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THE ROLE OF CONTRADICTIONS AND NORMS IN HEALTH INSURANCE CLAIMS PLATFORMISATION: AN INTER-ORGANISATIONAL PERSPECTIVE

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Abstract

This study aims to understand the role of contradictions and norms in health insurance claims platformisation from an inter-organisation system perspective. The study is situated in a developing country context of Ghana. A growing body of information systems research on digital platforms as a vehicle to organise public healthcare exists and continues to evolve; however, the inter-organisational perspective has received little attention. Even less is the focus on the complex relationship between the health insurance sector and health care providers. This paper, therefore, applies a sociotechnical approach using activity theory as the analytical lens and qualitative interpretive case study as the methodology. It depicts how contradictions between the various levels of the activity system influence platformisation between organisations in the health system. The findings have implications for policy research and practice.

Keywords: Contradictions, Inter-organisational system, Platformisation, Health Insurance, Interpretive case study.

1.0 Introduction

This study aims to understand the role of contradictions and norms in health insurance claims platformisation from an inter-organisational system perspective. Many issues that arise while implementing an information system can be traced back to contradictions between components of activity systems that are either produced or magnified by the new IS (Weeger et al., 2021). On the other hand, it has been noted that the interventions intended to counteract these contradictions account for more complexity while not necessarily accomplishing their purpose ending up with post-

implementation issues such as dysfunctional workflows and resistance (Strong et al., 2014). These characteristics appear to originate from the unique complexities of the healthcare setting, which are mirrored in many apparent contradictions and norms. Consequently, as in other contexts, the objectives, values, and priorities of various healthcare stakeholders are not independent; instead, they determine, affect, and occasionally contradict one another (Benbya et al., 2020).

Structurally, the health system comprises aggregation and integration of sectors within the economic system, including health insurance organisations, pharmaceutical companies and health care providers (Frenk, 2010; Ledesma et al., 2014; Olden, 2019). There is growing importance of health insurance as countries adopt it as a basis for accelerating universal health coverage as part of the United Nations Sustainable Development Goals (SDGs), e.g. Nigeria (Odusola et al., 2016), Korea (Park et al., 2012), China (Tang et al., 2012) and Uganda (Kyomugisha et al., 2009). We argue that health insurance is at the nexus of the health system mediating access to healthcare services between healthcare providers, pharmaceutical companies and citizens. Consequently, health insurance is a strong candidate for inter-organisational information systems, warranting increased attention from IS researchers.

Inter-Organisational System (IOS) is an automated information system shared by two or more organisations (Maghrabi & Gargeya, 2012). While information systems researchers' interest in inter-organisational system studies has peaked over the years, it has been mainly from the viewpoint of transaction cost economics (Ahn & Oh, 2000). From this viewpoint, supply chain arguably accounts for the lion's share of research (Mandrella et al., 2015; Sun & Yue, 2018). From the health system perspective, extant literature on inter-organisation system have explored health information exchange (HIE) adoption (Wu & LaRue, 2015), enterprise architecture (EA) and institutional logics (Ajer, 2018), information infrastructure (Sanner et al., 2014), stakeholder behaviour in nationwide electronic health infrastructure (Klöcker, 2014) and coordination mechanisms (Cucciniello et al., 2015). However, despite these valuable insights, previous research has addressed only sparsely the role of contradictions and norms of platformisation.

Rodon (2018) refers to platformisation as the processes associated with the gradual formation and evolution of digital platforms. Recently, digital platforms have surfaced as a powerful way to organise public healthcare (Aue et al., 2016; Benedict et al., 2018), a foundation upon which functional capabilities, data, and processes are enabled and executed. The current paper contributes to the body of knowledge on inter-organisational systems and platformisation between two domains of the health system in Ghana, national health insurance (NHI) and health care providers. It also extends (Kruk, 2013) and (Gebre-Mariam & Bygstad, 2016) inter-organisational system study with information infrastructure and IT architecture as the underlying technology, respectively.

