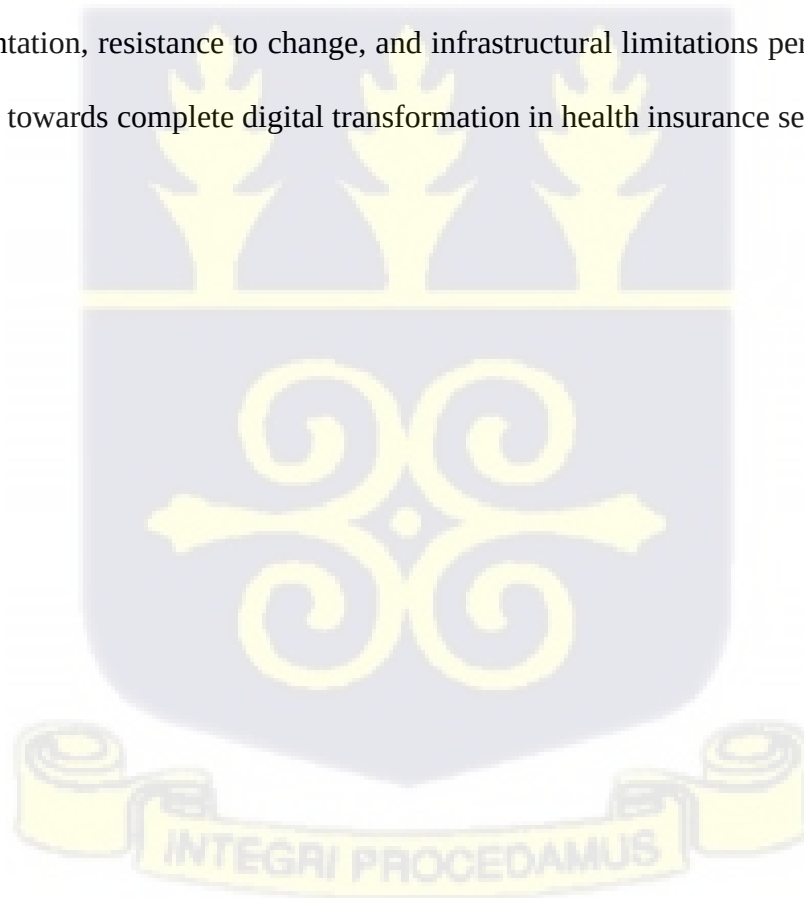
6.5 Chapter Summary

The chapter presented a comprehensive case analysis on the digital transformation of health insurance services, focusing on a public insurer, the National Health Insurance Scheme (NHIS) and a private health insurer, Alpha Private Health Insurance. It employed the theoretical framework of institutional pillars and the process of institutionalisation, which includes deinstitutionalisation and reinstitutionalisation, to explore the nature, process, and outcomes of digital transformation in these two contrasting health insurance settings.

The chapter began with an institutional analysis of the NHIS, detailing how regulative, normative, and cultural-cognitive institutions influenced its digital transformation. It highlights the pre-digital transformation challenges, such as inefficient processes, manual claims processing, and the absence of ICT ownership among healthcare providers. The process of deinstitutionalisation aimed to identify and eliminate these inefficiencies, leading to the reinstitutionalisation phase, where digital technologies were introduced to streamline operations, enhance service delivery, and improve stakeholder perceptions.

For Alpha Private Health Insurance, the chapter outlined the pre-transformation institutional environment shaped by similar pillars and discusses the challenges faced, including manual processes, ineffective verification systems, and a nascent IT industry for health insurance information systems. The digital transformation journey of Alpha Private Health Insurance also followed a path from recognising the need for change (deinstitutionalisation) to implementing digital solutions (reinstitutionalisation) to address these challenges, improve operational efficiency, and enhance customer experience.

The digital transformation efforts in both cases led to the introduction of integrated digital solutions, streamlined processes, improved data management, and the adoption of mobile platforms for service delivery. These changes increased efficiency, reduced fraud, improved stakeholder engagement, and a move towards universal health coverage. The chapter concluded by reflecting on the transformative impact of digital technologies on the institutional environments of both the NHIS and Alpha Private Health Insurance. It notes the emergence of a new institutional environment characterised by digital technologies, which has led to improved service delivery, operational efficiency, and stakeholder satisfaction. Despite the progress, challenges such as partial implementation, resistance to change, and infrastructural limitations persist, indicating an ongoing journey towards complete digital transformation in health insurance services.



CHAPTER SEVEN

DISCUSSION OF FINDINGS

7.1 Chapter Overview

The previous chapter focused on analysing individual cases of digital transformations. The current chapter addresses the research questions outlined in the introductory chapter by discussing the findings from individual cases and the literature review. It also presents the researcher's reflection on the use of institutional theory in this study. Therefore, this chapter brings together the literature findings from Chapter 2 and the empirical findings from Chapter 6. The chapter begins with a discussion of why developing countries pursue digital transformation and the meanings associated with the digital transformation of health insurance services. The following section discusses how the institutionalisation of digital transformation is undertaken. The next section then discusses how institutional context influences the digital transformation of health insurance services and vice versa. The next section discusses the outcomes of the digital transformation of health insurance in a developing country. The researcher's reflection on the use of institutional theory is also presented. The chapter ends with a summary and conclusion.

7.2 Motivations and Meanings Associated with Digital Transformation of Health Insurance Services

This section discusses why a developing country might pursue the digital transformation of its health insurance services and the meanings that underlie this transformation. A developing country may have peculiar reasons for the digital transformation of health insurance services. Differences between developed and developing countries require context-specific solutions to challenges (Avgerou, 2008; Tassabehji et al., 2019) in such countries. Health insurance is not a one-size-fits-

all product (Escobar et al., 2010). Moreover, it is crucial to acknowledge the significance of the institutional environment when attempting to understand the intricacies of organisational context (Hinings et al., 2018). To offer solutions tailored to individual circumstances, a developing country may present distinct motivations for undertaking the digital transformation of its health insurance services. Digital technologies continue to instigate individual, organisational, and societal level changes, highlighting their vast potential (Berger et al., 2018; Ghawe & Chan, 2022) and underpinning significant transformation across industries (Henriette et al., 2015). As one of the ways of expanding access for citizens, health insurance services have not been left out of such digital transformation interventions. The findings show the presence of varying drivers and motivations of why a developing country would undertake digital transformation of health insurance services, including 1) to ensure operational efficiency and transformation, 2) to improve service delivery and 3) data management and analytics. However, from an institutional perspective, interpreted through the lens of how institutions—both public and private—conceive, implement, and adapt to change, two different meaning frames underpin this outcome. For public health insurance, these are 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism. For private health insurance, these are 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 3) innovation and differentiation.

7.2.1 Ensure Operational Efficiency and Transformation

A developing country may want to embark on the digital transformation of health insurance services to eliminate manual and paper-based processes that result in bottlenecks and operational inefficiencies and instead implement digital platforms (Desikan & Devi, 2021; Okuzu et al., 2022).

The elimination of manual and paper-based processes, which have been found to have detrimental effects on operational efficiency, will lead to significant improvements and transformations in the operations of payors. Consequently, this will result in the delivery of enhanced health insurance services. Findings from the case showed that the health insurance organisations had to contend with significant expenditure in managing huge volumes of physical claim forms, leading to an increased incidence of health insurance-related fraud. For example, in the case of NHIS, misappropriation of registration monies, not issuing receipts, or counter-foiling negatively impacted the cost of operations, elevating into the public domain conversations on the financial sustainability of health insurance. Matt et al. (2016) assert that organisations embrace digital transformation to capitalise on the various benefits of digital technology, including improved efficiency and cost savings. This is observed in developing countries' health insurance as digital transformation is leveraged for operational efficiency and cost containment.

A developing country would digitally transform health insurance services to bring about efficiency and transformational change to its claims process. This they do to free up physical space from large volumes of paper claims by implementing electronic claims (Karthikeyan & Sulochana, 2023; Sajan, 2023) as part of eliminating manual and paper-based processes that result in bottlenecks, increased costs, operational inefficiencies, and the increased case of fraud (Owusu-Oware et al., 2018). Health insurance fraud is a pervasive global issue spanning both developed and developing countries (Amponsah et al., 2022). This is evident in the findings of both cases. For example, health insurance claims were predominantly stored as physical copies at the facilities of healthcare providers and insurance entities, taking up considerable space and resulting in several adverse outcomes.

Traditional health insurance services have promoted information asymmetry by using paper documents, leading to fraudulent practices. For example, the NHIS processed 25 million paper claims in 2012 (NHIA, 2012). The NHIS had delays in claims processing, management, and payment due to a high volume of paper claims, instances of errors and fraud, duplication, and reported treatments that were inconsistent with the reported diagnosis. Across health insurance services in Ghana, there has been widespread abuse, with instances of cheating, over-invoicing, fraud, and needless prescriptions. These actions have resulted in financial losses for both public and private insurance entities, posing a threat to financial sustainability. The delays in claims processing and payment were caused by these challenges, which led to stalemates between the insurance entities and healthcare service providers. As a result, the effectiveness and efficiency of healthcare delivery were diminished, necessitating digital transformation-led interventions.

A developing country seeks to attain operational efficiency and transformation of its membership processes and, thus, will embark on digital transformation. In both public and private health insurance entities, this constituted the systematic overhaul and continuous improvement of the membership process, leveraging digital technologies to transform enrolment in health insurance to better meet the population's needs. While highlighting operational efficiency, extant literature on organisational transformation has failed to acknowledge that transformation initiatives encompass more than just operational benefits (Bhattacharya et al., 2010). For example, in developing countries, health insurance organisations transition from manual paper-based membership processes to introducing digital platforms for enrolment, targeting operational efficiency and then further leveraging integrated mobile applications, completing the transformation process.

Regarding the latter, it has been observed that health insurance organisations can preserve their competitiveness by lowering costs, boosting member acquisition, and preserving retention through the use of mobile applications on smart devices (Baratam et al., 2020).

Nevertheless, a research gap regarding mobile applications' business value has been identified, specifically regarding health insurance payers' member retention. To address this, it has been suggested that health insurance providers contemplate utilising mobile tools to enhance their members' retention (Suleymanova, 2013). The current study addresses this research gap by showing that mobile applications not only help insurance organisations acquire and retain members but as a means of expanding coverage and making health insurance more affordable and accessible to a broader segment of the population, allowing people in remote areas to sign up for health insurance and make payments without travelling long distances towards attaining universal health insurance coverage. Using mobile applications and payment gateways for health insurance enrollment ensures funds are accounted for correctly.

A developing country would embark on the digital transformation of health insurance services to improve access and inclusion. In many developing countries, rural and remote areas often lack adequate physical infrastructure, making it difficult for residents to access health insurance offices or services (Onsongo et al., 2023). The World Health Organisation (WHO) and other global entities regard the implementation and expansion of health insurance as crucial in attaining Universal Health Coverage (UHC) (Asah & Nielsen, 2016; Sahay et al., 2019). It is noted that Act 852 of 2012 (that replaced ACT 650 of 2003) establishing the Scheme has as its object "to attain universal health insurance coverage in relation to (a) persons resident in the country, and (b)

persons not resident in the country but who are on a visit to this country.” Access and inclusion are, therefore, fundamental in establishing and operationalising health insurance in developing countries. However, it can be observed that while other research disciplines have discussed problems of access to health insurance (Nayak et al., 2019a, 2019b), addressing the phenomenon from an information systems perspective remains a gap. The current study provides a comprehensive understanding of health insurance access mediated by digital technologies, addressing this lack of research.

A primary goal of social health insurance is to pave the way for a more inclusive universal health insurance system, ensuring accessibility to all citizens. Access can be broken down into two streams: the demand side and the supply side. On the demand side, residents engage with health insurance entities to enrol. On the supply side, residents engage with healthcare providers using their enrolment status to access healthcare. In both cases, enrolled residents’ ability to access services under both streams necessitated the physical completion of forms and the reliance on paper-driven processes. However, these conventional methods, reliant on offline and paper-driven systems, confronted numerous hurdles, leading to limited access to health insurance.

Implementing digital technologies enabled the transformation of both demand and supply-side systems. For example, in the case of public health insurance, digital transformation paved the way for universal portability, enabling members to utilise their health insurance cards seamlessly across different locations. This significant change in accessibility ensured that members could access healthcare from any accredited provider nationwide. Similarly, for private health insurance, leveraging digital technologies made health insurance services more accessible to a larger

demographic. In both cases, the transformational changes aligned with the health insurance policy goal of achieving Universal Healthcare Coverage (UHC) by 2030 through increased access and inclusion.

7.2.2 Improved Service Delivery

Many developing countries seek universal health coverage, ensuring all residents can access needed healthcare services without financial hardship (Yaya & Sanogo, 2019). Improving the delivery of health insurance services is a critical step towards accomplishing this goal. A developing country would, therefore, embark on digital transformation to improve service delivery in two main areas: at the point of care and inter-organisational system.

At the point of care (accredited health facilities), it would be recalled from the findings the existence of ineffective authentication systems in the case of the public and private payor. The ineffective authentication system resulted in several adverse outcomes, as health insurance subscribers struggled to establish their eligibility for insurance coverage, including delays or denials in receiving healthcare services. Without adequate verification, health insurance subscribers were compelled to pay for healthcare services out of pocket, causing financial burdens, particularly for low-income individuals and families. This also led to increased fraud cases, as poor authentication mechanisms made it simpler for individuals to participate in fraudulent actions such as utilising someone else's insurance or filing false claims. The impact on developing countries health insurance is eroded trust in the healthcare system and insurance providers, resulting in public discontentment. This outcome is observed in the cultural-cognitive pillar by common beliefs and shared logic of action, evaluations, and judgments of perceived poor quality of health

insurance service based on the high rate of complaints. Digital transformation was, therefore, to ensure that eligible individuals could access healthcare when needed, at the time they needed it, and where they needed it.

This has been implemented through biometric authentication, smart cards and mobile apps, online portals and self-service options and recently, an ongoing integration with the national identification system. Biometric authentication methods, like fingerprint scans, can improve security and accuracy in verifying health insurance identity. Smart cards or mobile apps can streamline verification, while user-friendly online portals can manage insurance information. Integrating health insurance authentication with national identification systems can simplify identity verification and reduce administrative burdens. In both cases, insurance organisations have introduced feedback systems through digital channels to identify and address difficulties with the authentication process and evaluate the quality of service received at the point of care.

This study argues that health insurance is at the health system's nexus, mediating access between healthcare providers and patients to healthcare services. The digital transformation of inter-organisational systems shared by both entities (Maghrabi & Gargeya, 2012) is therefore crucial for improved service delivery. While interest in inter-organisational system studies has increased over the years, owing primarily to the adoption of health information exchange (Wu & LaRue, 2015) and coordination mechanisms (Cucciniello et al., 2015), these insights have yet to extend to and account for the complex relationship between healthcare providers and health insurance organisations. This study, therefore, addresses this gap. In the context of health insurance, an inter-organisational system is underpinned by digital platforms and infrastructure that enables and

executes functional capabilities, data, and procedures for health insurance attendance and its linkages with claims.

From the findings, it can be observed that inter-organisational interaction started with a lot of manual tasks and workflows between health insurance organisations and healthcare providers. The healthcare provider group in Ghana consists of various establishments such as pharmacies, Community-based Health Planning and Services (CHIPS), health centres, district hospitals, polyclinics or sub-metro hospitals, quasi-government hospitals, private hospitals, clinics and maternity homes, regional hospitals, and teaching hospitals. Initially, members were identified using booklets with biographic details and photo identification. Healthcare providers were given a manual compilation of health insurance members registered under their care. This compilation serves as a reference for validating eligibility for health services. Similarly, healthcare providers (HCPs) document every medical contact on a manual claim form, including information like diagnosis and treatment. They then submit thousands of these manual claim forms to request reimbursement.

Significant tensions developed between health insurance organisations and HCPs due to this inter-organisational interaction without digital technologies. Others include claims submission, processing, payment delays, difficulty detecting fraud and abuse, and limited transparency in the status and reasons for claim changes. Furthermore, there was a lack of clinical staff to assess the enormous amount of paper claims and insufficient knowledge and competence among healthcare providers, resulting in errors and abuse such as incomplete recording on claim forms, duplication of claims, and overbilling.

With the myriad challenges described above, the digital transformation of inter-organisational systems through digital platforms and infrastructure was to afford better service delivery. Digital platforms interfaced directly with healthcare providers and provided automatic electronic vetting according to specified business rules and built-in workflows. The attendance, utilisation, and claims platforms provide extensive data collection and aggregation capabilities, enabling faster claim resolutions for recognised healthcare providers. The result was an acceleration in claims reimbursement and reduced overhead costs. For clients and healthcare providers, these transformative changes offer many benefits. This efficiency encourages more healthcare providers to collaborate and offer services under insurance schemes, thus broadening the network available to potential beneficiaries. When healthcare providers are quickly reimbursed, they may be more incentivised to improve the quality of their services to deliver better care, resulting in higher-quality services for patients.

7.2.3 Data-Driven Decision-Making

A developing country would embark on digital transformation to improve data-driven decision-making. Health insurance organisations gather and analyse vast quantities of data. This data can be utilised for trend identification, risk assessment, and data-informed decision-making (Rawat et al., 2021) to enhance service delivery. For most developing countries where health insurance is primarily funded through a combination of taxes and supported with additional funding by developing partners, accountability, transparency and trust through data-driven insights are crucial. Data-driven insights are needed in health insurance across several areas, including health insurance fraud detection (Sheshasaayee & Thomas, 2018; Sowah et al., 2019), detection of

anomalies in claims (Johnson et al., 2021; Zhou et al., 2020), situational-awareness and behavioural patterns (Epifânio & Pestana, 2018). In the latter, Baratam et al. (2020) examined healthcare insurance providers utilising vast data from mobile applications. They found a positive correlation between using these applications and member retention rates.

Evidentially, the two cases demonstrate the necessity of gathering, storing, and analysing large volumes of data on policyholders, claims, and healthcare providers. Informed data-driven decision-making is primarily driven by the need for fraud detection and control, claims processing and anomalies detection, risk assessment and management, and customised policies based on realistic premiums. By evaluating historical claim data, health insurance organisations can discern patterns and trends in healthcare utilisation. For instance, they can identify the most frequently requested medical treatments, determine the regions with the highest healthcare expenditure based on the disease burden, and assess the healthcare providers with the most favourable outcomes. For example, the first phase of digital transformation under the NHIS noted some of the challenges to be addressed, such as the inability to effectively monitor and manage service utilisation and attendant cost and the unavailability of data on the prevalence of diseases/illnesses in different parts of the country leading to suboptimal managerial decision making.

As a result of operating in the private sector, private health insurance organisations invest more in risk assessment, utilising data analytics insights. Private health insurance organisations can better analyse and manage risks with access to rich data. As observed in the findings, this is critical for ensuring the private payor's financial stability while providing comprehensive coverage to policyholders. Through analytics, private health insurance organisations can forecast future claims

and costs, which is vital in establishing appropriate premium rates and maintaining competitiveness while covering expected expenses. By analysing member data and healthcare trends, private payors can offer policies tailored to different demographics or health conditions. For example, they can create personalised benefits packages for different categories of policyholders or individuals with chronic conditions.

In summary, data-driven decision-making is an important benefit of digital transformation for health insurance organisations in developing countries. It enables them to gather, examine, and take action based on data to understand their members better, mitigate risks, provide tailored services, and address regional disparities in healthcare access. Consequently, this leads to enhanced service delivery and increased member satisfaction.

7.2.4 Meanings Associated with DT: Public Health Insurance Perspective

From the study's findings, it is observed that from a public health insurance perspective, a set of meaning frames is associated with the digital transformation of health insurance services. They include assumptions about how things work or should work in a social context and play a crucial role in shaping norms, rules, and routines and guiding perceptions and interpretations of social reality. These are 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism.

1. Conformance to Regulatory Standards and Social Norms

Public health insurance organisations in developing countries may view digital transformation as necessary to comply with regulations and societal expectations. This involves following government guidelines on digital health, conforming to national health priorities, and fulfilling the growing demands for digital literacy and accessibility among the population. For example, in the Ghanaian context, the presence of Ghana's eHealth Strategy, Health Sector ICT Policy and Strategy, and Data Protection Act, 2012 are examples of policies and legislative instruments driving digital transformation interventions. In 2018, the Vice President of Ghana, Dr Mahamudu Bawumia, launched the mobile renewal service and e-receipts of the NHIS. Thus, digital transformation is frequently viewed as a way to enhance the accessibility, efficiency, and quality of healthcare services for a broad segment of the population, particularly in underserved regions.

2. Public Good and Equity

Public health insurance organisations may see digital transformation as a way to promote the common good and ensure equity in healthcare accessibility. Digital technologies and platforms can enable a more equitable allocation of health resources, increasing healthcare accessibility for marginalised and rural populations. This aligns with the developing countries' health sector vision of providing universal healthcare coverage and reducing disparities in health outcomes.

3. Institutional Isomorphism

Public health insurance organisations may undergo institutional isomorphism, adopting digital technologies in response to pressure from international health organisations, donor agencies, or the government. This adoption may not necessarily stem from internal motives for efficiency or effectiveness but rather from the necessity to uphold legitimacy and garner support from these external organisations. For example, the Health Insurance Project (HIP) was a five-year project (December 2007 to December 2012) funded by the International Development Association (IDA) of the World Bank. Its goal was to enhance the implementation of the National Health Insurance Scheme (NHIS), with a particular focus on capacity building in ICT and the billing functions of healthcare providers. Component B, information and communication technology (ICT) received \$8.7 million in funding. This component supported upgrading the NHIA claims processing centre, developing a health data dictionary to standardise data interoperability within the health sector, and establishing local area networks (LAN) for larger healthcare providers.

7.2.5 Meanings Associated with DT: Private Health Insurance Perspective

From the study's findings, it is observed that from a private health insurance perspective, a set of meaning frames is associated with the digital transformation of health insurance services. These are 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 4) innovation and differentiation.

1. Competitive Advantage

Private health insurance organisations in a developing country may perceive digital transformation as a key strategy to achieve a competitive edge. By utilising digital technology, private insurers may provide innovative products, personalised insurance policies, and efficient customer service. This may involve using mobile health applications, telemedicine services, and digital platforms for claims processing, all with the goal of improving customer experience and satisfaction.

2. Market Expansion and Segmentation

Another associated meaning from which private health insurance organisations perceive digital transformation's benefits is allowing them to tap into previously inaccessible market segments, including younger populations and individuals in remote areas with mobile internet access. By developing digital channels, private health insurance can expand its reach and tailor its products to meet the diverse needs of a broader audience.

3. Risk Management and Cost Reduction

As observed in the findings of this study, one significant challenge faced by Alpha Private Health Insure (APHI) was setting unrealistic premiums and their implications for cost. For APHI, digital tools and data analytics offered better risk management and cost reduction opportunities. By analysing large datasets, private health insurance organisations can better understand health trends, forecast risks, and set realistic premiums.

4. Innovation and Differentiation

Private health insurance organisations pursue digital transformation as a means of innovation and differentiation, setting themselves apart from competitors. It would be

recalled from the findings that the regulative pillar positioned A PHI as a complement to public health insurance, the outcome of which means A PHI and private insurers generally experience lower adoption rates than their public counterpart, leading to restricted market outreach. Therefore, the focus of private health insurance organisations' digital transformation efforts will be driven by the need to set themselves apart.

This demonstrates that actors operating within a public sector institutional framework are motivated by a “social logic” that prioritises equity. Conversely, actors within a private sector institutional framework are driven by a “market logic,” focusing on profit maximisation. These perspectives shed new insights within digital transformation and health insurance literature on how institutional contexts and organisational field logic shape the meanings connected with the digital transformation of health insurance services in a developing country. Hinings et al. (2018) note that, importantly, organisations are themselves social and cultural systems immersed in an “institutional” environment of societal expectations and prescriptions. Both public and private health insurance organisations navigate these transformations within their respective institutional logics, balancing the imperatives of social equity, regulatory compliance, market competitiveness, and innovation.

7.3 How Health Insurance Digital Transformation Initiatives Are Enacted

In line with the research question on how the institutionalisation of digital transformation is enacted in public and private sector health insurance organisations, the findings from the study show that in a developing country, digital transformation entails a transition from manual, paper-based processes to integrated digital solutions through phases. These phases are Scrutinise

(assessment of the existing institutional environment), Clarify (identification of issues and initiation of deinstitutionalisation), Organise (strategy and planning for digital transformation), Perform (implementation and reinstitutionalisation) and Enhance (ongoing adjustments) or SCOPE.

As mentioned in the literature review, contemporary literature on digital transformation differentiates between two predominant forms of change: continuous and episodic (Hanelt et al., 2021). The findings of the current study are consistent with those of the dominant viewpoint, which posits that continuous change is incremental and evolutionary, building upon pre-existing systems and technologies (Hanelt et al., 2021; Safadi & Faraj, 2011; Van De Ven & Poole, 1995). Continuous change entails gradual adjustments to existing processes and systems, aligning with technological progress (Fischer & Baskerville, 2022). The current study's digital transformation phases (SCOPE) are views further supported in the extant literature. For example, Bunduchi et al. (2019) noted that four logics characterise digital transformation initiatives as they transition from comprehension to implementation stages. The following sections discuss the phases of Scrutinise (assessment of the existing institutional environment), Clarify (identification of issues and initiation of deinstitutionalisation), Organise (strategy and planning for digital transformation), Perform (implementation and reinstitutionalisation) and Enhance (ongoing adjustments) or SCOPE found in this study.

7.3.1 Scrutinise Phase (Assessment of the Existing Institutional Environment)

This stage entailed an assessment of the health insurance organisation's institutional environment or existing conditions. It involves assessing existing processes, technologies, culture and other

pertinent factors. This assessment aids in finding areas that necessitate change. For example, the NHIS assessment prior to digital transformation uncovered a fragmented system featuring numerous decentralised payers (DMHIS), manual and paper-based procedures, and silo systems.

