# Digitalization of revenue mobilization in an emerging economy: the new Institutional Theory perspective

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# Digitalization of revenue mobilization in an emerging economy: the new Institutional Theory perspective

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**Abstract:**
This study sought to explore how the institutional environment comprising regulative, normative, and cognitive factors influences the use of technology in revenue mobilization in the public sector of an emerging economy. The study used the new institutional theory as a theoretical lens and a qualitative case study as a methodological stance. Data was collected from the agency in charge of revenue mobilization in the developing economy through interviews. The study established that regulative, normative and cognitive factors influence the digitalization of revenue mobilization. With regards to the regulative pillar, it was revealed that legislation for a revenue authority with a focus on digitalization, legislation for taxpayer identification and legislation for electronic transactions were laws that governed the use of the system and played essential roles in ensuring that the system was used effectively to fully realize its benefits. The cognitive pillar, on the other hand, revealed some challenges faced with the implementation and use of the digital system. The study contributes to the literature on the digitalization of revenue mobilization, which has arguably seen very few studies conducted in Africa, especially in Ghana, hence calling for more future studies on the use of e-revenue systems in developing economies.

## 1. Introduction

Developments in Information and Communication Technology are radically changing the way businesses are done as compared to previous times. Knowledge and the use of technology have been deemed important for socioeconomic growth [1]. Digitalization of business processes has emerged as a great phenomenon which has had a transforming effect on society [2]. The growth of digitalization was initially due to private sector interests, but governments have recently developed great interests and are quickly adopting the use of technological advancements in their operations. Governments have been able to develop more sophisticated ways to digitalize their business processes with the help of the revolutionary changes that Information and Communication Technologies (ICTs) have brought to the global society [3]. An "umbrella term that comprises all uses of information and telecommunication technologies in the public sector is broadly referred to as digital government" [4]. The digital economy is one aspect of digitalization that focuses on an economy based on digital computing technologies.

The rapid shift towards the digital economy has an incremental effect on society and forcing many businesses, organizations and governments at large to go digital. Encouragingly, the use of information technology to enable and improve the efficiency with which government services are provided to citizens has seen so many valuable academic studies over the years [1], [5].

Many attempts to study e-revenue have been geared towards its emergence, adoption, and creation of new markets in the digital environment and its development [6], [7]. Turban et al. [8] and Lee [9] also conducted studies on transforming organizations into the digital economy and its cultural acceptance by citizens. On the other hand, further studies examine the relationship that exists between the digital economy and revenue mobilization [1], while others attempt to capture and understand trust issues concerning the adoption of e-revenue [10]. From these studies, it is seen that the emergence of the digital economy, its adoption, development and in-depth understanding of trust issues concerning its application has received thorough research in diverse ways. However, very few studies have arguably been conducted on the use of digitalization, especially with the use of e-revenue systems. As much as the adoption of digitalization is important, its application and use are equally essential. Hence the need arises for further research on the use of digital systems in revenue mobilization.

There seems to be dominance in the study of digitalization from the adoption perspective, and this has, one way or another, created the avenue for the exhaustion of technology adoption frameworks such as the Technology Acceptance Model (TAM) and the Diffusion of Innovation theory, among others. Carter and Belanger [5] studied citizens' adoption of digitalization and its benefits to the US economy and adopted Technology Acceptance Model for the study. The findings of the study revealed that the adoption and use of digitized processes brought about rapid growth in the US economy. The analysis of these studies on the adoption of digitalization in developed countries led to further studies on the continuous existence and development of the digital economy by Yousaf et al. [11], who adopted the Diffusion of Innovation theory to establish ways to enhance the adoption of digitalization. Most of these studies concentrated mainly on the adoption of digitalization, leaving room for further studies on other aspects, such as usage and implementation, among others. Arguably, very few studies have been conducted on the social aspect of digitalization, taking into consideration an appropriate framework that can be used to study the institutional environment affecting the use of digitalized business processes. This calls for the need for the application of the new institutional theory in the study of the institutional environment affecting the use of digitalization in revenue mobilization. The new institutional theory, thus, is regarded essential for explaining how established social structures, which include regulations, norms and cognitive processes, affect social actions and interactions [12]. Its usage in this study helps to explore the institutionalization process of digitalization of revenue mobilization.