Moreover, the literature on health insurance claims processes generally makes little mention of work done in developing countries (Sodzi-Tettey, Aikins, Awoonor-Williams, & Agyepong, 2012). This study contextualises digital platformisation of health insurance claims processing as a complex inter-organisational system between key domains in the health care system. In doing so, this study aims to fill the research gap by examining the role of contradictions and norms in facilitating or inhibiting digital platformisation of health insurance claim process. Therefore, the research question addressed in this paper is how contradiction influences elements of the activity system and its effects on digital platformisation of health insurance claim process from an inter-organisational perspective. The study employs activity theory (AT) as the analytical lens and qualitative, interpretive case study as the methodology to gain insight into platformisation of health insurance claims process.

The remainder of the paper is structured as follows. Section 2 presents the literature on health insurance and inter-organisational system. Section 3 introduces the theoretical foundation for the study. Section 4 presents the research setting and methodology. This is followed by section 5, with a presentation of the case and an analysis of the case. A discussion of the findings follows in section 6. Section 7 presents the conclusion and some recommendations.

2.0 Health Insurance and Inter-organisational System

In many developing and low-income countries, health insurance is increasingly seen as a possible alternative funding mechanism for the health sector (Sakyi, Atinga, & Adzei, 2012). The World Bank in 2003 initiated a poverty reduction strategy under which Ghana introduced the National Health Insurance Scheme (NHIS). The objective was to remove financial barriers to accessing healthcare and to provide quality and affordable healthcare to the Ghanaian population (Baltussen et al., 2006). Fundamental to this social model is that, on the one hand, the production of health services is the responsibility of healthcare providers such as hospitals, clinics, pharmacies and other care providers while purchasing is institutionalised in the National Health Insurance (NHI) to buy health services (Street, 1994). Technologically, this creates inter-organisational IT resources and capabilities that are more socially complex (Sun & Yue, 2018). However, while this technological complexity has been acknowledged as a management challenge, it is vastly underestimated (Aanestad et al., 2017; Stroetmann et al., 2011). To avoid unintended outcomes in complex environments such as healthcare, the literature indicates that the interrelations between different and sometimes conflicting goals, manifesting as contradictions, need to be considered (Weeger et al., 2021).

Though limited, the IS literature on health insurance can be described as evolving (Adesola, 2010; Grundstrom, Väyrynen, Persson, & Isomursu, 2018; Kim et al., 2018; Kumar, Ghani, & Mei, 2010; Paluch & Tuzovic, 2017). However, a review of extant literature reveals limited application of theoretical scaffolding. The adoption of a sociotechnical perspective to provide more in-depth insight into the phenomenon under study is also limited. Employing activity theory as a rich theoretical lens is useful to fully understand contradictions inherent in platformisation and implications for health insurance organisations and healthcare providers. The key reason is that inter-organisation systems involve many actors, making the process complex. Consequently, activity theory is viewed as a systematic approach to structuring and explaining the complex phenomenon of platformisation. Indeed, these insights may prove invaluable in the emergence and evolution of digital platforms.

To deconstruct this phenomenon, the authors subscribe to a sociotechnical view of platforms as mutually shaped by social and technical elements and as evolving sociotechnical systems (Blaschke et al., 2019). This view further acknowledges the importance of actors, structures, technologies, processes, and their mutual interdependence (Winter et al., 2014).

3.0 Theoretical Foundation: Activity Theory (AT)

Activity theory (AT) is increasingly employed as a scaffolding to guide data analysis in information systems (IS) studies (Iyamu & Shaanika, 2019). AT is a theoretical framework that aids in analysing and understanding human interaction through tools and artefacts (Leontiev, 1978; Vygotsky, 1978). AT's application in information systems as a methodological framework (Kuutti, 1991) can be observed in several areas, including information systems development (Anja et al., 2007), healthcare IT (Bhattacharjee et al., 2013; Haddad & Wickramasinghe, 2017), IS and Education (Adam et al., 2019), and human-computer interaction (Kaptelinin et al., 1995). From an IS perspective, the theory is applied in many settings to understand better and explain the logic behind human activities in organisations or society (Iyamu & Shaanika, 2019).