7.3.2 Clarify Phase (Identification of Issues and Initiation of Deinstitutionalisation)

In this phase, attention shifts to identifying specific issues or challenges within the existing setup. These may include outdated processes, technological gaps, barriers to innovation from an institutionalised culture or any other elements constraining progress. During this phase, deinstitutionalisation is initiated to transition from outdated and constraining institutions and practices. From this study's findings, health insurance entities in this phase identified the need to address constraints such as weak portability, inefficient member registration and claims process, and susceptibility to fraud.

7.3.3 Organise (Strategy and Planning for Digital Transformation)

After identifying the barriers and constraints, the next phase involves formulating a strategy for digital transformation. This entails establishing clear goals, defining the scope of the change, identifying necessary technological solutions, and planning for resource allocation. From the findings, the NHIS formulated a digital transformation strategy to tackle these identified constraints, encompassing a thorough examination and a plan for executing digital solutions. Similarly, APHIS's digital transformation strategy roadmap, termed "going digital", envisioned transformed systems and processes for operational efficiency, delightful customer experience and a competitive edge.

7.3.4 Perform (Implementation and Reinstitutionalisation)

This stage entails implementing the plan by deploying technological solutions, making process improvements, introducing newer processes, and incorporating other components of the digital transformation strategy. Reinstitutionalisation ensured these improvements became part of the new and engrained working method.

7.3.5 Enhance (Ongoing Adjustments)

Once the changes have been implemented, this phase compares the new state of the institution in relation to the goals established during the planning phase. This phase emphasises the need for ongoing adjustments and flexibility, recognising that digital transformation is an evolving process requiring continuous adaptation and refinement. This is evident in the findings as improvements and ongoing adjustment can be observed over several years.

With the ever-changing landscape of digital technologies, organisations must constantly adapt to meet the evolving needs of their industry. Digital transformation is the lever to navigating these shifts and challenges. Bitzer et al. (2021) emphasise the ongoing nature of digital transformation and change, stating that organisations continuously strive to adapt. They also make the point that digital transformation is a continuous process that does not have a clear endpoint. Notably, various elements underpin this ongoing transformation, particularly the phased and iterative strategies organisations employ to facilitate sustained evolution. In summary, the process of implementing health insurance digital transformation initiatives in a developing country demonstrates the complex interplay between institutional contexts and technological capabilities. It emphasises the significance of a phased approach, beginning with recognising existing institutional challenges,

thinking strategically, incorporating technology, and making adjustments based on outcomes. For this study, the deconstruction of institutionalisation into five distinct but connected phases (SCOPE) presents a significant theoretical contribution. Hitherto, this was seen as a “black box”, limiting their practical application in organisation studies.

7.4 How Institutional Context Shapes Health Insurance Service Digital Transformation

This section discusses how institutional contexts shape health insurance service digital transformation and vice versa. The health sectors of developing countries, which include health insurance, are influenced by structural and cultural practices and insufficient enabling conditions (Effah et al., 2020; Nwankpa & Datta, 2021) that have an effect, either favourable or unfavourable, on digital transformation (Haryanti et al., 2023). These may manifest as political (Siddiquee, 2016), regulatory (Senyo et al., 2016), or social practices that both shape and are shaped by digital transformation. Figure 7.1 illustrates the interconnectedness between institutional elements and digital transformation.

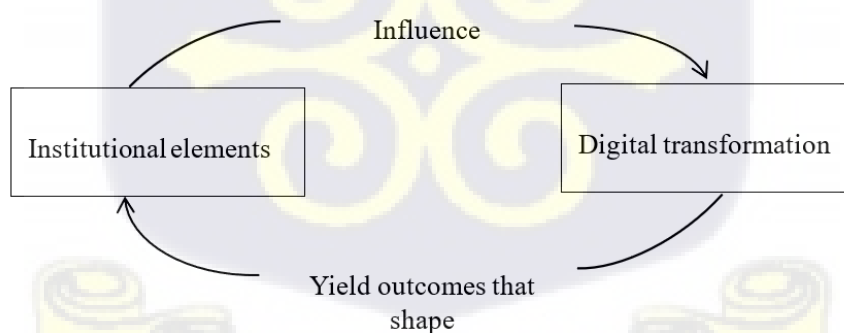


Figure 7.1 Co-Shaping of Institutional elements and Digital transformation

An important element of a social structure revolves around rules and resources intricately intertwined within multiple institutions. These institutions are the more enduring features of social

life, institutionalised features that provide a sense of stability over time and space (Giddens, 1984), simultaneously enabling or constraining human actions (Cardinale, 2017). Digital technologies are more than simply an assemblage of material features that operate following built-in functional instructions when seen from an institutional perspective; instead, they are a byproduct of their integration into social institutions (Avgerou, 2002). In this sense, digital technologies are regarded as institutions in their own right, one that is emergent, evolving and embedded and interacts with other institutions in modern society (Sawyer & Jarrahi, 2014). As technology increasingly integrates into society, it gradually loses its connection to the people using it (Orlikowski, 1992). The case's findings demonstrate the bidirectional influence between the digital transformation of health insurance services in both a public insurer (NHIS) and a private insurer (APHIS) and the institutional context. Elements within the regulatory, normative, and cultural-cognitive institutions that make up the institutional context play a significant role in shaping the digital transformation of health insurance services. Conversely, these institutional elements are altered by digital transformation, resulting in new practices and outcomes. In terms of institutional elements' influence on digital transformation, findings from this study show that 1) normative institutional elements dominate the influence on digital transformation and 2) changes in regulative institutional elements can accelerate digital transformation.

7.4.1 Influence of Normative Institutional Elements

Normative institutional elements and practices have a profound influence on operational processes. Health insurance processes were largely manual and paper-based before digital transformation. The transformation to digital platforms is often driven by the need to increase operational efficiency and streamline processes like claims processing, member enrolment, and customer

service. Digital transformation, therefore, focuses on different elements within the normative institution, such as registration agents, in-person interactions, and traditional processes. By embracing digital transformation, health insurance organisations can enhance their operations, making them more efficient and eliminating the need for time-consuming, paper-driven processes. From the findings, normative institutional elements consistently highlighted the most apparent inefficiencies and challenges in both cases, including manual processes, inefficient verification systems, human agents and dependence on paper-based operations. Given the operational nature of elements within the normative pillar, they significantly shape operational modifications and the digital transformation process, from transitioning from manual to digital processes to transforming service delivery and changing operational culture.

While few studies have captured the institutional context as a challenge in shaping the implementation and use of digital technologies (Effah, 2016), this offers new perspectives on the dominance of normative institutional elements in shaping digital transformation. Organisations function within complex environments, with interrelationships among the pillars (Scott, 2014). In different research contexts, the effects of each institutional structure may be influenced or impacted by other institutional structures. For example, in information security, Kam et al. (2020) observed that institutional norms are crucial in shaping organisations' information security measures. This is because keeping up with the ever-evolving landscape of information security threats poses a constant challenge for the regulatory pillar in institutions. Mekonnen and Wubishet (2016) have shown that regulatory and normative institutions have a favourable impact on the adoption of FOSS in the public sector. However, to integrate FOSS into the proprietary-dominated

public sector of developing countries, it is essential to prioritise the cultivation of the normative institutional element.

7.4.2 Influence of Regulative Institutional Elements

With regards to the regulative pillar, the study's findings revealed that legislative instruments such as the National Health Insurance Act, 2003 (Act 650), the National Health Insurance Regulation, 2004 (L.I 1809), and the National Health Insurance Policy Framework in no small measure shaped the use of information systems and the path to digital transformation. They provided the necessary legal and regulatory framework for the operations of the health insurance entities. While it might not have been as operationally visible as elements within the normative pillar, it was critical for enabling and legitimising the transformation process. Stakeholder pressures to implement new practices manifest when an organisation relies on its stakeholders, including government regulatory agencies, following institutional theory (Scherer et al., 2016). This is especially true within the healthcare sector, a highly institutionalised industry governed by numerous regulatory bodies (Ahmadi et al., 2018). In the case of the public health insurer, laws, regulations, and policies governing health insurance significantly dictate how information systems became established and operated.

From the onset, the National Health Insurance Act of 2003 (Act 650) led to an institutional structure of semi-autonomous district schemes. There was no guidance or oversight from a central authority regarding developing and using information systems. Consequently, district schemes secured their own IT systems, with occasional political interference from the locally instituted governing board on which vendor was chosen to supply what system. The outcome was weak

portability and a non-uniform process from the absence of interoperability. A lack of a clearly defined regulatory framework (Effah, 2016) specifically for how information systems were to be developed and used constrained health insurance operations and catalysed digital transformation. Institutions exert influence over the use of technology at the organisational or micro level, which in turn fuels the evolution of institutions (Devaujany et al., 2014). From the study's findings, enacting a new health insurance legislative instrument, Act 852 of 2012, that replaced the National Health Insurance Act of 2003 (Act 650), brought about institutional and technological convergence impacting both micro and macro levels.

Conversely, post-digital transformation, new processes alter established practices within the institutional pillar. For example, introducing data analytics platforms, proof of attendance modules, and digital claims processing enacted changes within the regulatory pillar. By ensuring that claims are generated only upon verification through a unique pin, the insurer was able to put a regulative measure in place, promoting transparency and reducing fraudulent activities. Data from such a system was used to identify, for prosecution, healthcare providers engaging in fraudulent practices such as duplicate claims, phantom billing, upcoding and billing for services not rendered. In general, it has been observed that information systems serve as a robust conduit for institutionalised compliance-related practices, employing artefacts and routines to implement regulatory-oriented institutionalist policies (Currie et al., 2011). Regulatory requirements, therefore, often shape the scope, pace, and nature of digital initiatives in health insurance.

7.4.3 Influence of Cultural-Cognitive Institutional Elements

Cultural-cognitive elements of the institutional environment exert a substantial influence. The extent to which members, healthcare providers, and health insurance staff are receptive to digital solutions impacts the development, implementation, and utilisation of such technologies. Such expectations around ease of use, accessibility and service quality, therefore, act as drivers in designing and implementing digital solutions in health insurance. From the study's findings, three stages of cultural-cognitive behaviours can be observed. 1) Pre-Transformation: Health insurance faced negative perceptions and a lack of trust due to inefficiencies. 2) Post-Transformation: Stakeholder engagement and trust are elevated due to improved service delivery and transparency facilitated by digital platforms and mobile applications, and 3) Dominant Influence: The success of the digital transformation is contingent upon the cultural transition towards acceptance and trust in digital solutions.

Again, from the study's findings, the cultural-cognitive pillar, embodying the shared understanding of how health insurance operates, underwent a shift. For example, a client generating a pin during a healthcare visit and verifying a claim through an SMS signifies a cultural shift from passive to active participation in their healthcare journey. Active participation in this process fosters a sense of ownership and trust, transforming the cultural understanding of the relationship between the client and the insurer. This pillar, although influential, often followed changes in the normative and regulatory pillars. Its elements were focused on reacting to and embracing these changes rather than driving them directly.

Nevertheless, its long-term impact on the success and sustainability of digital transformation cannot be understated. In conclusion, although all three pillars are interdependent and essential for digital transformation, the normative pillar from this study's findings stands out as having the most elements influencing the initiation and implementation of digital transformation. The Regulative Pillar establishes the necessary foundation and legitimacy for these changes. At the same time, the Cultural-Cognitive Pillar plays a crucial role in guaranteeing the enduring acceptance and continuity of the transformation. Extant literature has indicated the role of regulative, normative, and cultural-cognitive institutional elements in implementing and using information systems (Dang & Pekkola, 2020). However, how these elements influence the digital transformation process in health insurance across its various phases has remained unknown. This study's findings bridge this gap and provide new insights into this phenomenon.

7.5 Outcomes of Health Insurance Digital Transformation

This section presents a discussion on the outcomes of health insurance digital transformation. In crafting his analytic framework, the three pillars of institutions, Scott (2014) makes a number of arguments as well as intimating potential concessions. For example, while institutions have inherent characteristics that make them largely impervious to change, they nevertheless change over time. However, most examinations of institutions focus on their ability to regulate and constrain behaviour, which Cardinale (2017) calls the competing positions of the primacy of structure and agency. In the author's view, emphasising institutional constraints fails to acknowledge the possibility that actors may be able to exert agency and alter the institutions in which they are embedded. Thus, while an institutional perspective places significant emphasis on the symbolic dimensions of social existence, it is equally imperative to consider the activities by

which these elements are created, reproduced, and modified and the resources that uphold them. The outcomes of health insurance digital transformation in a developing country show that 1) institutions act as drivers of digital transformation and, in turn, are shaped by the outcomes of this transformation, and 2) technology takes on a central role emerging as an institutional pillar.

7.5.1 Institutions as Drivers of Digital Transformation in DC.

Health insurance organisations are being compelled to capitalise on the opportunities presented by digital transformation. Despite its considerable importance, there seem to be no empirical studies that have demonstrated (i) how and the extent to which this transformation is currently underway and (ii) which drivers are leading and shaping this transformation process. Findings from this thesis address this gap, showing that digital transformation efforts, while evolving through a series of phases over time, had a considerable impact at the organisational level: processes and service delivery and, in some cases, partial impact at the level of the institutional field. Moreover, the analysis suggests that elements within the institutional environment made up of regulative, normative, and cultural-cognitive institutions to be the main drivers for this transformation. In reality, despite expectations that internal barriers might drive digital transformation (as a response to overcome these barriers), the findings are that exogenous institutional factors result in a more heightened sense of urgency.

Emerging digital technologies convey the promise of enhancing the efficiency of public services and improving the quality of service and, for this reason, have been the primary drivers of digital transformation (Tangi et al., 2020; Wang et al., 2023). Unfortunately, the fulfilment of this promise, as observed in this study, is often stuck in established institutional norms, processes and

structures on the one hand and, on the other hand, inversely catalyses change. For example, an institutional structure or devolved payers (District Schemes) resulting from the regulative institution led to non-uniform registration processes and a weak health insurance portability system. This gave rise to several constraining elements within the normative institution and set the tone for the high rate of complaints and the perceived poor quality of service emanating from the cultural-cognitive institution. Individually and collectively, these served as drivers for digital transformation.

Over the course of digital transformation, it could also be observed that digital transformation outcomes such as electronic claims submission, vetting, adjudication, and payment eroded a long-standing institutional practice of filing paper claims and transporting them in boxes. Furthermore, paperless membership registration and instant membership cards eroded the practice of community registration by agents, whose use for a long time resulted in delays in returning registration forms, misappropriation of registration monies, not issuing receipts or counter-foiling, not delivering some identity cards and other fraudulent practices. This demonstrates that elements within the institutional environment, while driving digital transformation, get shaped by the outcomes of digital transformation, emphasising the institutional context as a key driver in digital transformation. Interestingly, Omrani et al. (2022) found a marginal influence of the institutional context as opposed to the technological context made up of IT infrastructure and digital tools as key drivers of digital transformation. This could result from a difference in institutional dynamics between developed and developing countries. Nevertheless, this study's findings are supported by institutional theory, which emphasises the role of the external environment in shaping digital

technology interventions (Dacin et al., 2002), including digital transformation (Berente & Seidel, 2022; Omar & Elhaddadeh, 2016).

7.5.2 The Fourth Pillar of Institutions (Technology)

Technologically enhanced institutional arrangements, such as novel organisational structures, are progressively altering the dynamics in several sectors and domains. Consider the following illustrations: Platforms like TripAdvisor have transformed the evaluation systems in the tourist sector. They have shifted from relying on expert reviews to a crowd-based model that constantly collects and combines consumer evaluations (Orlikowski & Scott, 2014). Similarly, Uber and AirBnB faced opposition from regulators but managed to gain legitimacy by upending, disintermediating and reorganising the delivery of taxi and accommodations service delivery (Bauer & Gegenhuber, 2015; Cusumano et al., 2019; Mair & Reischauer, 2017). Healthcare organisations, including health insurance providers, are rallying behind a transparent blockchain-based model. This model aims to enhance financial security, improve health service delivery, and elevate the quality of care support. Eliminating costs and privacy concerns can expand coverage and improve overall quality while empowering users to take control of their healthcare (Amponsah et al., 2022; Prokofieva & Miah, 2019). Undoubtedly, sectors and fields are being influenced and transformed by digitally-enabled institutional arrangements, which in turn are reshaping existing normative systems.

For example, from the current study, cultural-cognitive institutions underwent a transformation, embodying the shared understanding of how health insurance operates. A client generating a pin during a healthcare visit and verifying a claim through an SMS signifies a cultural shift from

passive to active participation in their healthcare journey. This active participation instils a sense of ownership and trust, altering the cultural understanding of the client-insurer relationship. This offers a considerable opportunity for scholars of institutional theory to delve deeper into the examination of how individuals utilising digital technologies can fundamentally alter the processes by which institutions are established, augmented, challenged, or dismantled. This study's findings show how institutions act as drivers for digital transformation by providing the regulatory framework, influencing normative practices, and shaping cultural-cognitive perceptions. Both cases illustrate how digital technology fundamentally alters traditional practices, creating new norms and expectations. This is indicative of technology's role as an institutional element, not just an artefact in what Bennich (2024) describes as a digital imperative, requiring a rethinking of the existing institutional frameworks to accommodate new digital realities, emphasising the centrality of technology in contemporary health insurance operations.

Technology is frequently regarded as a driver or enabler for institutional change rather than being perceived as an institution in its own right. Nevertheless, in the academic discourse, the consideration of technology as an institution has been explored and continues to gain traction (e.g., see Orlikowski & Barley, 2001; Pinch, 2008). Scott (2001; 1995) likewise conceded the necessity of a fourth institutional pillar related to technology, which he narrowly delineates as material artefacts that contain embedded knowledge and skills. Technology, akin to various forms of action structure, is initially shaped by the endeavours of information systems actors, illustrating its socially constructed nature. Conversely, upon its development, it often becomes reified and institutionalised, detaching from the human agents responsible for its creation or attribution of significance. As a result, it seems to assimilate into the objective, structural characteristics of the

organisation (Orlikowski, 1992). Moreover, findings from this study demonstrate that once a technology has secured a substantial installed base, it can self-facilitate further adoption and use, extending the institutional structure to integrate a technological element.

Table 7.1 Fourth Pillar of Institution and Elements

Theory Element	Regulative	Normative	Cultural-Cognitive	Technology (Technative)
<i>Basis of compliance</i>	Expedience	Social obligation	Taken-for-grantedness Shared understanding	Efficiency and Innovation
<i>Basis of order</i>	Regulative rules	Binding expectations	Constitutive schema	Technological standards and protocols
<i>Mechanisms</i>	Coercive	Normative	Mimetic	Co-evolutionary and Adaptive
<i>Logic</i>	Instrumentality	Appropriateness	Orthodoxy	Functionality and Progress
<i>Indicators</i>	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action Isomorphism	Digital Literacy, Technological Infrastructure, Adoption Rates
<i>Affect</i>	Fear Guilt/ Innocence	Shame/Honor	Certainty/Confusion	Confidence/Fear
<i>Basis of legitimacy</i>	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported	Efficacy and Security

Based on the findings of this study, Table 7.1 considers the components that would constitute a technological institutional pillar important in understanding the interplay of digital transformation within institutional environments. Following is a description of the elements. *Basis of compliance*: compliance is driven by the integration and dependency on technological standards, protocols, and infrastructure. Organisations and individuals comply due to the pursuit of increased efficiency, innovation, and the competitive advantage that technology offers. *Basis of order*: Order within the

Technology Pillar is established through adherence to technological standards, protocols, and best practices that ensure interoperability and security. *Mechanism*: The mechanisms for this pillar are characterised by a co-evolution with technological advancements and an adaptive approach to the integration of new systems and processes. *Logic*: The underlying logic is driven by a relentless pursuit of progress and functionality, where technology is seen as a key driver of modernisation and improvement. *Indicators*: Indicators for the technological pillar include the level of digital literacy among institutional agents, the robustness of the technological infrastructure in place, and the rates of adoption and utilisation of technology. *Affect*: The affect associated with the technological pillar could range from confidence in the potential of technology to drive growth and innovation to fear of obsolescence. *The Basis of legitimacy*: The legitimacy of the technological pillar comes from the proven value of technology in achieving desired outcomes and the assurance of data security and privacy. This new pillar, an extension of the original three pillars, underscores the increasing acknowledgement that technology is more than just a tool; it is a crucial element of contemporary institutional frameworks, shaping behaviour, strategy, and structure within organisations and their fields.

7.6 Reflections on the Use of Institutional Theory

This section examines the researcher's reflections on using institutional theory for this study. Institutional theory, among other things, has been characterised as both a framework and a multifaceted means of considering social activity. Numerous critics have posited that the new institutionalists have failed to explain the change issue adequately (Czarniawska, 2012). Powell's (1991) defence did not entirely address this criticism, as he argued that change should be considered an exception rather than a rule. Nonetheless, institutional theory has experienced

significant growth in the social sciences since the early 1990s, despite ongoing ambiguity regarding concepts such as institutions, institutionalisation, and institutionalism, as well as the reconciliation of macro and micro-institutional influences within a single study. Notwithstanding being characterised by epistemological pluralism and conceptual ambiguity, the theory has emerged as a significant framework of concepts and ideas for scholars across the disciplines, not less the information systems discipline (Currie & Swanson, 2009).

For years now, institutional theory has featured across IS in studies relating to physician adoption of electronic health records (Sherer, 2010), information security (Albuquerque Junior & Santos, 2015), smart villages (Lintula & Tuunanen, 2020) and recently, artificial intelligence (Madan & Ashok, 2024). Despite its increased application across the information systems disciplines, its use does not get easier for IS doctoral students. The researcher needed multiple rounds of reading and applying the theory before fully grasping its concepts and principles, in addition to the contribution to conference publications guided by an institutional lens. For this study, examining digital transformation in health insurance through the lens of institutional theory sheds light on the interaction between the institutional environment and technology. This illustrates the theory's relevance in understanding how digital transformation initiatives are shaped, constrained and driven by the institutional environment in which they occur. The pillars frame the institutional context, influencing the approach, process, and outcomes of digital transformation. Institutionalisation also responds to calls for a more process-oriented understanding of IS phenomena.

Taken together, its use reveals several key insights and implications into the use of institutional theory in guiding digital transformation. 1) *The interplay of pillars*: To achieve a successful digital transformation of health insurance services, it is essential to ensure a seamless interaction among the regulatory, normative, and cultural-cognitive institutions. Issues or obstacles within any one pillar can significantly impede transformation efforts, highlighting the importance of taking a comprehensive approach that tackles all three dimensions. 2) *Institutional resilience and change*: The cases showcase institutional resilience and the ability for change, emphasising how established practices and norms can be successfully questioned and changed through strategic digital initiatives. This highlights the theory's practicality in recognising and overcoming the institutional obstacles to digital transformation. 3) *Technology as an institutional element*: The cases highlight how technology is not just a tool but an influential element that can shape and transform institutional settings. This viewpoint broadens institutional theory's reach, highlighting technology's transformative possibilities within institutional structures.

Although institutional theory provides valuable insights into the digital transformation of health insurance, it also encounters certain constraints. The theory may not fully account for the rapid pace of technological change and the emergent, often unpredictable, dynamics of digital innovation. This is particularly problematic at a time when digital technologies are increasingly influencing organisations and societies. Moreover, the emphasis on institutional stability and resistance to change might downplay the possibility of radical innovation and disruption facilitated by digital technologies. This study hopes that the extended institutional pillar, with the inclusion of a technology pillar, will serve as a starting point for rethinking the influence of digital technologies and the institutional environment.

7.7 Chapter Summary

This chapter presented the discussions from the thesis, covering a review of the literature on digital transformation in IS and the digital transformation of health insurance services. The discussion highlights why a developing country's health insurance might embark on digital transformation, the implementation stages of digital transformation, how the institutional environment shapes digital transformation and the outcomes of such digital transformation. In doing so, it explored the reciprocal relationship between institutions and digital technologies. Additionally, Table 7.1 shows an extension of the institutional pillars with the introduction of a technology pillar and its elements. The next chapter will summarise and assess the study, discuss its contribution to the field, and present the overall conclusions.



CHAPTER EIGHT

SUMMARY, CONCLUSION AND CONTRIBUTION

8.1 Chapter Overview

The preceding chapter discussed how the research questions were addressed by examining the findings of this study in light of the existing literature. It also offered the researcher's reflections on the refined analytical framework. This final chapter summarises the study based on the research purpose, questions, contributions, evaluation, limitations, and recommendations. The following section revisits the research purpose and questions in Chapter 1, detailing how the study addressed them, followed by the findings of this study. The subsequent section highlights the study's contributions to the body of knowledge, encompassing theoretical, research, practice, and policy. The section that follows evaluates the study based on the principles and guidelines outlined in Chapter 4. The initial part of the evaluation applies the principles of interpretive research, while the latter part adheres to the ethical guidelines. The concluding sections of this chapter present the study's limitations and propose recommendations for future research.

8.2 Summary of the Research Process and Findings

This section reviews the research purpose and questions that guided this study, particularly emphasising its findings. This study began with the aim of understanding the digital transformation of health insurance services in the context of a developing country. In this study, digital transformation is defined as the process of utilising digital technologies to significantly enhance health insurance processes and services. This involves the integration of information, communication, and computing technologies with the aim of increasing accessibility, efficiency,

and effectiveness across the entire health insurance system. It also considers the sociotechnical interactions within the organisational and institutional environment and the complex interplay between technological adoption, organisational change, and stakeholder engagement. There is a growing importance of health insurance as a means of healthcare financing as countries adopt it to accelerate universal health coverage attainment under the sustainable development goals (SDGs), e.g., Nigeria (Odusola et al., 2016), Korea (Park et al., 2012), China (Tang et al., 2012), Japan (Akiyama, 2004) Uganda (Kyomugisha et al., 2009), and South Africa (Wilkinson et al., 2022) with notable operational challenges such as low penetration due to limited enrollment, escalating costs from multiple instances of fraud, delays in reimbursement, overcrowding at facilities, and a prevailing reliance on manual and paper-based processes (Gurung & Panza, 2022).

Extant literature has shown developing countries embarking on digitalising health insurance service delivery to address pressing challenges (Asah & Nielsen, 2016; Hammouri et al., 2021; Nan, 2021). However, information systems' limited exploration of the subject has also been atheoretical and on adoption at the individual unit of analysis. Digitalisation is acknowledged as a catalyst for digital phenomena, facilitating organisations in their quest to navigate the process of digital transformation. The digital transformation of health insurance services, typified by a complex system with multiple stakeholders operating at various levels, and the interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment remain unexamined in IS. Hence, studies are still needed to thoroughly consider a developing country's context, as Lin et al. (2011) pointed out. This thesis has promoted understanding of this phenomenon by contributing to knowledge on the digital transformation of health insurance services. In addition, multi-level studies considering the digital

transformation of health insurance services and the complex interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment are lacking. Finally, to date, IS health insurance studies have remained predominantly atheoretical and on adoption at the individual unit of analysis. The absence of theories fails to account for the detailed complexities and heterogeneous nature of the development, implementation, and use of digital technologies for health insurance. Hence, the search for such theories continues.

In order to address the mentioned limitations, this thesis started with the purpose of understanding the digital transformation of health insurance services in a developing country. Accordingly, the following four research questions, initially presented in Chapter 1, served as the motivation for the study: 1) Why might a developing country pursue digital transformation within the health insurance sector, and what meanings do health insurance organisations associate with the digital transformation of health insurance services? 2) How is the institutionalisation of digital transformation enacted in public and private sector health insurance organisations? 3) How does the institutional context influence the digital transformation of health insurance and vice versa? and 4) What are the outcomes of the digital transformation of health insurance in a developing country? This thesis, therefore, drew on two cases of digital transformation of health insurance service in Ghana to understand the phenomenon under study and addressed the research questions through the various chapters as follows:

Chapter 2 examined digital transformation and health insurance literature, emphasising the evolution of the “digital” concept and its significant impact at individual, organisational, and

societal levels. It underscored digital transformation's complexity and multifaceted nature, highlighting its potential to drive significant changes across various dimensions of organisations. The review identified key dimensions of digital transformation—strategy, people, organisation, customer, technology, and innovation—essential for successful outcomes in health insurance organisations. The review points out a notable gap in the literature on digital transformation within health insurance, especially in developing countries, and the need for studies examining the interplay between technology, social factors, and institutional contexts. It underscored the opportunities for research to deepen understanding of digital transformation and opportunities in the health insurance sector, particularly the underexplored relationship between public and private health insurance in a digitally evolving landscape.

Chapter 3 offered an examination of institutional theory as a framework for understanding digital transformation in health insurance, highlighting its utility in analysing the multi-level and complex interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment. It outlines the three pillars of institutions - regulative, normative, and cultural-cognitive, and the institutionalisation process - highlighting their influence on organisations. The chapter served as an important theoretical backdrop and underscored the theory's relevance and applicability to contemporary issues in digital transformation, particularly within the health insurance sector.

Chapter 4 introduced this study's research paradigm and methodology, focusing on the interpretive case study approach. It underlined the significance of aligning a study's philosophical stance with its methodology, highlighting how paradigms frame the understanding of reality, knowledge, and

the methods for investigating a phenomenon. The text then elaborates on the positivist, interpretivist, and critical paradigms, ultimately advocating for interpretivism due to its suitability for understanding complex, emergent phenomena in information systems (IS). The decision to adopt interpretivism is justified by the paradigm's emphasis on the social construction of reality and its suitability for exploring digital transformation's nuanced, context-dependent nature in health insurance. Interpretivism is preferred for its focus on understanding phenomena through the meanings individuals attach to them, which is crucial for examining the multifaceted sociotechnical systems involved in digital transformation.

Chapter 5 presented the individual descriptions of the two health insurance service digital transformation cases and an overview of the institutional context within which the digital transformation occurred. The chapter illustrates the complexities and rewards of digital transformation in the health insurance sector. Both cases offer valuable insights into the challenges, strategies, and outcomes of integrating digital technologies into health insurance operations. The institutional context of the cases reflects the interplay between regulatory environments, sector-specific dynamics, and complex interactions within the organisational field.

Chapter 6 analysed the individual cases reported in Chapter 5. The chapter analysed the two cases using concepts from institutional theory. It did so under the broad subheadings of institutional pillars, the process of institutionalisation, deinstitutionalisation and reinstitutionalisation. These institutional theory concepts provide a framework for understanding the complex dynamics of digital transformation in the health insurance sector, clarifying how changes in institutional structures and practices contribute to organisational adaptation and innovation. This institutional

change is technological and encompasses shifts in cultural-cognitive perceptions, normative standards, and regulative frameworks within the organisations. The empirical findings in this chapter reveal that digital transformation in health insurance, exemplified by the cases, significantly enhances operational efficiency and service delivery. However, the journey is ongoing, requiring continuous innovation and institutional adaptation to fully realise the potential of digital technologies in the health insurance sector.

Chapter 7 discussed this study's findings. Specifically, the chapter used the literature findings in Chapter 2 and the empirical findings from the case analysis in Chapter 6 to answer the research questions outlined in Chapter 1. In addition, the chapter discussed the researcher's reflection on using the refined technology pillar as an analytical lens. This study argues that a developing country's health insurance organisation is motivated by different meaning frames or logic in its pursuit of operational efficiency, improved service delivery, and enhanced data management and analytics. Public health insurance focuses on regulatory compliance, public good, and institutional isomorphism, while private health insurance aims for competitive advantage, market expansion, and innovation. The chapter further discusses the implementation of digital transformation initiatives through a phased approach (SCOPE), highlighting the importance of continuous change and adaptation. It also discussed how institutional contexts shape and are shaped by digital transformation efforts, emphasising the reciprocal relationship between technology and institutional elements. In summary, the chapter provides valuable insights into the digital transformation of health insurance in developing countries, underlining the critical role of institutional contexts in shaping and enabling these transformations. It contributes to understanding how digital technologies can improve operational efficiency, service delivery, and

data-driven decision-making in health insurance, ultimately aiming for universal health coverage and enhanced healthcare access. Table 8.1 summarises the research questions and findings.

Table 8.1 Summary of the Research Questions and Findings

Research Questions	Findings
1. Why might a developing country pursue digital transformation within the health insurance sector, and what meanings do health insurance organisations associate with the digital transformation of health insurance services?	A developing country <i>would digitally transform health insurance services</i> to 1) ensure operational efficiency and transformation, 2) improve service delivery and 3) data-driven decision-making. However, from an institutional perspective, interpreted through the lens of how public and private institutional settings conceive, implement, and adapt to change, two different meaning frames underpin this outcome. For public health insurance, these are 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism. For private health insurance, these are 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 3) innovation and differentiation.
2. How is the institutionalisation of digital transformation enacted in public and private sector health insurance organisations?	This study shows a decoupling of deinstitutionalisation and reinstitutionalisation culminating in five enactment phases or SCOPE. These are; 1) Scrutinise phase: assessment of the existing institutional environment 2) Clarify phase: identification of issues and initiation of deinstitutionalisation 3) Organise: strategy and planning for digital transformation 4) Perform: implementation and reinstitutionalisation 5) Enhance: ongoing adjustments
3. How does the institutional context influence the digital transformation of health insurance and vice versa?	The study shows a co-shaping relationship between institutional elements and digital transformation with the influence of normative, regulative, and cultural-cognitive institutional elements imposing different levels of impact.
4. What are the outcomes of the digital transformation of health insurance in a developing country?	The study shows institutions as a major driver of digital transformation and the emergence of a fourth pillar of institutions, i.e., technology.

8.3 Contribution to Knowledge

This section highlighted the contributions of the study. In accordance with information systems (IS) research adhering to the interpretive tradition, contribution to knowledge is achieved through four distinct forms of generalisation: the development of concepts, the formulation of theories, the derivation of specific implications, and insights from the study (Koch et al., 2013; Walsham, 1995b). Nevertheless, the formulation of new theories is not the sole method of contributing theoretically to knowledge. Other forms of theoretical contributions include extending and refining existing theories (Fisher & Aguinis, 2017; Taylor, 2018). Theory extension involves the application of established theories to new groups, empirical contexts, or sociocultural domains (Snow, 2004). This process also incorporates novel constructs (Presthus & Munkvold, 2016) and critiquing prevailing perspectives (Clarke & Davison, 2020).

Meanwhile, theory refinement pertains to the enhancement of existing theories through the integration of fresh case material. Rich insights are labelled as profound understandings that transcend concept development, theory formulation, and the derivation of specific implications. These insights are acquired through carefully examining the research reports and case studies, offering depth and nuance beyond conventional academic contributions (Fisher & Aguinis, 2017). This study's contribution to the body of knowledge encompasses extending and refining existing theoretical frameworks' specific implications and providing rich insights. These elements are further detailed in the subsequent subsections and summarised in appendix B.

8.3.1 Contribution to Theory

This study makes several significant contributions to theoretical understandings, particularly in the context of institutional theory and the digital transformation of health insurance services. First, this study enhances institutional theory by incorporating technology as a fourth pillar, in addition to regulative, normative, and cultural-cognitive pillars. This emphasises the reciprocal relationship between institutional elements and digital transformation, illustrating how technology influences and is influenced by institutional environments. This extension provides a detailed framework for examining the role of digital technologies within institutional settings. This is indicative of technology's role as an institutional element, not just an artefact in what Bennich (2024) describes as a digital imperative, requiring a rethinking of the existing institutional frameworks to accommodate new digital realities. Moreover, the academic discourse has been replete with calls for considering technology as an institution (e.g., see Orlikowski & Barley, 2001; Pinch, 2008). Scott (2001; 1995) likewise conceded the necessity of a fourth institutional pillar related to technology, which he narrowly delineates as material artefacts that contain embedded knowledge and skills. However, to date, no significant realisation of this call has occurred. This body of work has addressed this gap based on empirical evidence.

Secondly, this study decouples the institutionalisation process (deinstitutionalisation and reinstitutionalisation), culminating in five enactment phases or SCOPE. This revision serves as a reconceptualisation of digital transformation in health insurance through the SCOPE (Scrutinize, Clarify, Organize, Perform, Enhance) phases. This provides a structured approach to understanding how digital transformation initiatives are implemented within the complex interplay of institutional elements, offering theoretical insights into the process-oriented nature of digital

transformation. Critics have argued that neoinstitutionalism has tended to overlook institutional change and its process, which remains a "black box." (Humes et al., 2007).

Thirdly, this study expands on institutional theory by applying it to digital transformation processes in health insurance, demonstrating how regulative, normative, and cultural-cognitive pillars influence both the need for and the outcomes of digital transformation. By detailing the processes of deinstitutionalisation and reinstitutionalisation in both public and private health insurance contexts, this study provides new insights into the understanding of how digital technologies can be leveraged to address institutional inefficiencies, navigate the complexities of institutional change, and ultimately reshape the institutional environment.

8.3.2 Contribution to Research

This thesis has contributed to digital transformation research as this could be considered one of the initial attempts of an IS interpretive qualitative research extending the literature on the digital transformation of health insurance services from a multi-level perspective, involving both public and private sector health insurance in a single study. It provides empirical evidence of how digital transformation unfolds in the context of health insurance services, a sector that has received limited attention in digital transformation research.

By comparing the experiences of a public insurer (NHIS) and a private insurer (Alpha Private Health Insurance), the study offers insights into the similarities and differences in how digital transformation is approached, implemented, and experienced in different institutional contexts through varying institutional logics. The study uncovers nuanced meanings and motivations of

actors. Operating within a public sector institutional framework, actors are motivated by a “social logic” that prioritises equity. Conversely, actors within a private sector institutional framework are driven by a “market logic,” focusing on profit maximisation.

By providing a detailed analysis of digital transformation in the health insurance sector of a developing country, this research contributes empirical evidence on the drivers, processes, and outcomes of digital transformation. It sheds light on the specific institutional drivers that prompt digital transformation and how these efforts evolve through the SCOPE phases, filling a gap in the existing literature on digital transformation in the health sector of developing countries.

8.3.3 Contribution to Practice

From a practical standpoint, this thesis offers valuable lessons for practitioners involved in the digital transformation of health insurance services. It highlights the importance of addressing not just the technical aspects of digital transformation but also the institutional challenges that such efforts entail. The findings suggest that successful digital transformation requires careful consideration of the existing institutional environment and targeted strategies to navigate and reshape this environment. It highlights best practices for engaging with regulatory institutions, leveraging normative practices, and shifting cultural-cognitive perceptions towards digital technologies.

The study also provides practical insights into the benefits and challenges of digital transformation in health insurance, including improvements in operational efficiency, stakeholder engagement, and service delivery. These insights can guide practitioners in planning and implementing digital

initiatives, anticipating potential challenges, and developing strategies to overcome them. The SCOPE phases offer a strategic framework for practitioners in the health insurance sector to plan and execute digital transformation initiatives. This framework helps identify critical areas for intervention, design effective strategies, and ensure continuous improvement in digital service delivery.

8.3.4 Contribution to Policy

On policy, this thesis offers insights into the role of digital technologies in advancing health insurance policies and practices. The findings underscore the potential of digital transformation to enhance the accessibility, efficiency, and quality of health insurance services, contributing to the broader goal of universal health coverage. The study calls attention to the need for supportive policy frameworks that facilitate digital transformation in health insurance. This includes policies that encourage innovation, investment in digital infrastructure, and the development of standards and guidelines for digital health insurance services. Moreover, the thesis highlights the importance of addressing digital divide issues to ensure that the benefits of digital transformation in health insurance are equitably distributed.

Policy recommendations derived from this study could guide the development of initiatives aimed at increasing digital literacy, improving access, and ensuring that digital health insurance solutions are inclusive and accessible to all segments of the population. Highlighting the significance of technology as an institutional element, the study suggests that policymakers consider technology's role in shaping institutional practices and norms. Policy frameworks should thus encourage the integration of digital technologies into health insurance operations, ensuring that technological

advancements align with broader institutional objectives, such as achieving universal health coverage.

8.4 Evaluation of the Research

This section evaluates the study by applying the widely recognised criteria Klein and Myers (1999) set forth for conducting and assessing interpretive case studies in Information Systems (IS). The evaluation framework, detailed in Chapter 4, encompasses seven criteria: the hermeneutic circle, contextualisation, the interaction between researchers and participants, abstraction and generalisation, dialogical reasoning, the acknowledgement of multiple interpretations, and a critical stance toward assumptions and biases. Additionally, this section assesses the study's adherence to the ethical standards for IS interpretive research, as outlined in Chapter 4. Table 8.2 provides a concise summary of the study's evaluation based on the principles of interpretive research.

Table 8.2: Summary of the Study's Evaluation Using Interpretive Principles

Principles	Applications in this Study
Hermeneutic Circle: Understanding a text or phenomenon is achieved through continuous iterations between examining its parts and the overall context.	The hermeneutic circle principle was employed at two distinct phases within the study. Initially, it guided the construction of case descriptions. Here, the "whole" represented a comprehensive overview of the two cases, including the main themes for each. The "parts" were informed by general notions of processes, actions, activities, and contexts relevant to the digital transformation of health insurance services. In the subsequent phase, focusing on analysis, the "parts" were informed by institutional theory concepts and analytic frameworks. This approach facilitated an understanding of the phenomenon through the lens of institutional pillars and the institutionalisation process, offering a nuanced view of the interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment.

Contextualisation: Reality is interpreted within its context, encompassing the social and historical backdrop of the research phenomenon.	The principle of contextualisation, closely related to the hermeneutic circle, was integral to data collection and the construction of case descriptions within the study. During data collection, this principle guided the gathering of insights into digital transformation interventions' social, political, and historical backgrounds through interviews with participants and analysis of documentary sources. In constructing the case descriptions, information regarding the context in which actions were undertaken was incorporated as "parts" of the analysis. This approach is evident in the case descriptions, which trace the evolution of IT-enabled transformation initiatives from manual systems to digital transformation in their current forms, highlighting the institutional environment. Contextualisation was pivotal in understanding digital transformation as a dynamic and ongoing process that has developed over time.
Interaction Between the Researchers and the Subjects: Researchers reflect on how data are socially constructed through their interactions with interview participants.	Throughout this study, engagement with participants was a continuous process, beginning with face-to-face interviews and subsequent communications via email and WhatsApp groups for follow-ups. At the height of the COVID-19 pandemic, face-to-face interaction was replaced with virtual calls through Microsoft Teams and Zoom. Participants also provided feedback on the transcribed interviews and the preliminary versions of the case descriptions. Additionally, documents were utilised to gather background information and to address any discrepancies or omissions in the participants' narratives, as detailed in Section 4.7 of Chapter 4. This comprehensive approach to interaction ensured a rich, multifaceted collection of data, enhancing the depth and accuracy of the research findings.
Abstraction and Generalisation: It involves employing theoretical concepts to comprehend social action alongside abstraction to facilitate generalization to other similar settings.	In this study, the institutional theoretical framework was employed to develop an institutional and process-oriented perspective in the case descriptions presented in Chapter 6. These theoretical perspectives facilitated an understanding of how the institutional environment, made up of the pillars, influenced how the institutionalisation of digital transformation was conceived and implemented, leveraging institutional theory concepts to enhance the generalisability of the findings to similar contexts. Specifically, the study conceptualised the digital transformation of health insurance services ... as representing a multi-level

	complex system, and the interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies. The study extrapolated its findings through abstraction, creating implications for research, practice, and policy. These abstracted insights serve as a foundation for extending the research outcomes to other analogous settings, thereby broadening the applicability and relevance of the study's conclusions.
Dialogical Reasoning: It involves addressing potential discrepancies between theoretical frameworks and empirical findings.	Initially targeting the enablers and constraints of health insurance digital platforms and platformisation, this thesis shifted focus towards the digital transformation of health insurance services after data collection highlighted the need for a broader perspective. This necessitated further revision of the interview guide and, subsequently, the research questions to encompass the input-process-outcome assessment and institutional environment. Without a preconceived theoretical lens, the study initially considered activity theory. However, following a deeper initial analysis and recognising the importance of institutional contexts in digital transformation, institutional theory analytic frameworks were chosen for their relevance, as detailed in Chapter 3. This evolution reflects the study's adaptive methodology in response to emerging data and analytical insights, ensuring a comprehensive health insurance digital transformation examination.
Multiple Interpretations: Considers diverse perspectives on the phenomenon under study.	Aligned with this principle, the study employed interviews supplemented by documentary sources to gather diverse interpretations of the phenomenon. Interview participants were selected from various backgrounds using snowball and purposive sampling techniques. The construction of case descriptions incorporated multiple perspectives.
Suspicion: This entails vigilance towards potential "biases" and systematic "distortions" within participants' narratives.	The researcher identified biases in the narratives provided by some participants. These instances were approached in two ways: some were interpreted as alternative viewpoints on the phenomenon, enriching the study's diversity of perspectives, while others were clarified by consulting additional data sources. This strategy ensured consistent information on specific aspects of the narrative, enhancing the research findings' reliability and depth.

8.5 Ethical Considerations

Ethical procedures are designed to safeguard the interests of the researcher, participants, and the reputation of the University. These procedures are founded on honesty, avoiding plagiarism, informed consent, permission to publish (Myers, 2013), confidentiality, and anonymity (Walsham, 2006). The implementation of these principles in this study commenced with the submission of a letter of introduction and a research proposal to the case organisation. The content of both the letter and the proposal was in strict adherence to the University's ethical guidelines. Table 8.3 outlines the essential ethical standards observed in this study and how they were applied. Appendix D showcases the ethical clearance letter.

Table 8.3 Summary of Ethical Adherence in this Study.

Ethical Standards	Applications in this Study
Preserving anonymity and confidentiality	In this study, confidentiality and anonymity were upheld by referring to participants by their positions rather than their names. The study also used a pseudonym to represent a case organisation to preserve its anonymity in a competitive private insurance sector. When a participant's statement was deemed sensitive or controversial by the researcher, a generic title, such as "an officer" or "a staff member", was employed.
Participants consent to the study	Participants were formally notified by the head of the case organisation or their delegate regarding access for fieldwork. By signing a consent form, participants declare their voluntary agreement to partake in the study.
Permission to capture the interview on a digital recorder	Participants being interviewed were asked if they could be taped-recorded. While not absolutely declining, some expressed reservation, at which point the researcher would rely on taking notes.
Opportunity to verify interview transcript before and after the final write-up	Transcribed interviews were forwarded to participants to verify the accuracy of the recordings. Additionally, initial drafts of case descriptions were sent out. Despite these efforts, many participants did not provide feedback.

Preserving and using the data acquired only for academic purposes	For this study, all information acquired from the participants was utilised exclusively for academic purposes.
The case organisation will review the final report before it is published	This situation represents a notable ethical dilemma identified in Information Systems (IS) literature, for which no straightforward solutions exist (Walsham, 2006). The researcher distributed drafts of the case description to foster trust among participants and ensure ongoing access. Nevertheless, the researcher ultimately discontinued this process due to the limited response in receiving participant feedback. Generally, participants seemed to move on after the interview, with few interested in the study's outcomes.
Plagiarism	Although not initially included under the ethical standards in the proposal submitted to the case organisations, this ethical requirement is highlighted here as it constitutes a fundamental ethical obligation according to the University's guidelines. The researcher utilised the University's plagiarism detection software, Turnitin, to assess the thesis' compliance with these standards.

8.6 Limitations of the Research

This study is subject to some limitations, which are important to acknowledge in order to contextualise its findings and contributions accurately. A study's significance is determined by several considerations, including its research purpose, theoretical framework, and the methodologies it employs (Robey, 1996; Tarafdar & Davison, 2018). The limitations of the thesis are as follows:

First, a limitation of this thesis is its reliance on theoretical generalisation rather than statistical generalisation. While institutional theory offers valuable insights into how norms, regulations, and cultural expectations influence the phenomenon under study, it may not adequately address other dimensions of digital transformation. Theoretical generalisation involves deriving findings based

on applying a specific theory to the data (Klein & Myers, 1999), which, while valuable, may not offer the robustness of statistical generalisation. Statistical generalisation, considered more rigorous by many researchers, entails drawing conclusions from a sample that can be extended to a larger population. Yin (2018) describes this as a level 1 inference, contrasting it with the level 2 inference observed in case study generalisations that extend findings to theoretical frameworks.

This case study's insights are theoretically generalisable based on an aggregated description. The theoretical generalisation in this study is inherently limited by the specific theory applied during the analysis. This research explored how the institutional environment and the digital transformation of health insurance services mutually influence each other to achieve desired outcomes, utilising analytic frameworks from institutional theory. Although this approach is deemed most appropriate for understanding and explaining the phenomena under study, it is important to acknowledge that alternative perspectives, through other theories, might provide different insights.

Secondly, the study's scope is constrained due to its reliance on two cases from a developing country. This limitation stems from the fact that developing countries vary significantly in their institutional characteristics. Due to unique regulatory, cultural, and institutional settings, the research conducted within a specific health insurance context may not readily apply to other sectors or regions. The health insurance industry is deeply influenced by national policies, consumer behaviour patterns, and competitive dynamics, which vary significantly across geographical areas. Extending the study's findings to other countries with comparable contexts is possible despite these

differences. This approach aligns with the principles of interpretive research, allowing for broader generalisation under similar conditions.

8.7 Recommendations for Future Research

This study identifies several potential directions for future research. While it is not feasible to enumerate all avenues that merit further exploration, specific recommendations stand out due to their interest, relevance, and significance. These identified areas offer valuable opportunities for advancing knowledge and understanding. Research on the digital transformation of health insurance services and the interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment and their outcomes have been non-existent. The focus has predominantly been on usage and associated challenges of digital technology use, leading to a relative neglect of a multi-level view involving the institutional environment, particularly in developing countries.

Consequently, the dynamics between the digital transformation of health insurance services, the institutional characteristics, and the resulting outcomes in various countries remain underexplored. Future research could significantly benefit from insights provided by this study, especially using the extended institutional pillar and the SCOPE framework on the co-shaping of the institutional environment and digital transformation and vice versa to achieve desired outcomes across different developing countries. Such studies are crucial for maximising the advantages of health insurance digital transformation efforts, especially in developing countries where such initiatives are nascent.

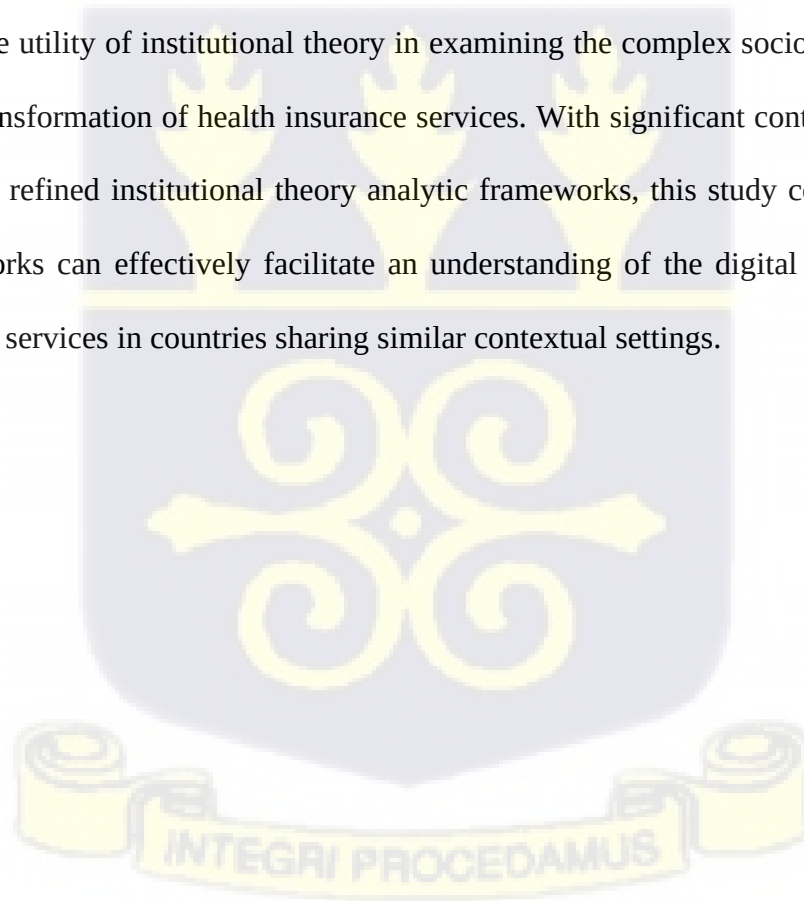
Secondly, future studies could focus on micro-level institutional dynamics and the role of technology as an institutional element. This could help in understanding the role of agency in institutionalisation processes. This suggests a deeper exploration into how digital technologies are not only tools but also active institutional elements in shaping institutional practices and norms within health insurance organisations. By understanding technology as an institutional element, future research can uncover how it influences individual behaviours and decision-making processes, thus contributing to or resisting institutional change. This perspective encourages examining the symbiotic relationship between technology and people, recognising that digital transformation is co-constructed through their interactions. Such research could reveal the intricate ways technology facilitates new forms of work practices, communication, and organisational culture, thereby becoming embedded in the institutional fabric of the health insurance sector.