In AT, activity constitutes the basic concept and is considered the unit of analysis. The unit of analysis consists of a subject (actor) and an object (objective) mediated by a tool (Leontiev, 1978). Activity theory provides explanatory power of human activities primarily because of the comprehensiveness of its components, which include tools, objects, division of labour, community, rules and subject (Engeström & Miettinen, 1999), as shown in Figure 1. In activity theory, tools are underpinned by constant evolution over time and space and influenced by innovations and experiences (Iyamu & Shaanika, 2019). An activity is decomposed into actions, and each action is decomposed into operations, which can include the development, implementation and management of IS/IT artefacts (Moawad et al., 2013).

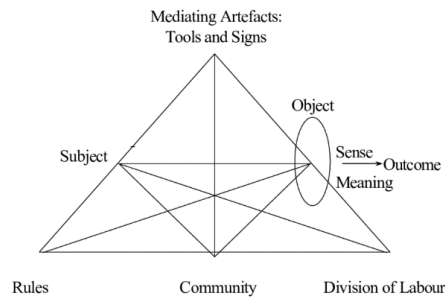


Figure 1. **The Structure of an Activity System** (Engeström, 2001)

The explanatory power of AT is based on a set of principles used for describing and explaining a phenomenon under study (Kaptelinin et al., 1995). These principles numbering five (Engeström, 2001) are; first, a collective artefact-mediated and object-oriented activity system, seen in its network relations to other activity systems, is taken as the prime unit of analysis. The second principle is the multi-voicedness of activity systems; in this sense, an activity system is a community of multiple points of view, traditions and interests. The third principle is historicity. Activity systems take shape and get transformed over lengthy periods. Their problems and potential can only be understood against their history. The fourth principle is the central role of contradictions as sources of change and development. Contradictions are historically accumulating structural tensions within and between activity systems. Engeström (2010) notes that conflicts, dilemmas, disturbances and local innovations may be analysed as manifestations of contradictions. The fifth principle proclaims the possibility of expansive transformations in activity systems. Activity systems move through relatively long cycles of qualitative transformations.

Platformisation is considered an activity that involves the interaction between technology and human activities. Therefore, activity theory is ideal for analysing this study because the theory's assumptions are consistent with the phenomenon under study. Activity theory is further appropriate in offering rich insight into the complex and sociotechnical nature (Hashim & Jones, 2007; Nehemia-Maletzky et al., 2018) of platformisation of health insurance claim process from an inter-organisational perspective. Evolvability is an important characteristic of platforms that addresses the adaptation to unanticipated environmental changes (Baldwin & Woodard, 2008).

4.0 Research Setting and Methodology

This study forms part of a larger research project into health insurance digitalisation in a developing country. The current study focuses on the platformisation of health insurance claims process and the inter-organisational perspective from a developing country context of Ghana in an attempt to digitalise manual paper-based work practices through digital platforms to deliver service innovation.

4.1 Methodology

The study uses qualitative research methodology (Myers, 2013) and underlying assumptions of the interpretive paradigm (Walsham, 2006) to understand the phenomenon of platformisation of health insurance claims process. The setting up and carrying out of fieldwork is the basis of interpretive study and generally attempts to understand phenomena through the meanings that people assign to them (Stahl, 2014). The vehicle for interpretive investigations is an in-depth case study, where research involves frequent visits to the field site over an extended period (Klein & Myers, 1999; Walsham, 1995). Case study methodology is particularly useful when the researcher wants to explore a phenomenon within a complex real-world scenario (Myers, 2013), such as what this study seeks to achieve.

4.2 Data collection

In line with the interpretive case study tradition (Walsham, 2006), this study obtained data from multiple sources, including interviews, project documents, observations, and websites. It included semi-structured interviews with key informants who had knowledge and experience with the digital platform initiatives, their implementation, and outcomes. The key informants' selection was through purposive and snowball sampling (Miles et al., 2014) based on the relevance of their role in understanding the phenomenon. Additional insights were obtained by observing digital platform modules through demonstrations and walkthroughs. Data collection took place from March 2021 to November 2021. Interviews lasted 45 minutes and one hour and were tape-recorded, transcribed and verified by participants.

| Interviewees | Professions |
|--------------|--|
| 32 | 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), Health Care Provider (3) |

Table 1 Interviewee demographics

4.3 Data analysis

Based on the interpretive tradition, data analysis occurred alongside data gathering (Walsham, 2006). The concepts informing the analysis are from activity theory. Data analysis was aimed at identifying themes relevant to significant aspects of the development and use of digital platforms for claims processing, the role of health insurance agents, health care providers, other stakeholders and outcomes. Using concepts from activity theory, the researchers identified themes related to motives, tools and contradictions and how they enabled or constrained platformisation of health insurance claims process. From the interpretive analysis perspective, the goal is not to test the theory but to use it as a sensitising device (Klein & Myers, 1999) to allow understanding to emerge from the data. Where necessary, follow-ups with the interview participants were undertaken to verify emerging findings or seek additional data following the principle of the hermeneutic circle.