8.8 Conclusion

This study has focused on the digital transformation of health insurance services within the context of a developing country. It has drawn upon evidence from Ghana to provide empirical insights into the interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment and their outcomes. Previous research has primarily concentrated on the usage and challenges associated with digital technologies. Consequently, insufficient attention has been given to the multifaceted social system requiring institutional perspective to chronicle the complex interactions between sociotechnical elements in the implementation system, the work system, the organisation, and the institutional environment.

Furthermore, research in Information Systems (IS) on digital technology use in health insurance has been limited and often atheoretical. These studies, therefore, fall short of capturing the complex and multifaceted nature of health insurance services and the digital transformation process. To address these gaps in the literature, this study adopted an interpretive case study approach within the IS domain alongside institutional theory analytic frameworks to explore the digital transformation of health insurance services in Ghana.

The application of institutional theory has illuminated the outcomes of digital transformation efforts, especially from the standpoint of a developing country. Overall, the study has demonstrated the utility of institutional theory in examining the complex socio-technical aspects of the digital transformation of health insurance services. With significant contributions in terms of extended and refined institutional theory analytic frameworks, this study contends that these refined frameworks can effectively facilitate an understanding of the digital transformation of health insurance services in countries sharing similar contextual settings.



REFERENCES

- Abdul, C., & Wang, W. (2019). Understanding the adoption and impact of information technology on healthcare: Case studies in electronic health records and computerized diagnosis. *Proceedings of the MakeLearn and TIIM International Conference*, 297–306.
- Achampong, E. (2012). The state of information and communication technology and health informatics in Ghana. *Online Journal of Public Health Informatics*, 4(2), 1–13.
- Addae-Korankye, A. (2013). Challenges of financing health care in Ghana: The case of national health insurance scheme (NHIS). *International Journal of Asian Social Science*, 3(2), 511–522.
- Adesola, W. A. (2010). Design and implementation of a web based information system for national health insurance scheme using the object-relational database approach. *Global Journal of Pure and Applied Sciences*, 16(1), 83–94.
<https://doi.org/10.4314/gjpas.v16i1.62813>
- Adewole, D. A., Ilori, T., Ladepo, W., & Augustus, O. (2021). Pattern of population coverage of a social health insurance scheme in a southwest Nigeria state: a 3-year post implementation evaluation. *South Eastern European Journal of Public Health (SEEJPH)*, 2, 1–13. <https://doi.org/10.11576/seejph-4287>
- Aditya, B. R., Ferdiana, R., & Kusumawardani, S. S. (2021). Categories for barriers to digital transformation in higher education: An analysis based on literature. *International Journal of Information and Education Technology*, 11(12).
<https://doi.org/10.18178/IJiet.2021.11.12.1578>
- Afarikumah, E. (2014). Electronic health in Ghana: Current status and future prospects. *Online Journal of Public Health Informatics*, 5(3), 1–9.
<https://doi.org/10.5210/ojphi.v5i3.4847>
- Agarwal, R., Gao, G., DesRoches, C., & Jha, A. K. (2013). Research commentary—the digital transformation of healthcare: Current status and the road ahead. *Information Systems Research*, 21(4), 796–809. <https://doi.org/doi:10.1287/isre.1100.0327>
- Ågerfalk, P. J. (2014). Insufficient theoretical contribution: A conclusive rationale for rejection? *European Journal of Information Systems* 23(6), 593–599.
<https://doi.org/10.1057/ejis.2014.35>
- Agyepong, I. A., Abankwah, D. N. Y., Abroso, A., Chun, C., Dodoo, J. N. O., Lee, S., Mensah, S. A., Musah, M., Twum, A., Oh, J., Park, J., Yang, D., Yoon, K., Otoo, N., & Asenso-Boadi, F. (2016). The “universal” in UHC and Ghana’s national health insurance scheme: Policy and implementation challenges and dilemmas of a lower

- middle income country. *BMC Health Services Research*, 16(1).
<https://doi.org/10.1186/s12913-016-1758-y>
- Ahmadi, H., Nilashi, M., Shahmoradi, L., Ibrahim, O., Sadoughi, F., Alizadeh, M., & Alizadeh, A. (2018). The moderating effect of hospital size on inter and intra-organizational factors of hospital information system adoption. *Technological Forecasting and Social Change*, 134(March 2017), 124–149.
<https://doi.org/10.1016/j.techfore.2018.05.021>
- Akiyama, M. (2004). Information-sharing systems and inter-organizational power: implementation of an electronic patient record system for regional cooperation. *Pacific Asia Conference on Information Systems*.
- Albuquerque Junior, A. E. de, & Santos, E. M. Dos. (2015). Adoption of information security measures in public research institutes. *Journal of Information Systems and Technology Management*, 12(2). <https://doi.org/10.4301/S1807-17752015000200006>
- Alharbi, A., & Ramirez, R. (2020). Factors affecting electronic health record adoption in developing countries: A case of Saudi Arabia. *Americas Conference on Information Systems*.
- Alhassan, R. K., Nketiah-Amponsah, E., & Arhinful, D. K. (2016). A review of the national health insurance scheme in Ghana: What are the sustainability threats and prospects? *PLoS One*, 11(11), 1–16. <https://doi.org/10.1371/journal.pone.0165151>
- Alter, S. (2015). The concept of “IT artifact” has outlived its usefulness and should be retired now. *Information Systems Journal*, 25(1), 47–60.
<https://doi.org/10.1111/isj.12048>
- Alzadjali, K., & Elbanna, A. (2020). Smart institutional intervention in the adoption of digital infrastructure: The case of government cloud computing in Oman. *Information Systems Frontiers*, 22(2), 365–380. <https://doi.org/10.1007/s10796-019-09918-w>
- Ambinder, E. P. (2005). A history of the shift toward full computerization of medicine. *Journal of Oncology Practice*, 1(2), 54–56. <https://doi.org/10.1200/jop.2005.1.2.54>
- Amponsah, A. A., Adekoya, A. F., & Weyori, B. A. (2022). Improving the financial security of national health insurance using cloud-based blockchain technology application. *International Journal of Information Management Data Insights*, 2(1).
<https://doi.org/10.1016/j.jjime.2022.100081>
- Andoh-Adjei, F.-X., Spaan, E., Asante, F. A., Mensah, S. A., & Van der Velden, K. (2017). A narrative synthesis of illustrative evidence on effects of capitation payment for primary care: Lessons for Ghana and other low/middle-income countries. *Ghana Medical Journal*, 50(4), 207–219. <https://doi.org/10.4314/gmj.v50i4.3>

- Andrade, A. D. (2009). Interpretive research aiming at theory building: Adopting and adapting the case study design. *The Qualitative Report* (Vol. 14). <http://www.nova.edu/ssss/QR/QR14-1/diaz-andrade.pdf>.
- Asah, F., & Nielsen, P. (2016). The fundamental role of health information systems for universal health coverage: The case of Cameroon. *The 39th Information Systems Research Conference in Scandinavia (IRIS39)*, 1–11.
- Attili, V. S. P., Mathew, S. K., & Sugumaran, V. (2022). Information privacy assimilation in IT organizations. *Information Systems Frontiers*, 24(5), 1497–1513. <https://doi.org/10.1007/s10796-021-10158-0>
- Avgerou, C. (2001). The significance of context in information systems and organizational change. *Information Systems Journal*, 11(1), 43–63.
- Avgerou, C. (2002). The socio-technical nature of information systems innovation. In *Information Systems and Global Diversity*. Oxford University Press.
- Avgerou, C. (2008). Information systems in developing countries: A critical research review. *Journal of Information Technology*, 23(3), 133–146. <https://doi.org/10.1057/palgrave.jit.2000136>
- Awol, S. M., Birhanu, A. Y., Mekonnen, Z. A., Gashu, K. D., Shiferaw, A. M., Endehabtu, B. F., Kalayou, M. H., Guadie, H. A., & Tilahun, B. (2020). Health professionals' readiness and its associated factors to implement electronic medical record system in four selected primary hospitals in Ethiopia. *Advances in Medical Education and Practice*, 11, 147–154. <https://doi.org/10.2147/AMEP.S233368>
- Ayanore, M. A., Pavlova, M., Kugbey, N., Fusheini, A., Tetteh, J., Ayanore, A. A., Akazili, J., Adongo, P. B., & Groot, W. (2019). Health insurance coverage, type of payment for health insurance, and reasons for not being insured under the National Health Insurance Scheme in Ghana. *Health Economics Review*, 9(1). <https://doi.org/10.1186/s13561-019-0255-5>
- Azogu, I., Norta, A., Papper, I., Longo, J., & Draheim, D. (2019). A framework for the adoption of blockchain technology in healthcare information management systems: A case study of Nigeria. *Proceedings of the 12th International Conference on Theory and Practice of Electronic Governance*, 310–316. <https://doi.org/10.1145/3326365.3326405>
- Bahadori, M., Mehrabian, F., Teymourzadeh, E., Ravangard, R., Yaghoubi, M., & Hosseini-Zijoud, S.-M. (2018). Determining the effective factors on the optimal use of information technology in the health insurance industry: A case study in Guilan province. *Journal of Military Medicine*, 19(6), 616–623.

- Baird, A., & Maruping, L. M. (2021). The next generation of research on IS use: A theoretical framework of delegation to and from agentic IS artifacts. *MIS Quarterly*, 45(1), 315–341. <https://doi.org/10.25300/MISQ/2021/15882>
- Baptista, J. (2009). Institutionalisation as a process of interplay between technology and its organisational context of use. *Journal of Information Technology*, 24(4), 305–319. <https://doi.org/10.1057/jit.2009.15>
- Bara-Slupski, T. (2016). Holistic Approach: Paradigm shift in the research agenda for digitalisation of healthcare in Sub-Saharan Africa. *The African Journal of Information Systems*, 8(4), 3.
- Baratam, S. S., Abdul, C. F., & Powell, L. M. (2020). Health-related mobile applications for smart devices on insurance providers: Aiding customer retention. *Issues in Information Systems*, 21(1), 30–36. https://doi.org/10.48009/1_IIS_2020_30-36
- Barrett, M., Davidson, E., & Vargo, S. L. (2015). Service innovation in the digital age: Key contributions and future directions. *MIS Quarterly*, 39(1), 135–154. [https://doi.org/10.1016/S0090-2616\(98\)90006-7](https://doi.org/10.1016/S0090-2616(98)90006-7)
- Barrett, M., & Walsham, G. (1999). Electronic trading and work transformation in the London insurance market. *Information Systems Research*, 10(1), 1–22.
- Barrett, M., & Walsham, G. (2004). Making contributions from interpretive case studies: Examining processes of construction and use. In B. Kaplan, D. P. Truex, D. Wastell, A. T. Wood-Harper, & J. I. DeGross (Eds.), *Information Systems Research: Relevant Theory and Informed Practice* (pp. 293–312). Springer US. https://doi.org/10.1007/1-4020-8095-6_17
- Baskerville, R. L., Myers, M. D., & Yoo, Y. (2020). Digital first: The ontological reversal and new challenges for information systems research. *MIS Quarterly*, 44(2), 509–523. <https://doi.org/10.25300/MISQ/2020/14418>
- Baskerville, R. L., & Wood-Harper, A. T. (1996). A critical perspective on action research as a method for information systems research. *Journal of Information Technology*, 11(3), 235–246. <https://doi.org/10.1080/026839696345289>
- Bass, J. M., Nicholson, B., & Subhramanian, E. (2013). A framework using institutional analysis and the capability approach in ICT4D. *Information Technologies & International Development*, 9(1), pp-19-35.
- Bażydło, M., Kotwas, A., & Karakiewicz, B. (2013). The computerization of healthcare - electronic beneficiary entitlement verification. *Journal of Public Health, Nursing and Medical Rescue*, 2(2013), 14–17. <https://ppm.edu.pl>

- Benatar, S., Sullivan, T., & Brown, A. (2018). Why equity in health and in access to health care are elusive: Insights from Canada and South Africa. *Global Public Health*, 13(11), 1533–1557. <https://doi.org/10.1080/17441692.2017.1407813>
- Benlagha, N., & Hemrit, W. (2020). Internet use and insurance growth: Evidence from a panel of OECD countries. *Technology in Society*, 62(6), 1–13. <https://doi.org/10.1016/j.techsoc.2020.101289>
- Bennich, A. (2024). The digital imperative: Institutional pressures to digitalise. *Technology in Society*, 76(March), 1-12. <https://doi.org/10.1016/j.techsoc.2023.102436>
- Berente, N., Lyytinen, K., Yoo, Y., & Maurer, C. (2019). Institutional logics and pluralistic responses to enterprise system implementation: A qualitative meta-analysis. *MIS Quarterly*, 43(3), 873–902. <https://doi.org/10.25300/MISQ/2019/14214>
- Berente, N., & Seidel, S. (2022). Digital technologies: Carrier or trigger for institutional change in digital transformation? Gegenhuber, T., Logue, D., Hinings, C.R.(B). and Barrett, M. (Ed.) *Digital Transformation and Institutional Theory (Research in the Sociology of Organizations, Vol. 83)*, Emerald Publishing Limited, Leeds, pp. 197-209. <https://doi.org/10.1108/S0733-558X20220000083008>
- Berger, S., Denner, M. S., & Röglinger, M. (2018). The nature of digital technologies - Development of a multi-layer taxonomy. *26th European Conference on Information Systems: Beyond Digitization - Facets of Socio-Technical Change, ECIS 2018*.
- Bernardi, R. (2018). Health information systems and accountability in Kenya: A structuration theory perspective. *Journal of the Association for Information Systems*, 18(12, SI), 931–958.
- Besson, P., & Rowe, F. (2012). Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *Journal of Strategic Information Systems*, 21(2), 103–124. <https://doi.org/10.1016/j.jsis.2012.05.001>
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: toward a next generation of insights. *MIS Quarterly*, 37(2), 471–482.
- Bhattacharya, P. J., Scheepers, R., & Seddon, P. B. (2010). Enabling strategic transformations with enterprise systems: Beyond operational efficiency. *ICIS 2010 Proceedings - Thirty First International Conference on Information Systems*.
- Bitzer, M., Hinsin, S., Jöhnk, J., & Urbach, N. (2021). Everything is IT, but IT is not everything – what incumbents do to manage digital transformation towards continuous change. *International Conference on Information Systems (ICIS 2021)*.
- Blaikie, Norman. (2007). *Approaches to social enquiry: Advancing knowledge* (2nd ed.). Polity.

- Bockschecker, A., Hackstein, S., & Baumöl, U. (2018). Systematization of the term digital transformation and its phenomena from a socio-technical perspective – A literature review. *26th European Conference on Information Systems Proceedings*, 11–28. https://aisel.aisnet.org/ecis2018_rp/43
- Boehme-Neßler, V. (2020). Digitalisation: The end of democracy? In *Digitising Democracy*. Springer, Cham. https://doi.org/10.1007/978-3-030-34556-3_1
- Boell, S. K., & Cecez-Kecmanovic, D. (2014). A hermeneutic approach for conducting literature reviews and literature Searches. *Communications of the Association for Information Systems*, 34(2014), 257–286. <http://dx.doi.org/10.17705/1CAIS.03412>
- Boell, S. K., & Cecez-Kecmanovic, D. (2015). What is an information system? Proceedings of the Annual Hawaii International Conference on System Sciences, 4959–4968. <https://doi.org/10.1109/HICSS.2015.587>
- Boell, S. K., & Hovorka, D. (2019). Writing, arguing, contributing: A cogent argumentation framework for identifying, specifying, and evaluating research contribution. *Australasian Journal of Information Systems*, 23(1). <https://doi.org/10.3127/ajis.v23i0.1857>
- Bonina, C., Koskinen, K., Eaton, B., & Gawer, A. (2021). Digital platforms for development: Foundations and research agenda. *Information Systems Journal*, 1–34. <https://doi.org/10.1111/isj.12326>
- Borkovich, D. J. (2022). Digital ethnography: A disruptive qualitative approach to inquiry. *Issues In Information Systems*, 23(4), 119–1134. https://doi.org/10.48009/4_iis_2022_111
- Bosilj Vukšić, V., Ivančić, L., & Suša Vugec, D. (2018). A preliminary literature review of digital transformation case studies. *International Journal of Computer and Information Engineering*, 12(9), 737–742.
- Böttcher, T. P., Weking, J., Hein, A., Böhm, M., & Krcmar, H. (2022). Pathways to digital business models: The connection of sensing and seizing in business model innovation. *Journal of Strategic Information Systems*, 31(4). <https://doi.org/10.1016/j.jsis.2022.101742>
- Brocke, J. Vom, Zelt, S., & Schmiedel, T. (2016). On the role of context in business process management. *International Journal of Information Management*, 36(3), 486–495. <https://doi.org/10.1016/j.ijinfomgt.2015.10.002>
- Brown, C. V., & Magill, S. L. (1994). Alignment of the IS functions with the enterprise: Toward a model of antecedents. *MIS Quarterly*, 18(4), 371–403. <https://doi.org/10.2307/249521>

- Bunduchi, R., Tursunbayeva, A., & Pagliari, C. (2019). Coping with institutional complexity: Intersecting logics and dissonant visions in a nation-wide healthcare IT implementation project. *Information Technology and People*, 33(1), 311–339. <https://doi.org/10.1108/ITP-08-2018-0373>
- Burnes, B. (1997). Organizational choice and organizational change. *Management Decision*, 35(10), 753–759. <https://doi.org/10.1108/00251749710192075>
- Burton-Jones, A., Butler, B. S., Scott, S. V., & Xu, S. X. (2021). Next-generation information systems theorizing: A call to action. *MIS Quarterly*, 45(1), 301–314. <https://doi.org/10.25300/MISQ/2021/15434>
- Bygstad, B., & Munkvold, B. E. (2007). The significance of member validation in qualitative analysis: Experiences from a longitudinal case study. *Proceedings of the 40th Annual Hawaii International Conference on System Sciences*, 1–10.
- Cadili, S., & Whitley, E. A. (2005). On the interpretative flexibility of hosted ERP systems. *Journal of Strategic Information Systems*, 14(2), 167–195. <https://doi.org/10.1016/j.jsis.2005.04.006>
- Caputo, A., Pizzi, S., Pellegrini, M. M., & Dabić, M. (2021). Digitalization and business models: Where are we going? A science map of the field. *Journal of Business Research*, (123) February, 489–501. <https://doi.org/10.1016/j.jbusres.2020.09.053>
- Carcary, M., Doherty, E., & Conway, G. (2016). A dynamic capability approach to digital transformation: A focus on key foundational themes. 10th *European Conference on Information Systems Management*.
- Cardinale, I. (2017). Beyond constraining and enabling: Toward new microfoundations for institutional theory. *Academy of Management Review*, 43(1), 132–155. <https://doi.org/10.5465/amr.2015.0020>
- Cashin, C., & Dossou, J. P. (2021). Can National Health Insurance Pave the Way to Universal Health Coverage in Sub-Saharan Africa? In *Health Systems and Reform* (Vol. 7, Issue 1). Taylor and Francis Ltd. <https://doi.org/10.1080/23288604.2021.2006122>
- Cavazza, M., Vecchio, M. Del, Fattore, G., & Fenech, L. (2023). Geographical variation in the use of private health insurance in a predominantly publicly-funded system. *Health Policy*, 130, 104720. <https://doi.org/10.1016/J.HEALTHPOL.2023.104720>
- Cecez-Kecmanovic, D. (2011). On methods, methodologies and how they matter. 19th *European Conference on Information Systems*.

- Cecez-Kecmanovic, D., & Kennan, M. A. (2018). The methodological landscape: Information systems and knowledge management. In K. Williamson & G. Johanson (Eds.), *Research Methods: Information, Systems and Contexts* (Second Edition, pp. 127–155). Chandos Publishing. <https://doi.org/https://doi.org/10.1016/B978-0-08-102220-7.00005-4>
- Chakraborty, S., Chatterjee, S., & Alsekait, D. (2015). Investigating system development processes in healthcare organizations. *Twenty-First Americas Conference on Information Systems*, 1–12.
- Chalmers, A. F. (1999). *What is this thing called science?* (3rd Edition). Hackett Pub., Indianapolis.
- Chan, Y. E., Sabherwal, R., & Thatcher, J. B. (2006). Antecedents and outcomes of strategic IS alignment: An empirical investigation. *IEEE Transactions on Engineering Management*, 53(1). <https://doi.org/10.1109/TEM.2005.861804>
- Chatterjee, D., Grewal, R., & Sambamurthy, V. (2002). Shaping up for e-commerce: Institutional enablers of the organizational assimilation of web technologies. *MIS Quarterly*, 26(2), 65–89.
- Chatterjee, S., Sarker, S., Lee, M. J., Xiao, X., & Elbanna, A. (2021). A possible conceptualization of the information systems (IS) artifact: A general systems theory perspective. *Information Systems Journal*, 31(4), 550–578. <https://doi.org/10.1111/isj.12320>
- Chaubey, A., & Sahoo, C. K. (2021). Assimilation of business intelligence: The effect of external pressures and top leaders commitment during pandemic crisis. *International Journal of Information Management*, 59 (November 2020), 102344. <https://doi.org/10.1016/j.ijinfomgt.2021.102344>
- Chen, Q., & Wang, X. (2022). Digital transformation evaluation of small and medium-sized manufacturing enterprises based on DEMATEL. *ACM International Conference Proceeding Series*. <https://doi.org/10.1145/3578997.3579008>
- Chen, W., & Hirschheim, R. (2004). A paradigmatic and methodological examination of information systems research from 1991 to 2001. *Information Systems Journal*, 14(3), 197–235. <https://doi.org/10.1111/j.1365-2575.2004.00173.x>
- Chen, Y. Y. K., Jaw, Y. L., & Wu, B. L. (2016). Effect of digital transformation on organisational performance of SMEs: Evidence from the Taiwanese textile industry's web portal. *Internet Research*, 26(1), 186–212. <https://doi.org/10.1108/INTR-12-2013-0265>
- Chib, A., Van Velthoven, M. H., & Car, J. (2015). MHealth adoption in low-resource environments: A review of the use of mobile healthcare in developing countries.