5.0 Case Study Description & Analysis

The following section presents activity system dynamics of platformisation of health insurance claims process from an inter-organisational system perspective. This activity is an evolutionary process conceptualised as platformisation embedded in its cultural-historical context and influenced by rules and social norms. Ghana, with an estimated population of 29 million as of 2018 and classified as a middle-income country, is a developing country in Africa. Healthcare financing has gone through a chequered history in Ghana since independence in 1957, where all governments have pursued, with varying degrees of success, several policies and programmes to accelerate economic growth and raise living standards. The National Health Insurance Scheme (NHIS) was established under Act 650 of 2003 by the Government of Ghana to provide essential healthcare services to a person resident in the country through district mutual health insurance schemes (DMHIS) and private health insurance

schemes (PHIS). The scheme's mission has been to implement the national health insurance policy that ensures access to essential healthcare services for all residents and drive universal health coverage (NHIA, 2018).

The call for digitalisation of operations across various sectors has been rife. The healthcare sector in Ghana, which includes health insurance, has achieved some level of digitisation to make their operations efficient and improve the user experience of their services. However, they are taking much longer, and the outcomes have not always been visible. We analyse the interactions and transformations of health insurance claims process through the lens of the activity system, as well as contradictions and tensions within the collective health system. The all-inclusive outlook that activity theory provides helps to understand contextual influences and their mediating role.

5.1 The Cultural-Historical Context and Inter-Organisational Dynamics

History is an inevitable part of the activity system (Adam et al., 2017) and the motivation for digitalisation of health insurance claims process through digital platform development and use. On the inverse, this is given that platformisation has far-reaching cultural implications (Nieborg & Poell, 2018) and historical antecedents. Our analysis of the inter-organisational dynamics reveals norms and contradictions that influence the evolution of digital platformisation of the health insurance claims process. The activity of health insurance claims processing started with a lot of manual tasks and workflows between the NHI and the health care providers. Health care provider group in Ghana comprises 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. For example, internally, the NHI identified members by issuing them booklets containing biographic information and a photo ID. At the health care provider (HCP), the NHI furnished the HCP with a manual compilation of health insurance members registered under that particular health care provider to be used as a guide for verifying eligibility for health services. Similarly, on a manual claim form, the HCP records all medical interactions, including details such as diagnosis and treatment after attending to the NHI member. Each form has a unique number printed in advance, references a specific member, and

includes the services received. The HCP will usually batch thousands of manual claim forms to be submitted to the NHI for reimbursement.

Regarding the inter-organisational process for submitting and approving claims, healthcare providers monthly send an envelope with claim forms and a summary form that holds the provider name, the total number of claims and the total amount claimed to the NHI. Some healthcare providers also send a spreadsheet with the claim data; the contents of the spreadsheet may vary per provider. The following section outlines the steps. Step 1, the NHI receives the envelope with the claims and registers the details in a logbook with information about the provider, the date received, the total amount of all claims and the number of claims in the envelope. Step 2, the NHI staff checks the total claim amount per claim form by adding all claimed values using an electronic calculator. For comparison, prices for medicines and treatments are available in paper form.

Step 3, the NHI staff either checks the entries made in the provider-supplied spreadsheet or generates an index line per claim in a new spreadsheet. In the same step, the employee visually inspects if the membership number on the copy of the membership card attached to each claim form is the same as on the claim form. With no database in the Scheme, it was impossible to check if the member was active and had paid for his/her membership. Step 4, the NHI Staff checks if the treatment and medication on the claim are valid for the diagnosis. Step 5, provider payment is made if all claim information is certified. Between the above highlighted steps and manual workflows was an inter-organisational interaction marked by tensions and contradiction, including managing huge volume of papers (approx. 29 million claims in 2013). Others include delays in claims submissions, processing and payment, difficulty detecting fraud and abuse, and limited transparency in the status & reasons for adjustments in a claim. Additionally, there was a lack of clinical staff to review the massive volume of paper claims and inadequate knowledge and competence of claims personnel at health care providers leading to errors and abuse such as (poor/incomplete documentation on claim forms, duplication of claims and overbilling).

The growth in health service utilisation presented significant challenges to the predominantly manual install base. The time and effort invested in everyday manual tasks and workflows were longer and more cumbersome. A paper-centric healthcare culture, in general, meant that NHI had to contend with offices filled with boxes of paper claims resulting in retrieval, processing and archival challenges. Healthcare provider claims were usually processed on an average of four months. Moreover, the relationship between the health insurer (Subject) and the health care providers (Community) in the activity system rests upon the expectation of trust (rules and norms). The understanding of this expectation by the health insurer is that the health care provider will raise a claim (request for reimbursement) based on actual and legitimate health services rendered to insured members. This expectation is, however, not always met (Contradiction), which motivated the NHI's attempts on the path of digital platforms to address emerging contradictions and tensions. As described by a business analyst with the NHI;

“The initial years underpinning the relationship between the NHI and health care providers, I will describe as chaotic. Things were basically in standalone mode, and we did not even have a network between the district office and the nearest health facility or hospital; there was no network.”

5.2 Platformisation of Claims Process to Object of Activity

In an activity system, changing one element within the activity leads to changes in other elements (e.g., using a digital platform for claims processing as an inter-organisational system and mediating tool). With the myriad challenges described in the previous section, digital platformisation of claims processes was to streamline, manage and coordinate claims processing activities nationwide between healthcare providers and the NHI. Digital platformisation of the NHI claims process began in 2008 with the introduction of an ERP platform. Through competitive tendering, Tech Ltd. (pseudonym) won the bid to deploy a nationwide integrated digital platform for NHI. The platform included claims management and the installation of VSATs (satellite dishes) to connect 736 healthcare providers. The claims management module was to enable secure insurer and provider collaboration. Once a claim is submitted to the central system, it is handled using built-in workflow. Due to slow network connectivity over satellite and difficulties in using the claims application, the project's objective was not realised, reverting to more manual claims processing.

In 2013, through a new vendor, OffShoreIT (pseudonym), based in Europe, a new e-claims platform was developed. The new platform interfaced directly with healthcare providers in two forms. First, electronic claims information is entered through a web frontend from the health care provider directly into the NHI system via internet connectivity. Secondly, using XML, e-claims generated from hospital information Systems (HIS) are submitted via FTP or internet access to the NHI claims system. The new platform provided automatic electronic vetting according to specified business rules. Extensive nationwide training for healthcare provider staff on submission, payment methods, tariffs & medicines lists was provided. The deployed platform yet again failed to achieve overall objectives due to norms and contradictions inherent in healthcare provider practices. These included healthcare provider apathy toward automation, lack of IT skills, and lack of IT equipment and infrastructure at healthcare provider sites. A general and national problem related to the lack of internet access across the country also constrained the use of the platform. A senior management official with the NHIS recounts:

“I will not judge it as a very successful initiative because, at the end of the day, it also did not deliver on expectations. We did not have what we set out to achieve concerning electronic claims processing. The number of health facilities that were on board up to a point in 2017 was just about 100 facilities out of over 3000 credentialed facilities that we have.”

5.3 Activity System Analysis of Platformisation

During digital platformisation of claims processes, some actions were taken to complete digital platform activities, including systems analysis and requirement gathering, configuration and integration, user acceptance, piloting, training of health care providers staff and final release. By allowing for the probing of platformisation activities, activity theory provides the opportunity to consider a deeper level of analysis of digital platforms in the context of inter-organisational system of claims processing involving healthcare providers. This indicated how the actions fed into the main activity of platformisation of health care providers claims submission and health insurance claim processing, presented below in Figure 2. NHI, Tech Ltd, and OffshoreIT teams were the subjects, and they used tools such as databases, internet and web tools in developing the health insurance digital platforms. Within the

community, other stakeholders were health service providers, IT teams, NGOs, and insured members. The object was to digitalise the claims process using a digital platform accessible by healthcare providers. The interaction between subjects within the activity system occurred at various levels and was guided by rules such as requirement plans and roadmap of implementation, training documents for health care providers, SLA and contract agreement. The contract included the division of labour. The intended outcome was to streamline, manage and coordinate claims processing activities nationwide.