- Journal of Health Communication*, 20(1), 4–34.
<https://doi.org/10.1080/10810730.2013.864735>
- Chua, W. F. (1986). Radical developments in accounting thought. *Accounting Review*, 61(4), 601–632.
- Clarke, R., & Davison, R. M. (2020). Research perspectives: Through whose eyes? The critical concept of researcher perspective. *Journal of the Association for Information Systems*, 21(2), 483–501. <https://doi.org/10.17705/1jais.00609>
- Collinson, N., Saugene, Z., Braa, J., Sahay, S., & Mosse, E. (2021). Reflections, learnings and proposed interventions on data validation and data use for action in health: A case of Mozambique. *Proceedings of the 1st Virtual Conference on Implications of Information and Digital Technologies for Development*, 272–281.
- Cotlear, D., Nagpal, S., Smith, O., Tandon, A., & Cortez, R. (2015). *Going Universal: How 24 countries are implementing universal health coverage reforms from the bottom up*. World Bank Group.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process* (1st ed.). Sage Publications, London.
- Cucciniello, M., Guerrazzi, C., Nasi, G., & Ongaro, E. (2015). Coordination mechanisms for implementing complex innovations in the health care sector. *Public Management Review*, 17(7), 1040–1060. <https://doi.org/10.1080/14719037.2015.1029348>
- Currie, W. (2009). Contextualising the IT artefact: Towards a wider research agenda for is using institutional theory. *Information Technology & People*, 22(1), 63–77. <https://doi.org/10.1108/09593840910937508>
- Currie, W., Finnegan, D., & Gozman, D. (2011). Accounting information systems as institutional carriers: A case study of regulatory compliance in UK Asset Management Houses. *19th European Conference on Information Systems, ECIS 2011*, 1–12.
- Currie, W. L., & Finnegan, D. J. (2011). The policy-practice nexus of electronic health records adoption in the UK NHS. *Journal of Enterprise Information Management*, 24(2), 146–170. <https://doi.org/10.1108/17410391111106284>
- Currie, W. L., & Swanson, E. B. (2009). Special issue on institutional theory in information systems research: Contextualizing the IT artefact. *Journal of Information Technology*, 24(4), 283–285. <https://doi.org/10.1057/jit.2009.17>
- Czarniawska, B. (2012). How to misuse institutions and get away with it: Some reflections on institutional theory(ies). In *The SAGE Handbook of Organizational Institutionalism* (pp. 769–782). SAGE Publications Ltd. <https://doi.org/10.4135/9781849200387>

- Dąbrowska, J., Almpantopoulou, A., Brem, A., Chesbrough, H., Cucino, V., Di Minin, A., Giones, F., Hakala, H., Marullo, C., Mention, A. L., Mortara, L., Nørskov, S., Nylund, P. A., Oddo, C. M., Radziwon, A., & Ritala, P. (2022). Digital transformation, for better or worse: A critical multi-level research agenda. *R and D Management*, 52(5), 930–954. <https://doi.org/10.1111/radm.12531>
- Dacin, M. T., & Dacin, P. A. (2008). Traditions as institutionalized practice: Implications for deinstitutionalization. In R. Greenwood, C. Oliver, K. Sahlin, & R. Suddaby (Eds.), *The SAGE Handbook of Organizational Institutionalism* (pp. 326–351). <https://doi.org/10.4135/9781849200387.n13>
- Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *The Academy of Management Journal*, 45(1), 45–56. <https://doi.org/10.2307/3069284>
- Dang, D. (2021). Institutional logics and their influence on enterprise architecture adoption. *Journal of Computer Information Systems*, 61(1), 42–52. <https://doi.org/10.1080/08874417.2018.1564632>
- Dang, D., & Pekkola, S. (2020). Institutional perspectives on the process of enterprise architecture adoption. *Information Systems Frontiers*, 22(6), 1433–1445. <https://doi.org/10.1007/s10796-019-09944-8>
- Dang, D., & Vartiainen, T. (2020). Changing patterns in the process of digital transformation initiative in established firms the case of an energy sector company. *Pacific Asia Conference on Information Systems (PACIS)*, 1–15. <https://aisel.aisnet.org/pacis2020>
- Darke, P., Shanks, G., & Broadbent, M. (1998). Successfully completing case study research: Combining rigour, relevance and pragmatism. *Information Systems Journal*, 8(4), 273–289. <https://doi.org/10.1046/j.1365-2575.1998.00040.x>
- De Allegri, M., Sauerborn, R., Kouyaté, B., & Flessa, S. (2009). Community health insurance in sub-Saharan Africa: What operational difficulties hamper its successful development? *Tropical Medicine and International Health*, 14(5), 586–596. <https://doi.org/10.1111/j.1365-3156.2009.02262.x>
- Debie, A., Nigusie, A., Gedle, D., Khatri, R. B., & Assefa, Y. (2024). Building a resilient health system for universal health coverage and health security: a systematic review. In *Global Health Research and Policy* (Vol. 9, Issue 1). BioMed Central Ltd. <https://doi.org/10.1186/s41256-023-00340-z>
- Deephouse, D. L. (1996). Does isomorphism legitimate? *Academy of Management Journal*, 39(4), 1024–1039. <https://doi.org/10.2307/256722>

- Demetis, D. S., & Lee, A. S. (2018). When humans using the IT artifact becomes IT using the human artifact. *Journal of the Association for Information Systems*, 19(10), 929–952. <https://doi.org/10.17705/1jais.00514>
- Desikan, J., & Devi, J. (2021). Digital transformation in Indian insurance industry – A case study. *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*, 5(2), 2581–6942. <https://doi.org/10.5281/zenodo.5607469>
- Devaujany, F. X., Carton, S., Mitev, N., & Romeyer, C. (2014). Applying and theorizing institutional frameworks in is research: A systematic analysis from 1999 to 2009. *Information Technology and People*, 27(3), 280–317. <https://doi.org/10.1108/ITP-10-2013-0185>
- DiMaggio, P., & Powell, W. W. (1983). The iron cage revisited institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160. <https://doi.org/10.17323/1726-3247-2010-1-34-56>
- Dutt, R. (2020). The impact of artificial intelligence on healthcare insurances. In A. Bohr & K. Memarzadeh (Eds.), *Artificial Intelligence in Healthcare* (pp. 271–293). Academic Press. <https://doi.org/10.1016/b978-0-12-818438-7.00011-3>
- Effah, J. (2016a). Contextual effects on online banking implementation process and service content: A case study in Ghana. *Journal of Internet Banking and Commerce*, 21(2).
- Effah, J. (2016b). Institutional effects on e-payment entrepreneurship in a developing country: Enablers and constraints. *Information Technology for Development*, 22(2), 205–219. <https://doi.org/10.1080/02681102.2013.859115>
- Effah, J., & Nuhu, H. (2017). Institutional barriers to digitalization of government budgeting in developing countries: A case study of Ghana. *Electronic Journal of Information Systems in Developing Countries*, 82(5), 1–17.
- Effah, J., Owusu-Oware, E., & Boateng, R. (2020). Biometric identification for socioeconomic development in Ghana. *Information Systems Management*, 37(2), 136–149. <https://doi.org/10.1080/10580530.2020.1732528>
- Eling, M., & Lehmann, M. (2018). The impact of digitalization on the insurance value chain and the insurability of risks. *Geneva Papers on Risk and Insurance: Issues and Practice*, 43(3). <https://doi.org/10.1057/s41288-017-0073-0>
- Entele, B. R., & Vincent Emodi, N. (2016). Health insurance technology in Ethiopia: Willingness to pay and its implication for health care financing. *American Journal of Public Health Research*, 4(3), 98–106. <https://doi.org/10.12691/ajphr-4-3-4>

- Epifânio, F., & Pestana, G. (2018). Modeling an information visualization engine for situational-awareness in health insurance. *Advances in Intelligent Systems and Computing*, 745, 773–786. https://doi.org/10.1007/978-3-319-77703-0_77
- Escobar, M.-L., Griffin, C., & Shaw, P. (2010). Why and how are we studying health insurance in the developing world? In M.-L. Escobar, C. C. Griffin, & R. P. Shaw (Eds.), *The Impact of Health Insurance in Low-and Middle-Income Countries* (pp. 1–12). Brookings Institution Press.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Faggini, M., Cosimato, S., Nota, F. D., & Nota, G. (2018). Pursuing sustainability for healthcare through digital platforms. *Sustainability*, 11(1), 1–15. <https://doi.org/10.3390/su11010165>
- Faulkner, P., & Runde, J. (2019). Theorizing the digital object. *MIS Quarterly* 43(4), 1278–1302.
- Fichman, R. G., Dos Santos, B. L., & Zheng, Z. (2014). Digital innovation as a fundamental and powerful concept in the information systems curriculum. *MIS Quarterly*, 38(2), 329–343. <https://doi.org/10.25300/MISQ/2014/38.2.01>
- Fiol, C. M. (2017). Intraorganizational cognition and interpretation. In J. A. C. Baum (Ed.), *The Blackwell Companion to Organizations* (pp. 119–137). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781405164061.ch5>
- Fischer, L. H., & Baskerville, R. (2023). Explaining sociotechnical change: An unstable equilibrium perspective. *European Journal of Information Systems*, 32(4), 634–652 <https://doi.org/10.1080/0960085X.2021.2023669>
- Fisher, G., & Aguinis, H. (2017). Using theory elaboration to make theoretical advancements. *Organizational Research Methods*, 20(3), 438–464. <https://doi.org/10.1177/1094428116689707>
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, 55(2), 1–12. <https://doi.org/10.1057/palgrave.ejis.3000650>
- Flowers, P. (2009). Research philosophies – importance and relevance. *Leading Learning and Change*, 1(3), 1–5.
- Fogarty, T. J. (1996). The imagery and reality of peer review in the U.S.: Insights from institutional theory. *Accounting, Organizations and Society*, 21(2–3), 243–267. [https://doi.org/10.1016/0361-3682\(95\)00001-1](https://doi.org/10.1016/0361-3682(95)00001-1)

- Frenk, J. (2010). The global health system: Strengthening national health systems as the next step for global progress. *PLoS Med*, 7(1): e1000089.
<https://doi.org/10.1371/journal.pmed.1000089>
- Friedland, R. (2012). The institutional logics perspective: A new approach to culture, structure, and process. *M@n@gement*, 15(5), 583.
<https://doi.org/10.3917/mana.155.0583>
- Friedland, R., & Robert, A. (1991). Bringing Society Back: Symbols, Practices and Institutional Contradictions. In W. W. Powell & P. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 232–263). The University of Chicago Press.
- Fuenfschilling, L., & Truffer, B. (2016). The interplay of institutions, actors and technologies in socio-technical systems - An analysis of transformations in the Australian urban water sector. *Technological Forecasting and Social Change*, 103, 298–312. <https://doi.org/10.1016/j.techfore.2015.11.023>
- Furstenau, D., & Auschra, C. (2016). Open digital platforms in health care: Implementation and scaling strategies. *Proceedings of the International Conference on Information Systems*, 1–12.
- Fusheini, A. (2019). Healthcare financing reforms: Ghana's national health insurance. In *Health Reforms Across the World* (pp. 25–54). WORLD SCIENTIFIC.
https://doi.org/doi:10.1142/9789811208928_0002
- Gabryelczyk, R. (2020). Has covid-19 accelerated digital transformation? Initial lessons learned for public administrations. *Information Systems Management*, 37(4), 303–309.
<https://doi.org/10.1080/10580530.2020.1820633>
- Gajate-Garrido, G., & Owusua, R. (2014). The national health insurance scheme in Ghana: Implementation challenges and proposed solutions. In *IFPRI Discussion Paper* (Issue 01309). <https://doi.org/10.2139/ssrn.2373242>
- Galliers, R. D., & Land, F. F. (1987). Choosing appropriate information systems research methodologies. *Communications of the ACM*, 30(11), 901–902.
<https://doi.org/10.1145/32206.315753>
- Gamache-O'leary, V., & Grant, G. (2017). Social media in healthcare. *Proceedings of the 50th Hawaii International Conference on System Sciences*, 3774–3783.
- Garcia-Lorenzo, L., & Quek, F. (1997). Qualitative research in information systems: Time to be subjective? In A. S. Lee, J. Liebenau, & J. I. DeGross (Eds.), *Information Systems and Qualitative Research: Proceedings of the IFIP TC8 WG 8.2 International*

- Conference on Information Systems and Qualitative Research* (pp. 444–465). Springer US. https://doi.org/10.1007/978-0-387-35309-8_22
- Ghawe, A. S., & Chan, Y. (2022). Implementing disruptive technologies: What have we learned? *Communications of the Association for Information Systems*, 50(1), 646–689. <https://doi.org/10.17705/1CAIS.05030>
- Ghosh, K., Dohan, M. S., Veldandi, H., & Garfield, M. (2023). Digital transformation in healthcare: Insights on value creation. *Journal of Computer Information Systems*, 63(2). <https://doi.org/10.1080/08874417.2022.2070798>
- Ghosh, K., Dohan, M., & Veldandi, H. (2018). Digital transformation strategies for healthcare providers: Perspectives from senior leadership. *Americas Conference on Information Systems*, 1–5.
- Giddens, A. (1984). *The constitution of society outline of the theory of structuration*. University of California Press, Berkeley.
- Giedion, U., & Diaz, B. Y. (2010). A review of the evidence. In M.-L. Escobar, C. C. Griffin, & R. P. Shaw (Eds.), *The Impact of Health Insurance in Low- and Middle-Income Countries* (pp. 13–32). Brookings Institution Press.
- Gilsing, R., Turetken, O., Grefen, P., Ozkan, B., & Adali, O. E. (2022). Business model evaluation: A systematic review of methods. *Pacific Asia Journal of the Association for Information Systems*, 14(4), 26–61. <https://doi.org/10.17705/1pais.14402>
- Greenwood, R., Díaz, A. M., Li, S. X., & Lorente, J. C. (2010). The multiplicity of institutional logics and the heterogeneity of organizational responses. *Organization Science*, 21(2), 521–539. <https://doi.org/10.1287/orsc.1090.0453>
- Greenwood, R., & Hinings, C. R. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of Management Review*, 21(4), 1022–1054.
- Greenwood, R., Oliver, C., Suddaby, R., & Sahlin, K. (2008). *The SAGE handbook of organizational institutionalism* (1st ed.). Sage, Los Angeles.
- Greenwood, R., Suddaby, R., & Hinings, C. R. (2002). Theorizing change: The role of professional associations in the transformation of institutionalized fields. *Academy of Management Journal*, 45(1), 58–80. <https://doi.org/10.2307/3069285>
- Gregory, R. W., Keil, M., Muntermann, J., & Mähring, M. (2015). Paradoxes and the nature of ambidexterity in IT transformation programs. *Information Systems Research*, 26(1), 57–80. <https://doi.org/10.1287/isre.2014.0554>

- Grundstrom, C., Väyrynen, K., Persson, M., & Isomursu, M. (2018). Health data access barriers in a Finnish insurance company: A case study. *International Conference on Information Systems Development (ISD)*, 1–12.
- GSS. (2021). *Demography: Population projection*. Retrieved May 22 2021, from <https://statsghana.gov.gh/index.php>
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Sage Publications, Thousand Oaks.
- Gurbaxani, V., & Dunkle, D. (2019). Gearing up for successful digital transformation. *MIS Quarterly Executive*, 18(3), 209–220. <https://doi.org/10.17705/2msqe.00017>
- Gurung, G. B., & Panza, A. (2022). Implementation bottlenecks of the National Health Insurance program in Nepal: Paving the path towards Universal Health Coverage: A qualitative study. *International Journal of Health Planning and Management*, 37(1), 171–188. <https://doi.org/10.1002/hpm.3301>
- Haftor, D. M., & Climent Costa, R. (2023). Five dimensions of business model innovation: A multi-case exploration of industrial incumbent firm's business model transformations. *Journal of Business Research*, 154. <https://doi.org/10.1016/j.jbusres.2022.113352>
- Hajishirzi, R., Costa, C. J., Aparicio, M., & Romão, M. (2022). Digital transformation framework: A bibliometric approach. *Lecture Notes in Networks and Systems*, 470 LNNS, 427–437. https://doi.org/10.1007/978-3-031-04829-6_38
- Hall, J. D., Harding, R. L., Angier, H., Likumahuwa-ackman, S., Cohen, D. J., Devoe, J. E., Gold, R., Sumic, A., & Nelson, C. A. (2017). Designing health information technology tools to prevent gaps in public health insurance. *Journal of Innovation in Health Informatics*, 24(2), 196–203.
- Hammouri, Q. M., Abu-Shanab, E. A., & Nusairat, N. M. (2021). Attitudes toward implementing e-government in health insurance administration. *International Journal of Electronic Government Research*, 17(2), 1–18. <https://doi.org/10.4018/IJEGR.2021040101>
- Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), 1159–1197. <https://doi.org/10.1111/joms.12639>
- Hariyanto, H., Denison, T., & Stillman, L. (2018). Understanding health information system implementation in an Indonesian primary health centre: A sociotechnical perspective. *Twenty-Second Pacific Asia Conference on Information Systems*, 1–15.

- Haryanti, T., Rakhmawati, N. A., & Subriadi, A. P. (2023). A comparative analysis review of digital transformation stage in developing countries. *Journal of Industrial Engineering and Management*, 16(1), 150–167. <https://doi.org/10.3926/jiem.4576>
- Hendriks, C. J. (2012). Integrated financial management information systems: Guidelines for effective implementation by the public sector of South Africa. *SA Journal of Information Management*, 14(1), 1–9. <https://doi.org/10.4102/sajim.v14i1.529>
- Hennington, A., & Janz, B. D. (2007). Information systems and healthcare XVI: Physician adoption of electronic medical records: Applying the UTAUT model in a healthcare context. *Communications of the Association for Information Systems*, 19, 60–80. <https://doi.org/10.17705/1cais.01905>
- Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: A systematic literature review. *Mediterranean Conference on Information Systems (MCIS)*, 1–15. <http://aisel.aisnet.org/mcis2015/10>
- Hermes, S., Riasanow, T., Clemons, E. K., Böhm, M., & Krcmar, H. (2020). The digital transformation of the healthcare industry: Exploring the rise of emerging platform ecosystems and their influence on the role of patients. *Business Research*, 13(3), 1033–1069. <https://doi.org/10.1007/s40685-020-00125-x>
- Hesse, M. B. (1980). *Revolutions and reconstructions in the philosophy of science*. Indiana University Press, Bloomington.
- Hinings, B., Gegenhuber, T., & Greenwood, R. (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, 28(1), 52–61. <https://doi.org/10.1016/j.infoandorg.2018.02.004>
- Hinsen, S., Jöhnk, J., & Urbach, N. (2019). Disentangling the concept and role of continuous change for IS research – A systematic literature review. *Fortieth International Conference on Information Systems*, 1–18. <https://aisel.aisnet.org/icis2019>.
- Hirschheim, R. (1992). Information systems epistemology: An historical perspective. In R. Galliers (Ed.), *Information Systems Research: Issues, Methods, and Practical Guidelines* (pp. 9–33). Blackwell Scientific Publications, Oxford.
- Hirschheim, R., & Klein, H. K. (1989). Four paradigms of information systems development. *Communications of the ACM*, 32(10), 1199–1216. <https://doi.org/10.1145/67933.67937>
- Hodgson, G. M. (1998). The approach of institutional economics. *Journal of Economic Literature*, 36(1), 166–192.

- Hoffman, A. J. (2001). *From heresy to dogma: An institutional history of corporate environmentalism*. Stanford University Press, Stanford.
- Hofstede, Geert., Hofstede, G. Jan., & Minkov, Michael. (2010). *Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival* (3rd ed.). McGraw-Hill, New York.
- Hollingworth, S., Fenny, A. P., Yu, S. Y., Ruiz, F., & Chalkidou, K. (2021). Health technology assessment in sub-Saharan Africa: A descriptive analysis and narrative synthesis. *Cost Effectiveness and Resource Allocation*, 19(39). <https://doi.org/10.1186/s12962-021-00293-5>
- Hou, X., & Zhang, J. (2017). The effects of public health insurance expansion on private health insurance in urban China. *International Journal of Health Economics and Management*, 17(3), 359–375. <https://doi.org/10.1007/s10754-017-9213-0>
- Hron, M. (2021). The quest for new theoretical logics of digital innovation: Linking properties of digital artifacts with their conceptualizations in organizations. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 5881–5890. <https://doi.org/10.24251/hicss.2021.712>
- Hsu, C., Lee, J.-N., Fang, Y., Straub, D. W., Su, N., & Ryu, H.-S. (2021). The role of vendor legitimacy in IT outsourcing performance: Theory and evidence. *Information Systems Research*, 33(1), 337–361. <https://doi.org/10.1287/isre.2021.1059>
- Hsu, P. F. (2022). A deeper look at cloud adoption trajectory and dilemma. *Information Systems Frontiers*, 24, 177-194. <https://doi.org/10.1007/s10796-020-10049-w>
- Humes, L. L., Reinhard, N., & Reinhard, H. &. (2007). Institutionalization of an information system through the exercise of power. *Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries*, 1–13. <https://www.researchgate.net/publication/241227828>
- Iivari, N. (2018). Using member checking in interpretive research practice: A hermeneutic analysis of informants' interpretation of their organizational realities. *Information Technology and People*, 31(1), 111–133. <https://doi.org/10.1108/ITP-07-2016-0168>
- Indimuli, R., Mitullah, W., Riisgaard, L., & Kamau, A. (2023). Understanding inactive membership in voluntary contributory schemes: A case study of micro-traders in Kenya. *Development Policy Review*, 41(1), e12647. <https://doi.org/https://doi.org/10.1111/dpr.12647>
- Ivan, L., Bosilj Vuk, V., & Spremi, M. (2019). Mastering the digital transformation process: Business practices and lessons learned. *Technology Innovation Management Review*, 9(2), 36–50.

- Ivanov, M. (2018). Digital innovation in manufacturing firms: A grounded theory approach for identifying a barrier typology. *Pacific Asia Conference on Information Systems (PACIS)*, 1–15.
- Ivanović, A., & Raković, P. (2019). E-health card information system: Case study health insurance fund of Montenegro. *Mediterranean Conference on Embedded Computing*, June 10–14. <https://doi.org/10.1109/MECO.2019.8760284>
- Iyamu, T., & Mgudlwa, S. (2021). ANT perspective of healthcare big data for service delivery in South Africa. *Journal of Cases on Information Technology*, 23(1), 65–81. <https://doi.org/10.4018/JCIT.2021010104>
- Jain, V. (2003). Analyzing the nature of knowledge in the IS field. *Proceedings of the 9th Americas Conference on Information Systems (AMCIS)*, 374.
- Jensen, T. B., Kjærgaard, A., & Svejvig, P. (2009). Using institutional theory with sensemaking theory: A case study of information system implementation in healthcare. *Journal of Information Technology*, 24(4), 343–353. <https://doi.org/10.1057/jit.2009.11>
- Jepperson, R. (1991). Institutions, institutional effects, and institutionalism. In W. W. Powell & P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 143–163). The University of Chicago Press, Chicago.
- Jewer, J., Petersen, B. K., Gosine, R. G., & Warrian, P. J. (2022). Boundaries and boundary spanning in digital innovation outsourcing: The influence of institutional logics and governance systems. *Information Systems Management*, 40(3), 1-20. <https://doi.org/10.1080/10580530.2022.2130480>
- Jho, W., & Song, K. J. (2015). Institutional and technological determinants of civil e-participation: Solo or duet? *Government Information Quarterly*, 32(4), 488–495. <https://doi.org/10.1016/j.giq.2015.09.003>
- Jimenez, G., Matchar, D., Koh, C. H. G., van der Kleij, R., Chavannes, N. H., & Car, J. (2021). The role of health technologies in multicomponent primary care interventions: Systematic review. *Journal of Medical Internet Research*, 23(1). <https://doi.org/10.2196/20195>
- Johl, S., & Renganathan, S. (2009). Strategies for gaining access in doing fieldwork reflection of two researchers. *Electronic Journal of Business Research Methods*, 8(1), 37–46.
- Johnson, M., Albizri, A., & Harfouche, A. (2021). Responsible artificial intelligence in healthcare: Predicting and preventing insurance claim denials for economic and social wellbeing. *Information Systems Frontiers*, 25, 2179–2195. <https://doi.org/10.1007/s10796-021-10137-5>

- Jones, M. E., & Song, I.-Y. (2005). Dimensional modeling: Identifying, classifying and applying patterns. *Proceedings of the 8th ACM International Workshop on Data Warehousing and OLAP*, 29–38. <https://doi.org/10.1145/1097002.1097008>
- Kagermann, H. (2015). Change through digitization—Value creation in the age of Industry 4.0. In H. Albach, H. Meffert, A. Pinkwart, & R. Reichwald (Eds.), *Management of permanent change* (pp. 23–45). Springer Gabler, Wiesbaden.
- Kallinikos, J., Aaltonen, A., & Marton, A. (2013). The ambivalent ontology of digital artifacts. *MIS Quarterly*, 37(2), 357–370. <https://doi.org/10.25300/MISQ/2013/37.2.02>
- Kam, H. J., Mattson, T., & Goel, S. (2020). A cross industry study of institutional pressures on organizational effort to raise information security awareness. *Information Systems Frontiers*, 22(5), 1241–1264. <https://doi.org/10.1007/s10796-019-09927-9>
- Kaplan, B., & Maxwell, J. (2005). Qualitative research methods for evaluating computer information systems. In J. G. Anderson & C. E. Aydin (Eds.), *Evaluating the Organizational Impact of Healthcare Information Systems* (pp. 30–55). Springer, New York, NY. https://doi.org/10.1007/0-387-30329-4_2
- Karanasios, S., Senyo, P. K., Effah, J., & Zorina, A. (2022). Digital bricolage: Creating a digital transformation from nothing. *Forty-Third International Conference on Information Systems*, 1–10. <https://www.researchgate.net/publication/364308078>
- Karim, F., Ghazali, I., Achmad, T., & Harto, P. (2020). The interaction of institutionalization of information technology & institutional entrepreneurship: An idea of a framework for the application of information technology in public sector financial management. *International Journal of Management*, 11(12). <https://doi.org/10.34218/ijm.11.12.2020.080>
- Karthikeyan, V. P., & Sulochana, S. (2023). Impact of digital transformation in insurance. In T. Hemalatha & A. Saravanakumar (Eds.), *Digitalization of the Insurance Sector* (pp. 61–65). Shanlax Publications, India.
- Kesse-Tachi, A., Asmah, A. E., & Agbozo, E. (2019). Factors influencing adoption of eHealth technologies in Ghana. *Digital Health*, 5, 1–13. <https://doi.org/10.1177/2055207619871425>
- Keutel, M., Michalik, B., & Richter, J. (2014). Towards mindful case study research in IS: A critical analysis of the past ten years. *European Journal of Information Systems* 23(3), 256–272. <https://doi.org/10.1057/ejis.2013.26>
- Kim, E., Kim, M., & Kyung, Y. (2022). A case study of digital transformation: Focusing on the financial sector in South Korea and overseas. *Asia Pacific Journal of Information Systems*, 32(3). <https://doi.org/10.14329/APJIS.2022.32.3.537>

- Kim, K.-J., Lim, C.-H., Kim, K.-H., Kang, S.-H., You, H., Jun, C.-H., Shin, S.-A., Choo, D.-S., & Kim, J.-H. (2018). Development of service concepts that utilize health-related data: A case study with the national health insurance service of South Korea. *IISE Transactions on Healthcare Systems Engineering*, 8(4), 237–249. <https://doi.org/10.1080/24725579.2018.1502221>
- Kincheloe, J. L., & McLaren, P. L. (2005). Rethinking critical theory and qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (3rd ed., pp. 303–342) Sage Publications, Thousand Oaks.
- King, J., Gurbaxani, V., Kraemer, K. L., Mcfarlan, F. W., Raman, K. S., & Yap, C. S. (1994). Institutional factors in information technology innovation. *Information Systems Research*, 5(2), 139–169.
- Kipo-Sunyehzi, D. D., Ayanore, M. A., Dzidzonu, D. K., & Ayalsumayakubu, Y. (2020). Ghana's journey towards universal health coverage: The role of the national health insurance scheme. *European Journal of Investigation in Health, Psychology and Education*, 10(1), 94–109. <https://doi.org/10.3390/ejihpe10010009>
- Klecun, E. (2016). Transforming healthcare: Policy discourses of IT and patient-centred care. *European Journal of Information Systems*, 25(1), 64–76. <https://doi.org/10.1057/ejis.2014.40>
- Klein, H. K., & Lyytinen, K. (1985). The poverty of scientism in information systems. In E. Mumford, R. Hirschheim, (Eds.) *Research Methods for Information Systems* (pp. 123–151). Amsterdam: North-Holland.
- Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67–93. <https://doi.org/10.2307/249410>
- Koch, H., Leidner, D. E., & Gonzalez, E. S. (2013). Digitally enabling social networks: Resolving IT-culture conflict. *Information Systems Journal*, 23(6), 501–523. <https://doi.org/10.1111/isj.12020>
- Kokuryo, J. (1997). Information technologies and the transformation of Japanese industry. *Proceedings of the 3rd Pacific Asia Conference on Information Systems (PACIS)*.
- Kostikidis, G., Gallos, P., Triantafyllou, I. S., & Plagianakos, V. (2020). Citizens' opinions about a digital health insurance record. In A. Värri, J. Delgado, P. Gallos, M. Hägglund, K. Häyrynen, U. Kinnunen, L. Pape-Haugaard, L. Peltonen, K. Saranto, & P. Scott (Eds.), *Integrated Citizen Centered Digital Health and Social Care* (Vol. 275, pp. 230–231). <https://doi.org/10.3233/SHTI200731>

- Koutsikouri, D., Lindgren, R., Henfridsson, O., & Rudmark, D. (2018). Extending digital infrastructures: A typology of growth tactics. *Journal of the Association for Information Systems*, 19(10), 1001–1019. <https://doi.org/10.17705/1JAIS.00517>
- Kraatz, M. S., & Zajac, E. J. (1996). Exploring the limits of the new institutionalism: The causes and consequences of illegitimate organizational change. *American Sociological Review*, 61(5), 812–836. <https://doi.org/10.2307/2096455>
- Krauss, S. E., & Putra, U. (2005). Research paradigms and meaning making: A primer. *The Qualitative Report*, 10(4), 758–770. <https://doi.org/10.1176/appi.ajp.162.10.1985>
- Kuhn, T. S. (2012). *The structure of scientific revolutions* (4th ed.). The University of Chicago Press, Chicago. <https://doi.org/10.7208/chicago/9780226458106.001.0001>
- Kühne, M., Blinn, N., Rosenkranz, C., & Nüttgens, M. (2011). Diffusion of Web 2.0 in healthcare: A complete inventory count in the German health insurance landscape. *Proceedings of the 19th European Conference on Information Systems (ECIS)*, 1–13.
- Kumar, M., Ghani, R., & Mei, Z. (2010). Data mining to predict and prevent errors in health insurance claims processing. *Proceedings of the 16th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 65–74. <https://doi.org/doi.org/10.1145/1835804.1835816>
- Kurnia, S., Linden, T., & Huang, G. (2019). A hermeneutic analysis of critical success factors for Enterprise Systems implementation by SMEs. *Enterprise Information Systems*, 13(9), 1195–1216. <https://doi.org/10.1080/17517575.2019.1650960>
- Kurtzman, G. W., Keshav, M. A., Satish, N. P., & Patel, M. S. (2018). Scheduling primary care appointments online: Differences in availability based on health insurance. *Healthcare*, 6(3), 186–190. <https://doi.org/10.1016/j.hjdsi.2017.07.002>
- Kwiek, M. (2012). Changing higher education policies: From the deinstitutionalization to the reinstitutionalization of the research mission in Polish universities. *Science and Public Policy*, 39(5), 641–654. <https://doi.org/10.1093/scipol/scs042>
- Kyomugisha, E. L., Buregyeya, E., Ekirapa, E., Mugisha, J. F., & Bazeyo, W. (2009). Strategies for sustainability and equity of prepayment health schemes in Uganda. *African Health Sciences*, 9(2), 59–65.
- Kyu Kim, K., Michelman, J. E., & Kyu Kim Accounting, K. (1990). An examination of factors for the strategic use of information systems in the healthcare industry. *MIS Quarterly* 14(2), 201-215.
- Lamb, R., & Kling, R. (2003). Reconceptualizing users as social actors in information systems research. *MIS Quarterly*, 27(2), 197–235. <https://doi.org/10.2307/30036529>

- Lammers, J. C., & Garcia, M. A. (2017). Institutional theory approaches. In C. Scott, J. Barker, T. Kuhn, J. Keyton, P. Turner, & L. Lewis (Eds.), *The International Encyclopedia of Organizational Communication* (pp. 1–10). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781118955567.wbieoc113>
- Laurila, J. (1997). Promoting research access and informant rapport in corporate settings: Notes from research on a crisis company. *Scandinavian Journal of Management*, 13(4), 407–418. [https://doi.org/10.1016/S0956-5221\(97\)00026-2](https://doi.org/10.1016/S0956-5221(97)00026-2)
- Lawrence, T. B., Dyck, B., Maitlis, S., & Mauws, M. (2006). The underlying structure of continuous change. *MIT Sloan Management Review*, 47(4), 59–66. <https://www.researchgate.net/publication/40969437>
- Ledesma, A., McCulloh, C., Wieck, H., & Yang, M. (2014). *Health Care Sector Overview*. Washington State University. Retrieved December 2, 2019, from https://s3.wp.wsu.edu/uploads/sites/606/2015/02/SectorOverview_HC_Spring2014.pdf
- Lee, A. S. (1994). Electronic mail as a medium for rich communication: An empirical investigation using hermeneutic interpretation. *MIS Quarterly*, 18(2), 143–157. <https://doi.org/10.2307/249762>
- Lee, A. S., Thomas, M., & Baskerville, R. L. (2013). Going back to basics in design: From the IT artifact to the IS artifact. *Proceedings of the Nineteenth Americas Conference on Information Systems*, 1–7. <https://doi.org/10.1111/isj.12054>
- Lee, A. S., Thomas, M., & Baskerville, R. L. (2015). Going back to basics in design science: From the information technology artifact to the information systems artifact. *Information Systems Journal*, 25(1), 5–21. <https://doi.org/10.1111/isj.12054>
- Lee, E., Kim, J. Young, Kim, J., & Koo, C. (2022). Information privacy behaviors during the covid-19 pandemic: Focusing on the restaurant context. *Information Systems Frontiers*, 25, 1829–1845. <https://doi.org/10.1007/s10796-022-10321-1>
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhm, T., Drews, P., Mädche, A., Urbach, N., & Ahlemann, F. (2017). Digitalization: Opportunity and challenge for the business and information systems engineering community. *Business & Information Systems Engineering*, 59(4), 301–308. <https://doi.org/10.1007/s12599-017-0484-2>
- Lehmann, J., Weber, F., Graf-Vlachy, L., & König, A. (2019). Talking institutions in the sharing economy: A content analysis of actor quotes in the print media and a taxonomy of discursive strategies. *Proceedings of the Twenty-Seventh European Conference on Information Systems*, 1–16.
- Lewin, K. (1951). *Field theory in social science: Selected theoretical papers* (D. Cartwright, Ed.). Harper & Brothers, New York.

- Li, F. (2020). The digital transformation of business models in the creative industries: A holistic framework and emerging trends. *The International Journal of Technological Innovation, Entrepreneurship and Technology Management*, 92–93. <https://doi.org/10.1016/j.technovation.2017.12.004>
- Li, Y., Lu, C., & Liu, Y. (2020). Medical insurance information systems in China: Mixed methods study. *JMIR Medical Informatics*, 8(9). <https://doi.org/10.2196/18780>
- Liao, J. (1996). Information technology investment: The effect of institutional isomorphism. *Journal of High Technology Management Research*, 7(1), 37–52. [https://doi.org/10.1016/S1047-8310\(96\)90013-9](https://doi.org/10.1016/S1047-8310(96)90013-9)
- Liao, J. M., Emanuel, E. J., & Navathe, A. S. (2016). Six health care trends that will reshape the patient-provider dynamic. *Healthcare*, 4(3), 148–150. <https://doi.org/10.1016/j.hjdsi.2016.06.006>
- Lin, F., Fofanah, S. S., & Liang, D. (2011). Assessing citizen adoption of e-Government initiatives in Gambia: A validation of the technology acceptance model in information systems success. *Government Information Quarterly*, 28(2), 271–279. <https://doi.org/10.1016/J.GIQ.2010.09.004>
- Lintula, J. M. K., & Tuunanen, T. (2020). Value co-creation for smart villages: The institutionalization of regional service ecosystems. *Proceedings of the Forty-First International Conference on Information Systems*, 1–9.
- Liu, W., Yu, Q., Li, Z., Li, Z., Su, Y., & Zhou, J. (2019). A blockchain-based system for anti-fraud of healthcare insurance. *2019 IEEE 5th International Conference on Computer and Communications (ICCC)*, 1264–1268. <https://doi.org/10.1109/ICCC47050.2019.9064274>
- Lukaitis, S., & Cybulski, J. (2004). A hermeneutic analysis of the Denver International Airport Baggage Handling System. In D. N. Hart & S. D. Gregor (Eds.), *Information Systems Foundations: Constructing and Criticising* (pp. 61–76). ANU Press. <https://doi.org/10.1109/HPCA.2004.10023>
- Lumor, T., Pulkkinen, M., Hirvonen, A., & Neittaanmäki, P. (2021). Creating the socio-technical context needed to derive benefits from big data initiatives in healthcare. *Scandinavian Journal of Information Systems*, 33(2), 3–58.
- Lyytinen, K., & Newman, M. (2008). Explaining information systems change: A punctuated socio-technical change model. *European Journal of Information Systems*, 17(6), 589–613. <https://doi.org/10.1057/ejis.2008.50>
- Lyytinen, K., Newman, M., & Al-Muharfi, A. R. A. (2009). Institutionalizing enterprise resource planning in the Saudi steel industry: A punctuated socio-technical analysis.

- Journal of Information Technology*, 24(4), 286–304.
<https://doi.org/10.1057/jit.2009.14>
- Madan, R., & Ashok, M. (2024). Making sense of AI benefits: A mixed-method study in Canadian public administration. *Information Systems Frontiers*.
<https://doi.org/10.1007/s10796-024-10475-0>
- Maghrabi, R. O., & Gargeya, V. B. (2012). Inter-Organizational Systems (IOS): A boon or bane: Lessons learned from interorganizational supply chain management systems. *Proceedings of the 18th Americas Conference on Information Systems (AMCIS)*.
- Mahadevan, B. (2000). Business models for internet-based e-commerce. *California Management Review*, 42(4), 55–69.
- Majchrzak, A., Lynne Markus, M., & Wareham, J. (2016). Designing for digital transformation: Lessons for information systems research from the study of ICT and societal challenges. *MIS Quarterly*, 40(2), 267–277.
<https://doi.org/10.25300/MISQ/2016/40>
- Malinova, M., Gross, S., & Mendling, J. (2022). A study into the contingencies of process improvement methods. *Information Systems*, 104.
<https://doi.org/10.1016/j.is.2021.101880>
- March, S. T., & Smith, G. F. (1995). Design and natural science research on information technology. *Decision Support Systems*, 15(4), 251–266.
- Marfo, J. S., Boateng, R., & Effah, J. (2017). A typology of big data capabilities from resources to dynamic capabilities. Evidence from a Ghanaian health insurance firm. *Proceedings of the Twenty-Third Americas Conference on Information Systems*, 1–10.
- Markus, L., & Silver, M. (2008). A foundation for the study of IT effects: A new look at DeSanctis and Poole's concepts of structural features and spirit. *Journal of the Association for Information Systems*, 9(10/11), 609–632.
<https://doi.org/10.1080/07438140309354090>
- Matthess, M., & Kunkel, S. (2020). Structural change and digitalization in developing countries: Conceptually linking the two transformations. *Technology in Society*, 63.
<https://doi.org/10.1016/j.techsoc.2020.101428>
- Matt, C., Hess, T., Benlian, A., & Wiesbock, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, 15(2), 123–139.
- Mbugua, S., Korongo, J. N., Joram, M., Benard, M. C., Thaiya, M. S., Julia, K., Benard, M., & Nambiro, A. (2021). Adoption of ICT to enhance access to healthcare in Kenya. *IOSR Journal of Computer Engineering (IOSR-JCE)*, 23(2), 45–50.
<https://doi.org/10.9790/0661-2302024550>

- McFall, L. (2019). Personalizing solidarity? The role of self-tracking in health insurance pricing. *Economy and Society*, 48(1), 52–76.
<https://doi.org/10.1080/03085147.2019.1570707>
- McKinley, W., & Mone, M. A. (2005). Micro and macro perspectives in organization theory: A tale of incommensurability. In C. Knudsen & H. Tsoukas (Eds.), *The Oxford Handbook of Organization Theory* (pp. 1–672). Oxford University Press, Oxford.
<https://doi.org/10.1093/oxfordhb/9780199275250.003.0013>
- Meessen, B. (2018). The role of digital strategies in financing health care for universal health coverage in low- and middle-income countries. *Global Health Science and Practice*, 6(Supplement), S29–S40. <https://doi.org/10.9745/GHSP-D-18-00271>
- Meindl, J. R., Stubbart, C., & Porac, J. F. (1994). Cognition within and between organizations: Five key questions. *Organization Science*, 5(3), 289–293.
<https://doi.org/10.1287/orsc.5.3.289>
- Mekonnen, S. M., & Wubishet, Z. S. (2016). An institutional perspective to understand FOSS adoption in public sectors: Case studies in Ethiopia and India. *American Journal of Information Systems*, 4(2), 32–44. <https://doi.org/10.12691/ajis-4-2-2>
- Menon, N. M. (2018). Information spillover and semi-collaborative networks in insurer fraud detection. *MIS Quarterly*, 42(2), 407–426.
<https://doi.org/10.25300/MISQ/2018/14433>
- Menti, F., Romero, D., & Jacobsen, P. (2023). A technology assessment and implementation model for evaluating socio-cultural and technical factors for the successful deployment of Logistics 4.0 technologies. *Technological Forecasting and Social Change*, 190. <https://doi.org/10.1016/j.techfore.2023.122469>
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4).
<https://doi.org/10.1016/j.giq.2019.06.002>
- Meyer, J. W., & Scott, W. Richard. (1983). *Organizational environments: Ritual and rationality*. Sage, Beverly Hills.
- Mhazo, A. T., Maponga, C. C., & Mossialos, E. (2023). Inequality and private health insurance in Zimbabwe: History, politics and performance. *International Journal for Equity in Health*, 22(1). <https://doi.org/10.1186/S12939-023-01868-9>
- Mignerat, M., & Rivard, S. (2009). Positioning the institutional perspective in information systems research. *Journal of Information Technology*, 24(4), 369–391.
<https://doi.org/10.1057/jit.2009.13>

- Mignerat, M., & Rivard, S. (2015). Positioning the institutional perspective in information systems research. In L. P. Willcocks, C. Sauer, & M. C. Lacity (Eds.), *Formulating Research Methods for Information Systems: Volume 2* (pp. 79–126). Palgrave Macmillan UK. https://doi.org/10.1057/9781137509888_4
- Mikalef, P., van de Wetering, R., & Krogstie, J. (2021). Building dynamic capabilities by leveraging big data analytics: The role of organizational inertia. *Information and Management*, 58(6). <https://doi.org/10.1016/j.im.2020.103412>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications, Inc., Thousand Oaks.
- Mingers, J. (2001). Combining IS research methods: Towards a pluralist methodology. *Information Systems Research*, 12(3), 240–259. <https://doi.org/10.1287/isre.12.3.240.9709>
- Mingers, J., & Walsham, G. (2010). Toward ethical information systems: The contribution of discourse ethics. *MIS Quarterly* 34(4), 833–854. <https://doi.org/10.2307/25750707>
- Mingle, J., & Dzandu, M. (2013). The adoption of information and communications technology in the administration of health insurance schemes in Ghana. *International Journal of Computer Science and Network*, 2(6), 73–81.
- Mola, L., Carugati, A., Giangreco, A., & da Cunha, J. V. (2022). Learning from unexpected technological success: An extended model of supply-side diffusion. *European Journal of Information Systems*, 31(5), 597–616. <https://doi.org/10.1080/0960085X.2021.1907232>
- Morakanyane, R., Grace, A., & O'Reilly, P. (2017). Conceptualizing digital transformation in business organizations: A systematic review of literature. *30th Bled EConference: Digital Transformation - From Connecting Things to Transforming Our Lives, BLED 2017*, 427–444. <https://doi.org/10.18690/978-961-286-043-1.30>
- Mukerji, M., & Roy, P. S. (2019). Platform interactions and evolution of Ola's organizational field. *Australasian Journal of Information Systems*, 23, 1–23.
- Mulat, A. K., Mao, W., Bharali, I., Balkew, R. B., & Yamey, G. (2022). Scaling up community-based health insurance in Ethiopia: A qualitative study of the benefits and challenges. *BMC Health Services Research*, 22(1). <https://doi.org/10.1186/s12913-022-07889-4>
- Myers. (1997a). Interpretive research methods in information systems. In J. Mingers & F. Stowell (Eds.). *Information Systems: An Emerging Discipline*. McGraw Hill.
- Myers. (1997b). Qualitative research in information systems. *MIS Quarterly*, 21(2), 241–242.

- Myers. (2013). *Qualitative research in business & management* (2nd Eds.). Sage Publications, London.
- Myers, M. (2009). *Qualitative research in business and management*. Sage Publications, Thousand Oaks, CA.
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1), 223–238. <https://doi.org/10.3109/10903127.2010.493985>
- Nan, W. (2021). Digital infrastructure for development: The case of mobile money in Kenya. *Proceedings of the Twenty-Seventh Americas Conference on Information Systems (AMCIS)*, 1-11.
- Nandhakumar, J. (1997). Issues in participant observation: A study of the practice of information systems development. *Social Research and Educational Studies Series*, 16, 210–220.
- Nayak, B., Bhattacharyya, S. S., & Krishnamoorthy, B. (2019). Application of digital technologies in health insurance for social good of bottom of pyramid customers in India. *International Journal of Sociology and Social Policy*, 39(9–10), 752–772. <https://doi.org/10.1108/IJSSP-05-2019-0095>
- Nayak, B., Bhattacharyya, S. S., & Krishnamoorthy, B. (2019). Democratizing health insurance services; accelerating social inclusion through technology policy of health insurance firms. *Business Strategy and Development*, 2(3), 242–252. <https://doi.org/10.1002/bsd2.59>
- Negash, S., Musa, P., Vogel, D., & Sahay, S. (2018). Healthcare information technology for development: Improvements in people's lives through innovations in the uses of technologies. *Information Technology for Development*, 24(2), 189–197. <https://doi.org/10.1080/02681102.2018.1422477>
- Nguyen, T. H., & Leung, S. (2013). Dynamics of health insurance enrollment in Vietnam, 2004-2006. *Journal of the Asia Pacific Economy*, 18(4), 594–614. <https://doi.org/10.1080/13547860.2013.803842>
- NHIA. (2012). In www.nhis.gov.gh. Retrieved November 20, 2023, from <https://www.nhis.gov.gh/files/2012%20nhia%20annual%20report.pdf>.
- NHIA. (2021). *Objective of the Authority*. Retrieved May 21, 2021, from <http://www.nhis.gov.gh/nhia.aspx>

- Nielsen, J. A., Mathiassen, L., & Newell, S. (2014). Theorization and translation in information technology institutionalization: Evidence from Danish home care. *MIS Quarterly*, 38(1), 165–186.
- Niemimaa, M. (2016). Sociomateriality and Information Systems Research. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 47(4). <https://doi.org/10.1145/3025099.3025105>
- Noir, C., & Walsham, G. (2007). The great legitimizer: ICT as myth and ceremony in the Indian healthcare sector. *Information Technology & People*, 20(4), 313–333. <https://doi.org/10.1108/09593840710839770>
- Nwankpa, J. K., & Datta, P. (2021). Leapfrogging healthcare service quality in sub-Saharan Africa: The utility-trust rationale of mobile payment platforms. *European Journal of Information Systems*, 31(1), 1–18. <https://doi.org/10.1080/0960085X.2021.1978339>
- Obadha, M., Colbourn, T., & Seal, A. (2020). Mobile money use and social health insurance enrolment among rural dwellers outside the formal employment sector: Evidence from Kenya. *International Journal of Health Planning and Management*, 35(1), 66–80. <https://doi.org/10.1002/hpm.2930>
- Odokonyero, T., Mwesigye, F., Adong, A., & Mbowa, S. (2017). Universal health coverage in Uganda: The critical health infrastructure, healthcare coverage and equity. In *Research Series - Economic Policy Research Centre* (Issue 136).
- Odusola, A. O., Stronks, K., Hendriks, M. E., Schultsz, C., Akande, T., Osibogun, A., van Weert, H., & Haafkens, J. A. (2016). Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: Perspectives of primary care staff and health insurance managers. *Global Health Action*, 9(1). <https://doi.org/10.3402/gha.v9.29041>
- Okuzu, O., Malaga, R., Okerefor, K., Amos, U., Dosunmu, A., Oyeneyin, A., Adeoye, V., Sambo, M. N., & Ebenso, B. (2022). Role of digital health insurance management systems in scaling health insurance coverage in low- and Middle-Income Countries: A case study from Nigeria. *Frontiers in Digital Health*, 4. <https://doi.org/10.3389/fdgth.2022.1008458>
- Olden, P. (2019). *Management of healthcare organizations: An introduction* (3rd Eds.). Health Administration Press, Chicago.
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16(1), 145–179. <https://doi.org/10.5465/amr.1991.4279002>
- Oliver, C. (1992). The antecedents of deinstitutionalization. *Organization Studies*, 13(4), 563–588. <https://doi.org/10.1177/017084069201300403>

- Ologeanu-Taddei, R., Guthrie, C., & Jensen, T. B. (2023). Digital transformation of professional healthcare practices: Fitness seeking across a rugged value landscape. *European Journal of Information Systems*, 32(3), 354–371. <https://doi.org/10.1080/0960085X.2023.2165978>
- Omar, A., & Elhaddadeh, R. (2016). Structuring institutionalization of digitally-enabled service transformation in public sector: Does actor or structure matters? *Proceedings of the Twenty-second Americas Conference on Information Systems (AMCIS)*, 1-7.
- Omrani, N., Rejeb, N., Maalaoui, A., Dabic, M., & Kraus, S. (2022). Drivers of digital transformation in SMEs. *IEEE Transactions on Engineering Management*, 71, 5030-5043. <https://doi.org/10.1109/TEM.2022.3215727>
- On-Piu Chan, J. (2020). Digital transformation in the era of big data and cloud computing. *International Journal of Intelligent Information Systems*, 9(3), 16-23. <https://doi.org/10.11648/J.IJIS.20200903.11>
- Onsongo, S., Kamotho, C., Rinke De Wit, T. F., & Lowrie, K. (2023). Experiences on the utility and barriers of telemedicine in healthcare delivery in Kenya. *International Journal of Telemedicine and Applications*, 2023. <https://doi.org/10.1155/2023/1487245>
- Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*, 3(3), 398–427. <https://doi.org/10.1287/orsc.3.3.398>
- Orlikowski, W. J. (1996). Improvising organizational transformation over time: A situated change perspective. *Information Systems Research*, 7(1), 63–92.
- Orlikowski, W. J., & Barley, S. (2001). Technology and institutions: What can research on information technology and research on organizations learn from each other? *MIS Quarterly*, 25(2), 145–165.
- Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: research approaches and assumptions. *Information Systems Research*, 2(1), 1–28. <https://doi.org/10.1287/isre.2.1.1>
- Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: Making sense of information technology in organizations. *ACM Transactions on Information Systems*, 12(2), 174–207. <https://doi.org/10.1145/196734.196745>
- Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: Desperately seeking the “IT” in IT research - A call to theorizing the IT artifact. *Information Systems Research*, 12(2), 121–134. <https://doi.org/10.1287/isre.12.2.121.9700>

- Orlikowski, W. J., & Scott, S. V. (2014). What happens when evaluation goes online? Exploring apparatuses of valuation in the travel sector. *Organization Science*, 25(3). <https://doi.org/10.1287/orsc.2013.0877>
- Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the Separation of Technology, Work and Organization. *The Academy of Management Annals*, 2(1). <https://doi.org/10.1080/19416520802211644>
- Osei-Owusu, A. (2015). The analysis of the Ghana telecom industry. *26th European Regional Conference of the International Telecommunications Society*, 1–21.
- Owusu-Oware, E., Boateng, R., & Effah, J. (2017). Institutional enablers and constraints of national biometric identification implementation in developing countries: The case of Ghana. *Proceedings of the Twenty-Third Americas Conference on Information Systems (AMCIS)*, 1–10.
- Owusu-Oware, E., Effah, J., & Boateng, R. (2018). Biometric technology for fighting fraud in national health insurance: Ghana's experience. *Proceedings of the Twenty-Fourth Americas Conference on Information Systems (AMCIS)*, 1–10.
- Palmer, D., Biggart, N., & Dick, B. (2008). Is the new institutionalism a theory? In R. Greenwood, C. Oliver, K. Sahlin, & R. Suddaby (Eds.), *The SAGE Handbook of Organizational Institutionalism*. Sage Publications, Los Angeles. <https://doi.org/10.4135/9781849200387.n32>
- Pankowska, M. (2016). A Motivation-Oriented Architecture Modelling for e-Healthcare Prosumption. In D. Vogel, X. Guo, H. Linger, C. Barry, M. Lang, & C. Schneider (Eds.), *Transforming Healthcare Through Information Systems* (pp. 33–48). Springer. <http://www.springer.com/series/11237>
- Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information and Management*, 52(2), 183–199. <https://doi.org/10.1016/j.im.2014.08.008>
- Park, Y. T., Yoon, J. S., Speedie, S. M., Yoon, H., & Lee, J. (2012). Health insurance claim review using information technologies. *Healthcare Informatics Research*, 18(3), 215–224. <https://doi.org/10.4258/hir.2012.18.3.215>
- Parker, C., Scott, S., & Geddes, A. (2019). Snowball Sampling. In P. Atkinson, S. Delamont, A. Cernat, J. Sakshaug, & R. Williams (Eds.), *SAGE Research Methods Foundations* (pp. 1–14). SAGE Publications Ltd. <https://doi.org/https://dx.doi.org/10.4135/9781526421036831710>
- Parto, S. (2005). Economic activity and institutions: Taking stock. *Journal of Economic Issues*, 39(1), 21–52. <https://doi.org/10.1080/00213624.2005.11506779>

- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th Eds.). SAGE Publications, Inc., Thousand Oaks, California.
- Persson, M., Grundstrom, C., & Giunti, G. (2019). Customer attitudes towards participation and health data sharing in the digital transformation of Finnish insurance. *32nd Bled EConference – Humanizing Technology for a Sustainable Society*, 1–14.
- Persson, M., Grundstrom, C., & Väyrynen, K. (2018). A case for participatory practices in the digital transformation of insurance. *BLED Proceedings*, 429–440. <https://doi.org/10.18690/978-961-286-170-4.29>
- Petter, S., Delone, W., & Mclean, E. R. (2012). The past, present, and future of “IS success.” *Journal of the Association for Information Systems*, 13(Special Issue), 341–362.
- Phillips, E., & Pugh, D. Salman. (2005). *How to get a PhD: A Handbook for Students and their Supervisors* (4th Eds.). Open University Press, Maidenhead.
- Phillips, N., Lawrence, T. B., & Hardy, C. (2004). Discourse and institutions. *Academy of Management Review*, 29(4), 636–652. <https://doi.org/10.5465/amr.2004.14497617>
- Piccinini, E. (2015). Transforming industrial business: The impact of digital transformation on automotive organizations. *Proceedings of the Thirty Sixth International Conference on Information Systems (ICIS)*, 1–20.
- Pinch, T. (2008). Technology and institutions: Living in a material world. *Theory and Society*, 37(5), 461–483. <https://doi.org/10.1007/S11186-008-9069-X>
- Pishdad, A., Koronios, A., Reich, B. H., & Geursen, G. (2014). Identifying gaps in institutional theory. *Proceedings of the 25th Australasian Conference on Information Systems*.
- Plantin, J. C., Lagoze, C., Edwards, P. N., & Sandvig, C. (2018). Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media and Society*, 20(1), 293–310. <https://doi.org/10.1177/1461444816661553>
- Ponelis, S. R. (2015). Using interpretive qualitative case studies for exploratory research in doctoral studies: A case of information systems research in small and medium enterprises. *International Journal of Doctoral Studies*, 10, 535–550.
- Powell, W. W. (1991). Expanding the Scope of Institutional Analysis. In W. W. Powell & P. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 183–203). University of Chicago Press, Chicago, IL.