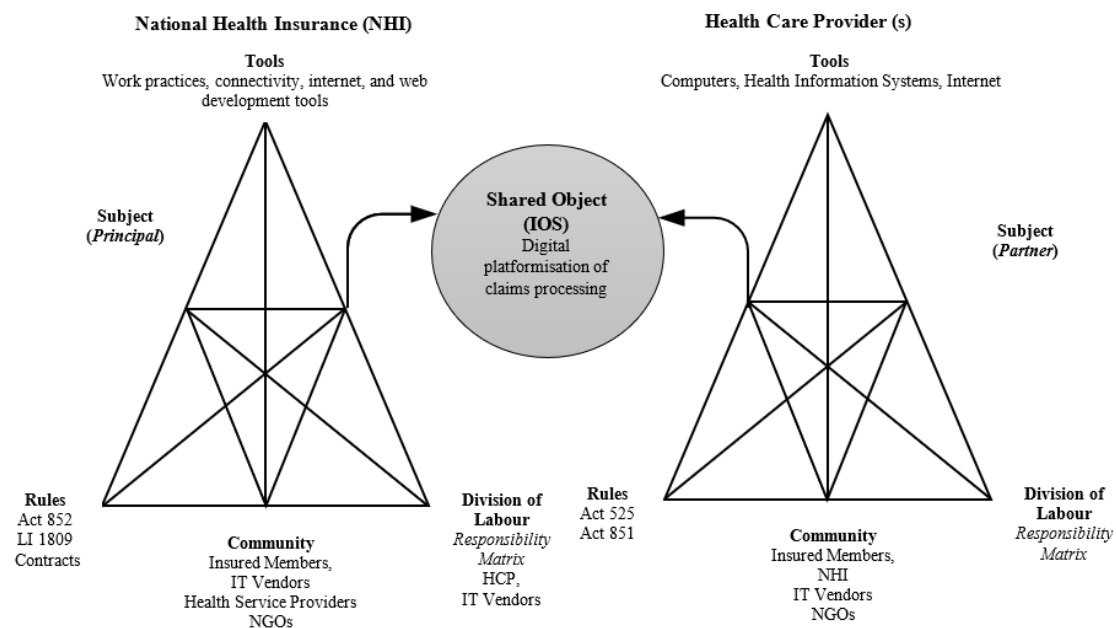


Figure 2. Platformisation of Activity System (Engeström, 2001)

5.4 Mediation Norms and Contradictions

This section analyses the key relationship identified for understanding the role of norms and contradictions of platformisation of health insurance claims processing from the case description. This relationship involves NHI and health care providers (Subjects) and the shared objective (Object) of digital platformisation of claims processing as an inter-organisational system. This meant that the tools, rules and division of labour mediated the platformisation activity in the health insurance context throughout the process. Furthermore, platformisation responded to norms and contradictions experienced between activity systems. For example, platforms accessed by some healthcare providers were based on web technologies that they were accustomed to and thus mediated adoption and usage. Some healthcare providers had

deployed a hospital information system that was easily extended to exchange claims information based on XML with the health insurance platform. This existing capability possessed by HCPs also acted as mediators. The establishment of digital platforms as an inter-organisational system, starting with NHI aiming to streamline, manage and coordinate claims processing activities nationwide, raised major intertwined contradictions through social norms between the activity system principal (subject) and inter-organisational system partner (subject) and the shared (Object).