- Powell, W. W., & DiMaggio, P. J. (1991). *The new institutionalism in organizational analysis* (W. W. Powell & P. J. DiMaggio, Eds.). University of Chicago Press. <https://doi.org/10.7208/chicago/9780226185941.001.0001>
- Presthus, W., & Munkvold, B. (2016). How to frame your contribution to knowledge? A guide for junior researchers in information systems. *Bibsys Open Journal Systems*, 24(1), 1–14.
- Prokofieva, M., & Miah, S. J. (2019). Blockchain in healthcare. *Australasian Journal of Information Systems* (Vol. 23). <https://nebula.org>
- Rajão, R. G. L., & Hayes, N. (2009). Conceptions of control and IT artefacts: An institutional account of the Amazon rainforest monitoring system. *Journal of Information Technology*, 24(4), 320–331. <https://doi.org/10.1057/jit.2009.12>
- Ramanath, R. (2009). Limits to institutional isomorphism: Examining internal processes in NGO–government interactions. *Nonprofit and Voluntary Sector Quarterly*, 38(1), 51–76. <https://doi.org/10.1177/0899764008315181>
- Rawat, S., Rawat, A., Kumar, D., & Sabitha, A. S. (2021). Application of machine learning and data visualization techniques for decision support in the insurance sector. *International Journal of Information Management Data Insights*, 1(2), 100012. <https://doi.org/https://doi.org/10.1016/j.jjime.2021.100012>
- Reis, J., Amorim, M., Melão, N., & Matos, P. (2018). Digital transformation: A literature review and guidelines for future research. In R. Alvaro, A. Hojjat, R. Paulo, & C. Sandra (Eds.), *Trends and Advances in Information Systems and Technologies* (Vol. 745, pp. 411–421). Springer International Publishing. https://doi.org/10.1007/978-3-319-77703-0_41
- Riasanow, T., Soto Setzke, D., Hoberg, P., & Krcmar, H. (2018). Clarifying the notion of digital transformation in is literature: A comparison of organizational change philosophies. *SSRN Electronic Journal*. <https://doi.org/10.2139/SSRN.3072318>
- Richardson, H., & Robinson, B. (2007). The mysterious case of the missing paradigm: A review of critical information systems research 1991-2001. *Information Systems Journal*, 17(3), 251–270. <https://doi.org/10.1111/j.1365-2575.2007.00230.x>
- Rittweger, R., Kronibus, A., & Weiß, P. (2020). Value co-creation as the core of service innovation: Impacts of a case study of a fully digitized health insurance company. In J. Spohrer & C. Leitner (Eds.), *Advances in the Human Side of Service Engineering* (pp. 86–92). Springer International Publishing. https://doi.org/10.1007/978-3-030-51057-2_13

- Robey, D. (1996). Research Commentary: Diversity in information systems research: Threat, promise, and responsibility. *Information Systems Research*, 7(4), 400–408. <https://doi.org/10.1287/ISRE.7.4.400>
- Rodriguez, J., & Piccoli, G. (2018). Uncovering the digital “x” phenomena in the IS field: A text analysis approach. *31st Bled EConference Digital Transformation*, 1–9.
- Romanelli, E., & Tushman, M. L. (1994). Organizational transformation as punctuated equilibrium: An empirical test. *Academy of Management Journal*, 37(5). <https://doi.org/10.5465/256669>
- Ryu, H. S., & Lee, J. N. (2018). Understanding the role of technology in service innovation: Comparison of three theoretical perspectives. *Information and Management*, 55(3), 294–307. <https://doi.org/10.1016/j.im.2017.08.003>
- Safadi, H., & Faraj, S. (2011). IT in healthcare: An integrative study of organizational change. *Proceedings of the Seventeenth Americas Conference on Information Systems (AMCIS)*, 1–11. <https://doi.org/10.1139/X08-129>
- Sahay, S., Nielsen, P., & Aanestad, M. (2019). Institutionalizing information systems for universal health coverage in primary healthcare and the need for new forms of institutional work. *Communications of the Association for Information Systems*, 44(3), 62–80. <https://doi.org/10.1111/poms.12938>
- Sahay, S., & Sæbø, J. I. (2010). Interplay of institutional logics and implications for deinstitutionalization: Case study of HMIS implementation in Tajikistan. *Information Technologies & International Development*, 6(3), 19–32.
- Sajan, V. (2023). Role of information technology in insurance: An overview. In T. Hemalatha & A. Saravanakumar (Eds.), *Digitalization of the Insurance Sector* (1st ed., pp. 19–21). Shanlax Publications, India.
- Sakyi, E. K., Atinga, R. A., & Adzei, F. A. (2012). Managerial problems of hospitals under Ghana’s National Health Insurance Scheme. In *Clinical Governance: An International Journal* (Vol. 17, Issue 3, pp. 178–190). <https://doi.org/10.1108/14777271211251291>
- Salo, M., Makkonen, M., & Hekkala, R. (2020). How information technology matters in societal change an affordance-based institutional logics perspective. *MIS Quarterly* 44(3), 1143–1176. <https://doi.org/10.25300/MISQ/2020/14193>
- Sandberg, J., Holmström, J., & Lyytinen, K. (2020). Digitization and phase transitions in platform organizing logics: Evidence from the process automation industry. *MIS Quarterly* 44(1), 129–153. <https://doi.org/10.25300/MISQ/2020/14520>
- Sawyer, S., & Jarrahi, M. H. (2014). Sociotechnical approaches to the study of information systems. In H. Topi & A. Tucker (Eds.), *Computing Handbook Information Systems*

- and Information Technology* (3rd eds., pp. 5–27). CRC Press/Taylor and Francis, Boca Raton. <https://doi.org/10.1201/b16768>
- Schallmo, D. R. A., & Williams, C. A. (2018). *Digital transformation now! Guiding the successful digitalization of your business model*. Springer, Cham, Switzerland.
- Schneider, D. (2017). Rewarding prosociality on noncommercial online sharing platforms. *Proceedings of the Twenty-Fifth European Conference on Information Systems (ECIS)*, 2269–2284. http://aisel.aisnet.org/ecis2017_rp/144
- Schreieck, M., Wiesche, M., & Krcmar, H. (2022). From product platform ecosystem to innovation platform ecosystem: An institutional perspective on the governance of ecosystem transformations. *Journal of the Association for Information Systems*, 23(6), 1354–1385. <https://doi.org/10.17705/1jais.00764>
- Schuh, G., Rozenfeld, H., Assmus, D., & Zancul, E. (2008). Process oriented framework to support PLM implementation. *Computers in Industry*, 59(2–3), 210–218. <https://doi.org/10.1016/j.compind.2007.06.015>
- Schultz, E., Metcalfe, M., Gray, B., Dunford, C., Guiteras, R., Kazianga, H., & Szott, A. (2013). *The impact of health insurance education on enrollment of microfinance institution clients in the Ghana national health insurance scheme, Northern Region of Ghana: Vol. May 2013 (Micro Insurance Innovation Facility, Issue 33)*.
- Schwalb, P., Klecun, E., & Klecun, E. (2019). The role of contradictions and norms in the design and use of telemedicine: Healthcare professionals' perspective. *AIS Transactions on Human-Computer Interaction*, 11(3), 117–135. <https://doi.org/10.17705/1thci.00116>
- Schwartz-Shea, P., & Yanow, D. (2012). Interpretive research design-concepts and processes. In D. Yanow & P. Schwartz-Shea (Eds.), *Routledge* (1st Edition). Routledge. <https://doi.org/10.1002/9781118836477.ch3>
- Scott, R. (2014). *Institutions and organizations: Ideas interests and identities* (4th Eds.). SAGE Publications, Inc., Los Angeles. <https://doi.org/10.1017/CBO9781107415324.004>
- Scott, R. (1987). The adolescence of institutional theory. *Administrative Science Quarterly*, 32(4), 493–511.
- Scott, R. (2001). *Institutions and organisations* (2nd Eds.). Sage Publications, Thousand Oaks, Calif.
- Scott, R. (2005). Institutional theory: Contributing to a theoretical research program. In K. Smith & M. Hitt (Eds.), *Great minds in management: The process of theory development*. Oxford University Press, Oxford.

- Scott, Richard., & Meyer, J. (1994). *Institutional environments and organizations: Structural complexity and individualism*. SAGE Publications, Thousand Oaks, Calif.
- Scott, W. R. (1995). *Institutions and organizations* (P. Frost, A. Huff, B. Schneider, & S. Taylor, Eds.). Sage Publications, London
- Sebastian, I. M., Moloney, K. G., Ross, J. W., Fonstad, N. O., Beath, C., & Mocker, M. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive*, 16(3). <https://doi.org/10.4324/9780429286797-6>
- Selimović, J., Pilav-Velić, A., & Krndžija, L. (2021). Digital workplace transformation in the financial service sector: Investigating the relationship between employees' expectations and intentions. *Technology in Society*, 66. <https://doi.org/10.1016/j.techsoc.2021.101640>
- Senyo, P. K., Effah, J., & Addae, E. (2016). Preliminary insight into cloud computing adoption in a developing country. *Journal of Enterprise Information Management*, 29(4), 505–524. <https://doi.org/10.1108/JEIM-09-2014-0094>
- Senyo, P. K., Karanasios, S., Komla Agbloyor, E., & Choudrie, J. (2024). Government-Led digital transformation in FinTech ecosystems. *Journal of Strategic Information Systems*, 33(3). <https://doi.org/10.1016/j.jsis.2024.101849>
- Seo, M. G., & Creed, W. E. D. (2002). Institutional contradictions, praxis, and institutional change: A dialectical perspective. *Academy of Management Review*, 27(2), 222–247. <https://doi.org/10.5465/AMR.2002.6588004>
- Serrano, A., Garcia-Guzman, J., Xydopoulos, G., & Tarhini, A. (2020). Analysis of barriers to the deployment of health information systems: A stakeholder perspective. *Information Systems Frontiers*, 22(2), 455–474. <https://doi.org/10.1007/s10796-018-9869-0>
- Shenton, A. K., & Hayter, S. (2004). Strategies for gaining access to organisations and informants in qualitative studies. *Education for Information*, 22(3), 223–231. <https://doi.org/10.3233/EFI-2004-223-404>
- Sherer, S. A. (2010). Information systems and healthcare XXXIII: An institutional theory perspective on physician adoption of electronic health records. *Communications of the Association for Information Systems*, 26(1), 127–140. <https://doi.org/10.17705/1CAIS.02607>
- Sherer, S. A., Meyerhoefer, C. D., & Peng, L. (2016). Applying institutional theory to the adoption of electronic health records in the U.S. *Information & Management*, 53(5), 570–580. <https://doi.org/10.1016/j.im.2016.01.002>

- Sheshasaayee, A., & Thomas, S. S. (2018). A purview of the impact of supervised learning methodologies on health insurance fraud detection. *Advances in Intelligent Systems and Computing*, 672, 978–984. https://doi.org/10.1007/978-981-10-7512-4_98
- Siddiquee, N. A. (2016). E-government and transformation of service delivery in developing countries: The Bangladesh experience and lessons. *Transforming Government: People, Process and Policy*, 10(3), 368–390. <https://doi.org/10.1108/TG-09-2015-0039>
- Sidorova, A., Evangelopoulos, N., Valacich, J. S., & Ramakrishnan, T. (2008). Uncovering the intellectual core of the information systems discipline. *MIS Quarterly*, 32(3), 467–482. <https://doi.org/10.2307/25148852>
- Silvello, A. (2018). How connected insurance is reshaping the health insurance industry. *Studies in Health Technology and Informatics*, 251, 179–182. <https://doi.org/10.3233/978-1-61499-880-8-179>
- Silver, M., & Markus, M. (2013). Conceptualizing the sociotechnical (ST) artifact. *Systems, Signs & Actions*, 7(1), 82–89.
- Singh, V., Udmale, S. S., Pandey, A. K., & Singh, S. K. (2021). IoT for health insurance companies. In *IoT-Based Data Analytics for the Healthcare Industry* (pp. 139–147). Elsevier Inc. <https://doi.org/10.1016/b978-0-12-821472-5.00008-9>
- Skare, M., & Riberio Soriano, D. (2021). How globalization is changing digital technology adoption: An international perspective. *Journal of Innovation and Knowledge*, 6(4), 222–233. <https://doi.org/10.1016/j.jik.2021.04.001>
- Snow, D. (2004). Thoughts on alternative pathways to theoretical development: Theory generation, extension, and refinement. In *Workshop on scientific foundations of qualitative research* (pp. 133-136). Arlington, VA: National Science Foundation.
- Sohn, M., & Jung, M. (2016). Effects of public and private health insurance on medical service utilization in the National Health Insurance System: National panel study in the Republic of Korea. *BMC Health Services Research*, 16(1). <https://doi.org/10.1186/S12913-016-1746-2>
- Solarino, A. M., & Aguinis, H. (2021). Challenges and best-practice recommendations for designing and conducting interviews with elite informants. *Journal of Management Studies*, 58(3), 649–672. <https://doi.org/10.1111/joms.12620>
- Soto Setzke, D., Riasanow, T., Böhm, M., & Krcmar, H. (2021). Pathways to digital service innovation: The role of digital transformation strategies in established organizations. *Information Systems Frontiers*, 25(3), 1017-1037. <https://doi.org/10.1007/s10796-021-10112-0>

- Sowah, R. A., Kuuboore, M., Ofoli, A., Kwofie, S., Asiedu, L., Koumadi, K. M., & Apeadu, K. O. (2019). Decision support system (DSS) for fraud detection in health insurance claims using genetic support vector machines (GSVMs). *Journal of Engineering*, 1–20. <https://doi.org/10.1155/2019/1432597>
- Spithoven, A. (2019). Similarities and dissimilarities between original institutional economics and new institutional economics. *Journal of Economic Issues*, 53(2), 440–447. <https://doi.org/10.1080/00213624.2019.1594532>
- Street, A. (1994). *Purchaser/provider and managed competition: Importing chaos?* (Vol. 36). West Heidelberg, Victoria, Australia: National Centre for Health Program Evaluation.
- Suchman, L. (2018). Accrediting private providers with National Health Insurance to better serve low-income populations in Kenya and Ghana: A qualitative study. *International Journal for Equity in Health*, 17(1), 1–18. <https://doi.org/10.1186/s12939-018-0893-y>
- Suchman, M. (2003). The Contract as Social Artifact. *Law & Society Review*, 37(1), 91–142.
- Suchman, M., & Edelman, L. (1996). Legal rational myths: The new institutionalism and the law and society tradition. *Law and Social Inquiry*, 21(4), 903–941. <https://doi.org/10.1111/j.1747-4469.1996.tb00100.x>
- Sukamolson, S. (2007). Fundamentals of quantitative research. *Language Institute Chulalongkorn University*, 1(3), 1–20.
- Suleymanova, A. (2013). Empowering patients: How mobile apps are influencing the future of health plan customer loyalty. *Health Management Technology*, 34(2).
- Sun, J., & Qu, Z. (2015). Understanding health information technology adoption: A synthesis of literature from an activity perspective. *Information Systems Frontiers*, 17(5), 1177–1190. <https://doi.org/10.1007/s10796-014-9497-2>
- Sun, L., & Yue, C. (2018). Inter-organizational information technology and joint competitive advantages: An integrative model of co-creating IT value. *Wuhan International Conference on E-Business*, 1–9.
- Svejvig, P. (2009). Literature review of enterprise systems research using institutional theory: Towards a conceptual model. *Working Paper, School of Business, Aarhus University*, 01, 1–46.
- Svensson, A., & Hult, H. V. (2022). Leading and organizing workplace learning in healthcare digital transformation: The proposal of a conceptual model. *8th International Workshop on Socio-Technical Perspective in IS Development*, 1–8.

- Tan, J., Turel, O., & Dohan, M. (2017). A hybrid mining approach to facilitate health insurance decision: Case study of non-traditional data mining applications in Taiwan NHI databases. *Hawaii International Conference on System Sciences*, 3253–3262. <https://doi.org/10.24251/hicss.2017.394>
- Tang, S., Tao, J., & Bekedam, H. (2012). Controlling cost escalation of healthcare: Making universal health coverage sustainable in China. *BMC Public Health*, 12(SUPPL. 1), 1–13. <https://doi.org/10.1186/1471-2458-12-S1-S8>
- Tangi, L., Janssen, M., Benedetti, M., & Noci, G. (2020). Barriers and Drivers of Digital Transformation in Public Organizations: Results from a Survey in the Netherlands. In: Viale Pereira, G., et al. *Electronic Government. EGOV 2020. Lecture Notes in Computer Science* (pp 42–56), vol 12219. Springer, Cham. https://doi.org/10.1007/978-3-030-57599-1_4
- Tarafdar, M., & Davison, R. (2018). Research in Information Systems: Intra-Disciplinary and Inter-Disciplinary Approaches. *Journal of the Association for Information Systems*, 19(06), 523–551. <https://doi.org/10.17705/1jais.00500>
- Tassabehji, R., Hackney, R., & Maruyama, T. (2019). Evaluating digital public services: A contingency value approach within three exemplar developing countries. *Information Technology and People*, 32(4), 1021–1043. <https://doi.org/10.1108/ITP-08-2017-0260>
- Taylor, L. C. (2018). Reassessing and refining theory in qualitative accounting research: An illustrative account of theorizing. *Qualitative Research in Accounting & Management*, 15(4), 510-534. <https://doi.org/10.1108/QRAM-09-2017-0090>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509–533. <https://doi.org/10.1093/0199248540.003.0013>
- Teo, T. S. H., Kim, S. L., & Jiang, L. (2020). E-learning implementation in South Korea: Integrating effectiveness and legitimacy perspectives. *Information Systems Frontiers*, 22(2), 511–528. <https://doi.org/10.1007/s10796-018-9874-3>
- Thapa, D., & Sein, M. K. (2018). Trajectory of affordances: insights from a case of telemedicine in Nepal. *Information Systems Journal*, 28(5), 796–817. <https://doi.org/10.1111/isj.12160>
- Thenmozhi, M., Dhanalakshmi, R., Geetha, S., & Valli, R. (2021). Implementing blockchain technologies for health insurance claim processing in hospitals. *Materials Today: Proceedings*. <https://doi.org/10.1016/j.matpr.2021.02.776>
- Tolbert, P. S., & Zucker, L. G. (1983). Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935. *Administrative Science Quarterly*, 28(1), 22. <https://doi.org/10.2307/2392383>

- Truex, D., Holmström, J., & Keil, M. (2006). Theorizing in information systems research: A reflexive analysis of the adaptation of theory in information systems research. *Journal of the Association for Information Systems*, 7(12), 797–821. <https://doi.org/10.17705/1jais.00109>
- Tsoukas, H. (1989). The validity of idiographic research explanations. *Academy of Management Review*, 14(4), 551–561. <https://doi.org/10.5465/amr.1989.4308386>
- Udovita, P. V. M. V. D. (2020). Conceptual review on dimensions of digital transformation in modern era. *International Journal of Scientific and Research Publications (IJSRP)*, 10(2), 520–529. <https://doi.org/10.29322/ijsrp.10.02.2020.p9873>
- Van De Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. *Academy of Management Review*, 20(3), 510–540.
- Van der Blonk, H. (2003). Writing case studies in information systems research. *Journal of Information Technology*, 18(1), 45–52. <https://doi.org/10.1080/0268396031000077440>
- Vassilakopoulou, & Marmaras, N. (2013). Transitions in the making: Introducing e-health platforms in Greece. *European Conference on Information Systems*, 1–13. <http://www.staff.science.uu.nl/~Vlaan107/ecis/files/ECIS2013-1018-paper.pdf>.
- Vassilakopoulou, P., Grisot, M., Jensen, T., Sellberg, N., Eltes, J., Thorseng, A., & Aanestad, M. (2017). Building national ehealth platforms: The challenge of inclusiveness. *International Conference on Information Systems*, 1–16.
- Vatn, A. (2005). *Institutions and the environment*. Edward Elgar Publishing, Cheltenham.
- Veit, D., Clemons, E., Benlian, A., Buxmann, P., Hess, T., Kundisch, D., Leimeister, J. M., Loos, P., & Spann, M. (2014). Business models: An information systems research agenda. *Business and Information Systems Engineering*, 6(1), 45–53. <https://doi.org/10.1007/s12599-013-0308-y>
- Venkatraman, S., Sundarraj, R. P., & Seethamraju, R. (2022). Exploring health-analytics adoption in Indian private healthcare organizations: An institutional-theoretic perspective. *Information and Organization*, 32(3). <https://doi.org/10.1016/j.infoandorg.2022.100430>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/https://doi.org/10.1016/j.jsis.2019.01.003>
- Wakunuma, K. J., & Stahl, B. C. (2014). Tomorrow's ethics and today's response: An investigation into the ways information systems professionals perceive and address

- emerging ethical issues. *Information Systems Frontiers* (Vol. 16, pp. 383–397). <https://doi.org/10.1007/s10796-014-9490-9>
- Walsham, G. (1993). *Interpreting information systems in organizations* (1st ed.). John Wiley and Sons, Chichester.
- Walsham, G. (1995a). Interpretive case studies in IS research: Nature and method. *European Journal of Information Systems*, 4(2), 74–81. <https://doi.org/10.1057/ejis.1995.9>
- Walsham, G. (1995b). The emergence of interpretivism in IS research. *Information Systems Research*, 6(4), 376–394. <https://doi.org/10.1287/isre.6.4.376>
- Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, 15(3), 320–330. <https://doi.org/10.1057/palgrave.ejis.3000589>
- Walsham, G. (2017). ICT4D research: Reflections on history and future agenda. *Information Technology for Development*, 23(1), 18–41. <https://doi.org/10.1080/02681102.2016.1246406>
- Walsham, G. (2020). Health information systems in developing countries: Some reflections on information for action. *Information Technology for Development*, 26(1), 194–200. <https://doi.org/10.1080/02681102.2019.1586632>
- Wang, K., Li, B., Tian, T., Zakuan, N., & Rani, P. (2023). Evaluate the drivers for digital transformation in higher education institutions in the era of industry 4.0 based on decision-making method. *Journal of Innovation and Knowledge*, 8(3). <https://doi.org/10.1016/J.JIK.2023.100364>
- Wang, Y., Kung, L. A., Wang, W. Y. C., & Cegielski, C. G. (2018). An integrated big data analytics-enabled transformation model: Application to health care. *Information and Management*, 55(1), 64–79. <https://doi.org/10.1016/j.im.2017.04.001>
- Waring, T., & Casey, R. (2014). Towards a critical approach to benefits realisation of information systems in the NHS. *Proceedings of the UK Academy for Information Systems*.
- Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326–349. <https://doi.org/10.1016/J.LRP.2018.12.001>
- Warren, R. L. (1967). The interorganizational field as a focus for investigation. *Administrative Science Quarterly*, 12(3), 396. <https://doi.org/10.2307/2391312>

- Waterson, P. (2014). Health information technology and sociotechnical systems: A progress report on recent developments within the UK National Health Service (NHS). *Applied Ergonomics*, 45(2 Part A), 150–161. <https://doi.org/10.1016/j.apergo.2013.07.004>
- Watson, R. T., & Webster, J. (2020). Analysing the past to prepare for the future: Writing a literature review a roadmap for release 2.0. *Journal of Decision Systems*, 29(3), 129–147. <https://doi.org/10.1080/12460125.2020.1798591>
- Weber, M. (1978). *Economy and society: An outline of interpretive sociology* (G. Roth & C. Wittich, Eds.). University of California Press.
- Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly* 26(2), 13-23.
- Weick, K. E. (1995). *Sensemaking in organizations*. Sage Publications, Thousand Oaks.
- Welch, C. (2017). A Socio-Technical Approach To Sustainability in Organizations: An Exploratory Study. *Proceedings of the European Conference on Information Systems, 2017*, 2567–2577.
- Wessel, L., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Jensen, T. B. (2021). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for Information Systems*, 22(1), 102–129. <https://doi.org/10.17705/1JAIS.00655>
- WHO. (2007). *Everybody's business -strengthening health systems to improve health outcomes: WHO's framework for action* (pp. 1–56). World Health Organization.
- Wilkinson, M., Gray, A. L., Wiseman, R., Kredt, T., Cohen, K., Miot, J., Blecher, M., Ruff, P., Johnson, Y., Poluta, M., McGee, S., Leong, T. D., Brand, M., Suleman, F., Maramba, E., Blockman, M., Jugathpal, J., Cleary, S., Nematswerani, N., ... Wilkinson, T. (2022). Health Technology Assessment in Support of National Health Insurance in South Africa. In *International Journal of Technology Assessment in Health Care* (Vol. 38, Issue 1). Cambridge University Press. <https://doi.org/10.1017/S0266462322000265>
- Willcocks, L. P., & Mingers, J. (2004). Social Theory and Philosophy for Information Systems. *John Wiley & Sons*.
- Williams, R., & Edge, D. (1996). The social shaping of technology. *Research Policy*, 25, 865–899. <https://doi.org/10.1017/9781316691489.006>
- Wit, B. de. (2020). *Strategy: An International Perspective* (7th Edition). Cengage Learning EMEA.