First, a contradiction lies within the nature of digital platforms as they offer much more granular internal controls and detection than the pre-existing manual workflows. Within previous manual workflow and practices, HCPs exploited the limited controls for their benefit, supported by social norms of citizens' absolute trust in health practitioners. HCPs exploitation was manifested in duplication of claims, over-prescription, overbilling and mismatch between diagnosis and treatment. With platformisation seemingly ensuring a turnaround time of 80% within 45 days of receiving a claim from HCPs, as opposed to 112 days with manual processing, HCP apathy towards automation is seen as a need to continue perpetrating fraud and abuse. A paper-centric norm and culture underpin the HCPs environment. HCPs submit thousands of paper claims monthly for reimbursement, delaying claims submissions, processing and payment. With the introduction of digital platform for claims processing and the incentives of early reimbursement, it is expected that HCPs will accelerate their adoption of information technology. However, evidence from the case points to a continued lack of IT equipment and infrastructure at healthcare provider sites. While the above represents mediating circumstances emanating from HCPs, there were several emanating from the NHI activity system. A major contradiction within the NHI is that, even after submitting claims electronically through the digital platform, there are still significant delays in reimbursing HCPs. The reason for this is that the central government manages the funds of the NHI, which are sourced from taxation. These funds are not released on time to the NHI to pay back HCPs, sometimes taking over six months. This inherent contradiction defeats the purpose of migrating from manual to digital workflows for the HCPs and discourages HCPs from investing in information technology.

Moreover, for HCPs submitting manually, there is lack of sanctions for fraud and abuse for bypassing controls that would have otherwise been detected using a digital platform. Also, NHI lacks adequate clinicians to support claims review, leading to delays in electronically submitted claims. Finally, notwithstanding the benefits derived from completely digitalising the claims process, the NHI has been unable to expand and scale the platform to about 70% of healthcare providers nationwide because of these contradictions.

6.0 Discussion

6.1 Evolution of Inter-organisation System Mediated by Platformisation

This section discusses findings within the historical context of inter-organisational system and how it influenced digital platformisation of health insurance claims process. Historical antecedents represent an inevitable part of the activity system, triggering motivation (Adam et al., 2017) for change and spurring action. Within activity theory, activities cannot be understood without analysing the historical development which has led to their present state (Kuutti, 1991). In AT, the elements making up the activities are under continuous development. These developments are not linear or straightforward but irregular and discontinuous. This means it is not enough to describe contradictions and norms within the context of platformisation of health insurance claims processing in its current state; the cultural-historical context of the inter-organisational environment must be understood (Hashim & Jones, 2007) to appreciate how digital platforms emerged and developed over time.

NHI's history and environment facilitated the process towards digital platformisation. Historically, NHI's underlying infrastructure from inception in 2003, albeit primarily manual and paper-based, siloed information system disconnected from HCP, described as latent contradictions (Weeger et al., 2021) constituted an important install base. In investigating the process of platformisation, Aanestad et al. (2017) and Rodon (2018) contend that one must account for the role of the installed base of technical systems, organisational structure, social rules and conventions, professional practices, and regulations. However, within the IS literature on health insurance, the role of norms and contradictions in the evolution of this install based from an inter-organisational system perspective is yet to be discussed. This paper contributes

significantly to the body of knowledge on inter-organisational systems and the emerging phenomenon of platformisation.

“Activity theory holds that the constituents of an activity are not fixed but dynamic, and this can change as reality changes” (Kaptelinin & Nardi, 2006, p. 68). This holds true for understanding contradictions' role in platformisation in an inter-organisational system. The literature on inter-organisational systems supports this notion as it notes that they are highly complex and time-consuming since they support environments where organisational needs are evolving in poorly understood or unforeseen ways (Diirr & Santos, 2019; Sousa et al., 2015). Evidence from the case shows that platformisation evolved through several developments and iterations between 2007 to 2018. First generation between 2007-2010, second-generation electronic claims enhancement 2010-2012, third generation, claims, 2012-2015 and e-claims upgrade 2016-2018. Norms and contradictions at the inter-organisational level have significantly influenced each key milestone.

6.2 Resolution of Contradictions

Contradictions can occur between a subject and tools when there is a mismatch in either the tools or the subject (Karanasios, 2014). To the researcher, problems, conflicts, ruptures, dilemmas, disturbances, break-downs, and clashes within the activity may be analysed as manifestations of the contradictions (Engeström, 2010; Kuutti, 1999). Contradictions are found at several levels: (1) primary contradictions are found within a component of the activity (i.e., in the rules/norms, object); (2) secondary contradictions occur between constituents of the activity (i.e., between the community and the tool); (3) tertiary contradictions occur between the current activity and its previous form (i.e., before change); and (4) quaternary contradictions occur between the activity and related activities (Engeström, 1987). The notion of connected activities also allows researchers to connect independent activities that share the same objective (Karanasios, 2014).

The relationship between NHI (Subject) and HCPs (Subject) in the connected activity system rests upon the expectation of trust (rules and norms). The understanding of this expectation by NHI is that HCPs will raise claims (requests for reimbursement) based on actual and legitimate health services rendered to insured members. However, this

expectation is not always met (contradiction), which motivated NHI to put digital platforms in place to address this tension.

With platformisation seemingly ensuring a turnaround time of 80% within 45 days rather than 112 days of receiving a claim, HCP's apathy towards automation and continued lack of IT equipment and infrastructure investment at healthcare provider sites (contradiction) received attention at different levels of the activity system. The platform was re-engineered to provide the HCPs with (tools) that allow the (object) to receive offline submissions based on XML technology. The HCP module runs fully offline, allowing users to work independently without internet, needing to interact with the internet only when necessary for system updates and claims submission. This meant that HCPs without network or internet connectivity could still leverage the platforms for electronic claims submission. Other constituents of the activity system, such as international non-governmental organisations (community), facilitated remedial actions to address contradictions. For example, one NGO, pharaccess, supported the Christian Health Association of Ghana (CHAG), Ghana's largest network of private, not-for-profit health facilities that accounts for an annual 6.5 million patient visits and admissions across 345 facilities, mainly serving poor and remote communities with pre-financing of computing resources. This enabled HCPs to have access to computers to replace the manual cumbersome paper-based process that caused undue delays and standoffs (contradictions) between the NHI and HCPs.

7.0 Conclusion

The purpose of this study was to understand the role of contradictions and norms in health insurance claims platformisation from an inter-organisational system perspective. The study examined the interaction within the Ghanaian health system involving National Health Insurance (NHI) and Health Care Providers (HCPs). The object of NHI is to provide access to healthcare services to persons covered by the Scheme. In furtherance of this object, the NHI grants credentials to healthcare providers and facilities that provide healthcare services to members of the Scheme. The NHI active membership rose from 10 million at the end of 2016 to 11.7 million in 2019. Members can access services from over 4,600 HCPs credentialed by the NHI nationwide.

The study revealed the role of contradictions and norms between connected activities and the shared object. The notion of connected activities allows researchers to connect independent activities that share the same objective (Karanasios, 2014). First, contradictions within HCPs' environment can constrain platformisation of the claims process. The study further revealed that contradictions in NHI environment could constrain scaling digital platforms for use by HCPs. Between the two connected activity systems, they co-shape health insurance claims platformisation.

The study contributes to policy, research and practice. For policy, health insurance claims management is a vital component of any inter-organisational interaction between a health insurer and health care provider, with the very survival of the health system depending on the prudent and effective management of this relationship. Policymakers should therefore be aware of this and implement a health sector-wide digital policy addressing the contradictions uncovered in this study.

For research, the originality of this study is based on its contribution to the IS literature on health insurance by offering rich insight into the contradictions in platformisation from an inter-organisational perspective. The study conceptualises platformisation as an inter-organisational system. This conceptualisation is useful as it allows exploration of the tensions and contradictions that exist among the tools, rules and norms, division of labour, and community across the interconnected activities as the subjects work toward a shared object (Karanasios, 2014).

For practice, in many ways, the study served as the ground zero for management in the health system interested in digital platform initiatives from paper-based to digital forms, especially when confronted with the complexities of the healthcare environment. Understanding these contradictions may prove very useful for platform development and use.

The study employed AT to understand the role of contradictions in platformisation as an inter-organisational system in one developing country. As a result, the study is limited by its single case study in one developing country. This is because developing countries differ, and their health systems may use different kinds of technology and

unearth different contradictions. Also, some activities in the platformisation activity systems could affect the outcome of claims platformisation.

Therefore, future studies can compare the experience of different health systems in developing and developed countries to account for contextual and societal differences. Also, while this study offers an appropriate theoretical approach for platformisation as inter-organisational system research, future studies can use institutional theory combined with other theories to investigate the complex and complicated nature of platformisation as an inter-organisational system.

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