- Wooten, M., & Hoffman, A. J. (2008). Organizational fields: Past, present and future. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE Handbook of Organizational Institutionalism* (pp. 129–148). SAGE Publications Ltd. <https://doi.org/10.4135/9781849200387.n5>
- World Bank. (2019). *High-performance health financing for universal health coverage: Driving sustainable, inclusive growth in the 21st century*. <https://doi.org/10.1596/31930>
- World Bank Group. (2019). *Ghana Digital Economy Diagnostic*. World Bank, Washington, DC. <http://hdl.handle.net/10986/34366>.
- Wu, H., & LaRue, E. (2015). Barriers and facilitators of health information exchange (HIE) adoption in the United States. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2942–2949. <https://doi.org/10.1109/HICSS.2015.356>
- Wu, J., Qiao, J., Nicholas, S., Liu, Y., & Maitland, E. (2022). The challenge of healthcare big data to China's commercial health insurance industry: Evaluation and recommendations. *BMC Health Services Research*, 22(1). <https://doi.org/10.1186/s12913-022-08574-2>
- Yan, T. C., Schulte, P., & Lee Kuo Chuen, D. (2018). Insurtech and fintech: Banking and insurance enablement. In *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1: Cryptocurrency, FinTech, InsurTech, and Regulation, Volume 1*, 249–281. <https://doi.org/10.1016/B978-0-12-810441-5.00011-7>
- Yaraghi, N., Gopal, R. D., & Ramesh, R. (2019). Doctors' orders or patients' preferences? Examining the role of physicians in patients' privacy decisions on health information exchange platforms. *Journal of the Association for Information Systems*, 20(7), 928–952. <https://doi.org/10.17705/1jais.00557>
- Yaya, S., & Sanogo, A. N. (2019). Universal health coverage and facilitation of equitable access to care in Africa: A systematic review. *Frontiers in Public Health*, 7(APR). <https://doi.org/10.3389/FPUBH.2019.00102>
- Yin, R. (2018). *Case study research and applications: Design and methods*. (6th Eds.). SAGE Publications, Sage, Los Angeles.
- Yin, R. K. (2003). *Case study research: Design and methods* (3rd Eds.). Sage Publications, Los Angeles.
- Yoo, Y., Boland, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, 23(5), 1398–1408. <https://doi.org/10.1287/orsc.1120.0771>

- Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). Research commentary: The new organizing logic of digital innovation: An agenda for information systems research. *Information Systems Research*, 21(4), 724–735. <https://doi.org/10.1287/isre.1100.0322>
- Yoon, J., Lee, J. D., & Hwang, S. (2022). Episodic change: A new approach to identifying industrial transition. *Technovation*, 115. <https://doi.org/10.1016/j.technovation.2022.102474>
- Yu, Y., Yan, M., & Wang, Q.-H. (2016). From offline to online: How health insurance policies drive the demand for online healthcare service? *Proceedings of the Twentieth Pacific Asia Conference on Information Systems*, 1–14.
- Zaato, J. (2024). Pockets of Innovation in the Public Sector: Digitalization as a Driver of Change and Innovation in Ghana's Public Sector. *Ghana Social Science Journal*, 21(1), 58–74.
- Zahid, A., Hasan, M., & Nahid, M. H. (2019). E-health insurance management system: Exploratory research. *AIUB Journal of Business and Economics*, 16(1), 88–101.
- Zheng, D., Chen, J., Huang, L., & Zhang, C. (2013). E-government adoption in public administration organizations: Integrating institutional theory perspective and resource-based view. *European Journal of Information Systems*, 22(2), 221–234. <https://doi.org/10.1057/ejis.2012.28>
- Zhou, S., He, J., Yang, H., Chen, D., & Zhang, R. (2020). Big data-driven abnormal behavior detection in healthcare based on association rules. *IEEE Access*, 8, 129002–129011. <https://doi.org/10.1109/ACCESS.2020.3009006>
- Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management*, 37(4), 1019–1042. <https://doi.org/10.1177/0149206311406265>
- Zuboff, S. (1996). The emperor's new information economy. In W. J. Orlikowski, G. Walsham, M. R. Jones, & J. I. Degross (Eds.), *Information Technology and Changes in Organizational Work: Proceedings of the IFIP WG8.2 working conference on information technology and changes in organizational work, December 1995* (pp. 13–17). Springer US. https://doi.org/10.1007/978-0-387-34872-8_2

APPENDICES

APPENDIX A: PUBLICATIONS FROM THE STUDY

Conference Publications:

Renner-Micah, A., Effah, J., & Boateng, R. (2019). Understanding Digital Innovation in National Health Insurance : The Case of Ghana. *In Proceedings of the Twenty-Fifth Americas Conference Information Systems*, (pp. 1–10). Cancún, Mexico: AIS Electronic Library.

Renner-Micah, A., Effah, J., & Boateng, R. (2020). Service Innovation Through Platformisation of a Private Health Insurance: An Activity Theory Perspective of the Case of Ghana. *In Proceedings of the Twenty-Eighth European Conference on Information Systems (ECIS)*, (pp.1–15). Marrakech, Morocco: AIS Electronic Library.

Renner-Micah, A., Effah, J., & Boateng, R. (2020). Institutionalisation of Health Insurance Digital Claims Platform. *In Proceedings of the Twenty-Sixth Americas Conference Information Systems*, (pp. 1–10). Salt Lake City, USA: AIS Electronic Library.

Renner-Micah, A., Effah, J., & Boateng, R. (2023). The Role of Contradictions and Norms in Health Insurance Claims Platformisation: An Inter-Organisational Perspective. *In Proceedings of the UK Academy for Information Systems Conference*, (pp. 1–26). University of Kent, United Kingdom: AIS Electronic Library.

Renner-Micah, A., Effah, J., & Boateng, R. (2023). Understanding Business Process Transformation: An Institutionalisation Perspective. *In Proceedings of the UK Academy for Information Systems Conference*, (pp. 1–22). University of Kent, United Kingdom: AIS Electronic Library.

Book Chapter:

Renner-Micah, A., Effah, J., & Boateng, R. (2020). Institutional Effects on National Health Insurance Digital Platform Development and Use : The Case of Ghana. In M. Hattingh, M. Mathee, H. Smuts, I. Pappas, Y. K. Dwivedi, & M. Mäntymäki (Eds.), *Responsible Design, Implementation and Use of Information and Communication Technology* (pp. 28–38). Springer International Publishing. <https://doi.org/10.1007/978-3-030-45002-1>

APPENDIX B: SUMMARY OF CONTRIBUTION TO KNOWLEDGE

B.1 Contribution to Theory

The Literature (What we know)	Gap (What we do not know)	What and why we need to know	Contribution (What we now know)
Institutional theory has been utilised to analyse IT artefacts within their institutional setting, providing insights into adoption patterns, resistance, and the impact of IT on organisational behaviour (W. Currie, 2009; Klöcker et al., 2014).	A multi-level process-oriented perspective which encompasses sociotechnical interaction between institutional elements, human agency, and the organisational field	Health insurance is a critical service domain whose complexity mainly arises from the fact that it has to deal with people's quest for health and wellbeing (Faggini et al., 2018). In sub-Saharan Africa (SSA), for example, operational challenges have been identified as impeding the successful evolution of public health insurance. In this study, digital transformation is defined as the process of utilising digital technologies to significantly enhance health insurance processes and services. This involves the integration of information, communication, and computing technologies with the aim of increasing accessibility, efficiency, and effectiveness across the entire health insurance system. It also considers the sociotechnical interactions within the organisational and institutional environment, and the complex interplay between technological	Interpreted through an institutional lens, the study uncovers a “social logic” and a “market logic” as meaning frames underpinning why a public and private health insurance organisation in a developing country would digitally transform health insurance services. This study enhances institutional theory by incorporating technology as a fourth pillar, in addition to regulative, normative, and cultural-cognitive pillars. This extension provides a detailed framework for examining the role of digital technologies within institutional settings. This study decouples the institutionalisation process culminating in five enactment phases or SCOPE. This revision serves as a reconceptualisation of digital transformation in health insurance through the SCOPE

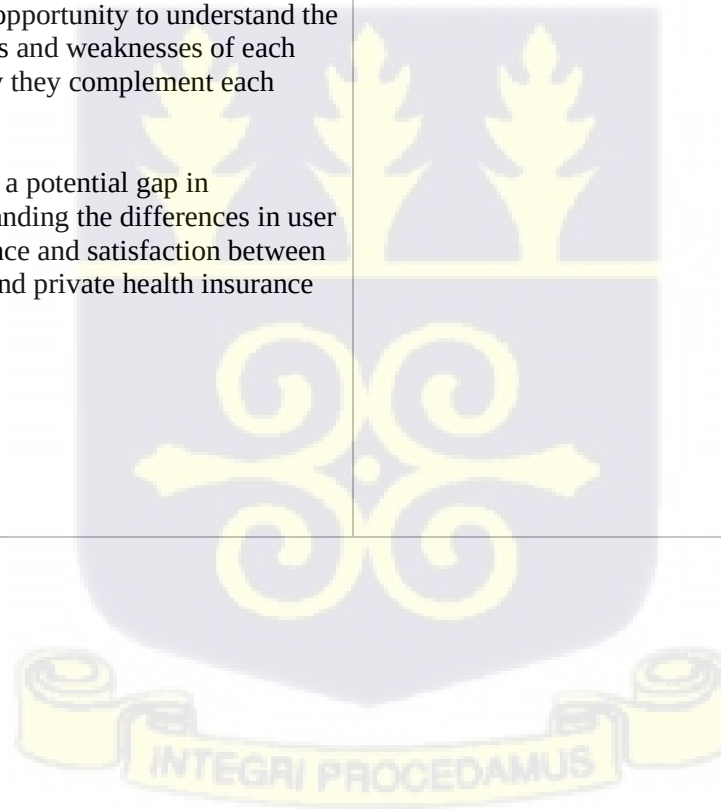
		adoption, organisational change, and stakeholder engagement.	(Scrutinize, Clarify, Organize, Perform, Enhance) phases. This provides a structured approach to understanding how digital transformation initiatives are implemented within the complex interplay of institutional elements, offering theoretical insights into the process-oriented nature of digital transformation



B.2 Contribution to Research

The Literature (What we know)	Gap (What we do not know)	What and why we need to know	Contribution (What we now know)
Studies related to the development, adoption, and use of digital technologies and digital transformation in health insurance have remained predominantly non-IS (Nayak et al., 2019).	There is a noticeable lack of IS-specific frameworks and models designed to understand and assess the digital transformation processes in health insurance.	IS-specific frameworks and models can provide structured guidance for the implementation and management of digital technologies in health insurance. This includes identifying key factors for successful development, implementation, and use.	This study extends research on health insurance by introducing IS-specific frameworks based on a technology pillar and a SCOPE framework that enhances understanding of the digital transformation process and outcomes in health insurance.
In terms of domain specificity, a blurred distinction exists between healthcare and health insurance, with health insurance attracting limited to no research attention (Furstenau & Auschra, 2016; Vassilakopoulou et al., 2017).	There is an identified need for research to distinctly separate the domains of healthcare and health insurance. While both are intertwined, their impacts, challenges, and solutions vary. Understanding the differences and interrelations between healthcare services and health insurance is crucial for effective policy and practice.	By distinguishing the roles and impacts of healthcare and health insurance, researchers can develop targeted strategies to address systemic inefficiencies, reduce costs, and improve the overall quality of care.	The thesis comprehensively addresses the research gap by examining the distinct domains of healthcare and health insurance through the lens of digital transformation in Ghana's public and private sectors. It showcases how technological advancements have been leveraged to enhance operations, member experiences, and administrative efficiency in both sectors. It highlights improvements in service delivery, operational efficiencies, data management, and member engagement, significantly contributing to our understanding of the impacts and interrelations between healthcare services and health insurance in a digitally evolving landscape.

Information systems' limited exploration of the subject has also been atheoretical and on adoption at the individual unit of analysis. (Dutt, 2020; Meessen et al., 2016)	There is a lack of theoretical grounding that could explain the phenomena observed. The absence of theoretical bases means that current research may not sufficiently capture the complexities or nuances of how information systems can influence, or be influenced by, the health insurance sector.	Theoretical models help explain why and how information systems influence health insurance outcomes, offering insights into user behaviour, system implementation, and organizational impact.	The thesis addresses the identified gap in research on health insurance concerning the lack of theoretical grounding by employing institutional theory to examine the phenomena observed in the digital transformation of health insurance services in Ghana.
IS studies on health insurance have focused on either private health insurance (Marfo et al., 2017b) or public health insurance (Hammouri et al., 2021). Studies of public and private health insurance in a single study are limited.	There is a lack of studies that directly compare and contrast public and private health insurance systems within the same study, signifying a missed opportunity to understand the strengths and weaknesses of each and how they complement each other. There is a potential gap in understanding the differences in user experience and satisfaction between public and private health insurance holders.	Studies that include both perspectives could provide valuable insights into what logic informs digital transformation.	The thesis addresses the research gap in the lack of studies directly comparing and contrasting public and private health insurance systems by providing a comprehensive analysis of the digital transformation processes within both the National Health Insurance Scheme (NHIS) and Alpha Private Health Insurance (APHI) in Ghana. It explores the environments before, during, and after digital transformation, employing the institutional theory framework to examine the nature of digital transformation, the interplay between institutional elements, and the outcomes of such transformations in both settings.



B.3 Contribution to Practice

Findings	Implications for Practice
A developing country would digitally transform health insurance services to 1) ensure operational efficiency and transformation, 2) improve service delivery and 3) data-driven decision-making. However, from an institutional perspective, interpreted through the lens of how public and private institutional settings conceive, implement, and adapt to change, two different meaning frames underpin this outcome. For public health insurance, these are: 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism. For private health insurance, these are: 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 3) innovation and differentiation.	The findings suggest distinct strategic implications for practitioners in both public and private health insurance sectors in developing countries. Public health insurance providers should prioritize aligning digital transformation efforts with regulatory standards and social norms, focusing on public good and equity, and observing institutional isomorphism to ensure that transformations not only meet legal requirements but also address societal health equity objectives. On the other hand, private insurers should leverage digital transformation for gaining competitive advantage, targeting market expansion and segmentation, managing risks and, reducing costs, and fostering innovation and differentiation. This dual approach underscores the need for a balanced strategy that combines regulatory compliance and social responsibility in public insurance with competitive, market-driven tactics in private insurance. Practically, it means investing in digital technologies that enhance operational efficiency, service delivery, and data-driven decision-making, tailored to each sector's unique goals and challenges.
This study shows a decoupling of deinstitutionalisation and reinstitutionalisation culminating in five enactment phases or SCOPE. These are; 1) Scrutinise phase: assessment of the existing institutional environment 2) Clarify phase: identification of issues and initiation of deinstitutionalisation 3) Organise: strategy and planning for digital transformation 4) Perform: implementation and reinstitutionalisation 5) Enhance: ongoing adjustments	The SCOPE model outlines a structured approach to digital transformation in health insurance, emphasising the need for comprehensive evaluation, strategic deinstitutionalisation, and thoughtful reinstitutionalisation. Practitioners should adopt this phased methodology to effectively navigate the complexities of updating traditional systems, ensuring that each step from scrutiny to enhancement is meticulously planned and executed to optimise outcomes and adapt to evolving challenges and opportunities.
The study shows a co-shaping relationship between institutional elements and digital transformation with the influence of normative, regulative, and cultural-cognitive institutional elements imposing different levels of impact.	For practice, the study's revelation of a co-shaping relationship suggests practitioners in digital transformation initiatives should strategically engage with normative, regulative, and cultural-cognitive institutional elements. Acknowledging their varied impacts enables a more nuanced approach to change, ensuring digital strategies are aligned with institutional realities to foster acceptance, compliance, and effective integration into existing systems.

The study shows institutions as a major driver of digital transformation and the emergence of a fourth pillar of institutions, i.e., technology.

For practice, the identification of technology as a fourth institutional pillar underscores the critical role of technological integration in driving digital transformation. Practitioners must prioritize technological innovation, aligning it with traditional institutional frameworks to enhance operational effectiveness and service delivery within their organizations.



B.4 Contribution to Policy

Findings	Implications for Policy
A developing country would digitally transform health insurance services to 1) ensure operational efficiency and transformation, 2) improve service delivery and 3) data-driven decision-making. However, from an institutional perspective, interpreted through the lens of how public and private institutional settings conceive, implement, and adapt to change, two different meaning frames underpin this outcome. For public health insurance, these are: 1) conformance to regulatory standards and social norms, 2) public good and equity, and 3) institutional isomorphism. For private health insurance, these are: 1) competitive advantage, 2) market expansion and segmentation, 3) risk management and cost reduction and 3) innovation and differentiation.	The research findings underscore the need for policymakers to design and implement differentiated digital transformation policies for public and private health insurance sectors. Policies should support public health insurance in achieving operational efficiency, service delivery improvements, and equitable access, while adhering to regulatory and social norms. For private health insurance, policies must encourage innovation, market responsiveness, and competitive strategies through digital means. Ensuring a regulatory environment that fosters both equity and innovation will be key. This approach promotes a synergistic health insurance ecosystem where digital transformation enhances service quality, operational efficiency, and access to healthcare, tailored to the distinct objectives of public and private entities.
This study shows a decoupling of deinstitutionalisation and reinstitutionalisation culminating in five enactment phases or SCOPE. These are; 1) Scrutinise phase: assessment of the existing institutional environment 2) Clarify phase: identification of issues and initiation of deinstitutionalisation 3) Organise: strategy and planning for digital transformation 4) Perform: implementation and reinstitutionalisation 5) Enhance: ongoing adjustments	The SCOPE model's decoupling of deinstitutionalisation and reinstitutionalisation implies that policy should facilitate a dynamic, phased approach to digital transformation in health insurance. Policies must encourage thorough environmental assessment, clear identification of deinstitutionalisation areas, strategic planning, effective implementation, and continuous enhancement. This ensures that digital transformation policies are not static but evolve in response to institutional changes, promoting sustained innovation and adaptability within the health insurance sector.
The study shows a co-shaping relationship between institutional elements and digital transformation with the influence of normative, regulative, and cultural-cognitive institutional elements imposing different levels of impact.	For policy, the findings indicate the necessity for policies that recognize and leverage the co-shaping dynamics between digital transformation and institutional elements. Policymakers should craft flexible, responsive policies that not only support technological innovation but also address normative, regulative, and cultural-cognitive considerations, promoting an environment conducive to sustainable digital transformation within institutions.

The study shows institutions as a major driver of digital transformation and the emergence of a fourth pillar of institutions, i.e., technology.

For policy, the emergence of technology as a fourth pillar necessitates policies that foster technological innovation alongside traditional institutional elements. Policymakers should create frameworks that encourage the integration of technology into institutional practices, promoting digital transformation and enhancing the adaptability and competitiveness of institutions in the digital age



APPENDIX C: INTERVIEW GUIDES

INTERVIEW GUIDE – HEALTH INSURANCE SERVICES

The purpose of this interview is to capture the views and rich insights of those involved in past implementations and ongoing digital-enabled transformation of health insurance services.

- a. Place of interview:
- b. Name of the interviewee (optional):
- c. Sex:
- d. Number of years that interviewee has worked with the Organization:
.....
- e. The position of interviewee:

Questions [based on the Principle of Contextualization]

Critical reflection of the social and historical background of the research setting

1. Understanding the social and historical context of digital-led transformation in the Organization.

Some years ago, this organization decided to embark on a digital technology-enabled transformation process termed Nation-Wide ICT solution to deal with perceived problems then;

- i. Was it clear what these problems were, and please expand some of the problems?
- ii. What was your role at the time of implementation?
- iii. How involved were you in events before, during and after this implementation?

Understanding the motivations of change

- i. At the time of considering implementing this system(s), what were the broad motivating forces behind the implementation of the system?
- ii. Please expand on what you consider to be the organization's reasons (financial, health providers, health insurance subscribers, health insurance services, clinical care, etc), as well as the pressures you were under by external bodies (like central

government or government agencies), etc. both pro and con) influences to introduce this system, at that time. Explain each.

- iii. How did you or the organization arrive at the conclusion that something needed to be done about this and what was needed was a nation-wide digital transformation drive? Explain.
- iv. What, in your opinion, were the most influential individuals or groups supporting this digital transformation change? (Government, Management, Staff, Health providers other stakeholders) Explain why? Would you consider them champions for the cause or as constraints to the process?
- v. What role did the IT Division play in motivating the organization into embarking on this digital transformation led change?
- vi. Were there any other issues at the time driving this underlying problems and challenges?

2. Understanding the materialization of digital transformation in the Organization

Infrastructure changes

- i. Did you have to purchase new Hardware/Software resources to implement the system? What? Why?
- ii. Did you have to employ new staff to use it? If yes, explain why.
- iii. Was the existing capacity (hardware and software) of the system enough to run it? On the other hand, did the capacity had to be increased? Who supported this? How much say did they have in resolving this issue?
- iv. Was there any other capacity (hardware, software, infrastructure, etc.) issue you would like to comment on about this?

Digital Services Configuration

- i. What health insurance routines, workflows, processes and procedures were digitalised as part of the ongoing transformation?

- ii. How were the conversion or design of digital services undertaken?
- iii. Briefly explain who the intended users of the various systems were
- iv. Were they involved in designing and implementing it?
- v. Can you explain whether the intended goals of the digital solutions were achieved?

Overall Summary

Overall, would you say that the digital intervention:

- i. Produced improvements to the health insurance services delivery problems?
- ii. Improved outcomes? [Financial, Risk/Fraud mitigation, Service Quality, Efficiency]
Others, please explain
- iii. In hindsight, what would you have done differently?

3. Understanding ongoing digital transformation addressing emergent problems

- i. How do you see the current and future digital services needs of the organization?
- ii. Overall, are you satisfied with the information that you have access to?
- iii. What additional data would you like to have access to that you do not currently have access to?
- iv. What additional digital functionality or services would you like to have?

INTERVIEW GUIDE – CLAIMS PROCESSES

The purpose of this interview is to capture the views and rich insights of those involved in past implementations and ongoing digital-enabled transformation of claims service of health insurance.

- a. Place of interview:
- b. Name of the interviewee (optional):
- c. Sex:
- d. Number of years that interviewee has worked with the Organization:
.....
- e. The position of interviewee:

Questions [based on the Principle of Contextualization]

Critical reflection of the social and historical background of the research setting and phenomenon.

4. Understanding the social and historical context of digital-enabled transformation of claims administration in the Organization.

History of claims digitalisation;

- iv. Kindly walk me through the history of claims digitalisation and key milestones over the years?

Understanding the drivers for change

- vii. At the time of considering key digital interventions for claims processing, what were the broad motivating forces to address claims administration in the NHIS?
- viii. Please expand on what you consider to be the organization's reasons (financial, health providers, health insurance subscribers, health insurance services, clinical care, etc.

Understanding the Transformation Process

- vi. What health insurance routines, workflows, processes and procedures were to be digitally transformed as part of addressing claims management?

- vii. How were the conversion or design of digital services undertaken?
- viii. Who were the key stakeholder groups involved in claims process transformation (e.g. vendors, developers, health providers, others, please elaborate)?
- ix. How would you describe inter-organisational/ institutional dynamics of the claim's ecosystem (example technology adoption and use between NHIS and health service providers; sanctions, rules, norms, practices etc. that play mediating role between the institutions negative or positive)?
- x. Can you explain whether the intended goals of the digital interventions were achieved?

Overall, would you say that the digital intervention:

- i. Produced improvements to the health insurance services delivery problems?
- ii. Improved outcomes? [Financial, Risk/Fraud mitigation, Service Quality, Efficiency]
Others, please explain
- iii. In hindsight, what would you have done differently?

5. Understanding ongoing digital transformation addressing emergent problems

- v. How do you see the current and future digital claims needs of the organization regarding claims management?
- vi. Overall, are you satisfied with the information that you have access to?
- vii. What additional data would you like to have access to that you do not currently have access to?
- viii. What additional claims digital functionality or services would you like to have?

APPENDIX D: ETHICAL CLEARANCE



UNIVERSITY OF GHANA ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No...ECH 055/ 20-21 ...

November 16, 2020

Anthony Renner-Micah
Department of Operations and
Management Information Systems
University of Ghana
Legon

ETHICAL CLEARANCE (ECH 055/ 20-21)

The protocol title below has been reviewed and approved by the ECH Committee.

TITLE OF PROTOCOL: DIGITAL PLATFORMISATION DEVELOPMENT AND USE OF HEALTH INSURANCE SERVICES IN A DC: INSTITUTIONALISATION THEORY PERSPECTIVE.

PRINCIPAL INVESTIGATOR: ANTHONY RENNER-MICAH

Please note that the final review report must be submitted to the Committee at the completion of the study. Your research records may be audited at any time during or after the implementation. Any modification of this research project must be submitted to ECH for review and approval prior to implementation.

Please report all serious adverse events related to this study to ECH within seven (7) days verbally and in writing within fourteen (14) days.

This certificate is valid till November 15, 2021. You are to submit annual reports for continuing review.

Please accept my congratulations.

Yours Sincerely,

Professor C. Charles Mate-Kole
ECH Chair

Cc: Prof. John Effah, Dept. of Operations & Management Information Systems, UG
Prof. Richard Boateng, Dept. of Operations & Management Information Systems, UG

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