In many ways, businesses in developing economies are gradually transforming and operating in a digitally interconnected space [13]. This emphasizes the need for further research on the use of e-revenue systems taking into consideration the institutional environment affecting the use of these systems in revenue mobilization and applying the new institutional theory to bridge the theory gap created. Specifically, this study examines how institutional factors influence the use of information technology in mobilizing revenue within the public revenue agency of an emerging

economy. This study contributes to the limited literature in the area of digital economy from a developing economy perspective. This serves as a stepping stone for subsequent studies. It is envisaged that the study would enable the management of the revenue authority to understand the need for streamlining the automation system and procedures involved in generating increased revenue for the government and enhancing productivity among employees and citizens at large.

## 2. Literature review

Reviews conducted during research enable the researcher to address unattended issues, fill in research gaps, discover a strong basis for a research topic and also provide justification for the choice of a research approach. A review of the literature enhances the identification of research problems that need to be addressed or studied to provide solutions and as well provides a broad view of existing knowledge.

The review of literature for this study was conducted in five phases, which include the classification of literature, theories applied, the context of research and methodological approach, focus or technology adopted and research issues and challenges discussed. The review consists of some selected articles in the area of ICT and revenue mobilization.

Table 1. Article Distributions on ICT and Revenue Mobilization

| Article | Theory | Research Method & Country | Focus or Technology Adopted | Issues & Challenges associated with technology |
|---------|--------|---------------------------|------------------------------|------------------------------------------------|
| Zhao et al. [1] | TAM Technology Enactment Theory | Quantitative UK | • Adoption of digitalization and e-government development. | • Relationship between the digital economy and e-government development. |
| Nkote and Luwugge [14] | Theory of revenue exaction | Quantitative Uganda | • The efficiency of digitalized tax administration. | • Increase in cost of tax administration.<br>• Lack of technical know-how. |
| Carter and Belanger [5] | TAM Diffusion Of Innovation | Quantitative USA | • Citizen adoption of digitalization. | • Provision of standards for digitalized processes. |
| Katz et al. [15] | Public-Value of E-Government Model | Quantitative Europe | • Measuring the impact of digitalization on socioeconomic growth. | • The need for awareness of digitalization. |
| Liu et al. [16] | Resource-Fit Framework | Qualitative Taiwan | • Exploring the development process of digitalization. | • Inadequate resources.<br>• Lack of required capabilities. |
| Preston and Rogers [17] | Techno-social relations | Qualitative Ireland | • Challenges associated with digitalization. | • Requirement of laws governing digitalization.<br>• Individual characteristics.<br>• Professional values and norms. |

Source: Constructed by Author from literature review

The classification of studies conducted on digitalization in Table 1 summarizes the various issues and challenges associated with digitalization as well as technologies that have been adopted for digitalization in mobilizing revenue. Various factors contribute to the successful implementation and use of digitalized processes. Many of the studies revealed that technological issues [16] and the unavailability of infrastructure [3], [18] were barriers to the successful use of digitalized systems. Other studies also emphasized an increase in cost and financial constraints as a hindrance to successful digitalization [14], [19]. Other issues are individually based, such as poor attitudes towards digitalization, lack of required ICT skills and technical know-how, and individual characteristics [18].

However, very few studies captured the organizational context as a challenge in shaping the implementation and use of digitalized systems. Policies, laws, regulations and norms of institutions and countries may also pose barriers to digitalization [17]. To understand the institutional effects of digitalization, the factors discussed above are classified into sub-themes which include regulative factors, normative factors and cognitive factors, as presented in Table 2.

Table 2. Institutional Factors Affecting Digitalization

| Sub-Themes | Factors | Studies |
|---|---|---|
| Regulative | ▪ Standards for digitalized processes. | [1], [5], [17] |
| | ▪ National laws governing digitalization. | |
| | ▪ Firm and industry structures. | |
| Normative | ▪ Professional values and norms. | [1], [15], [17] |
| | ▪ Adoption intention. | |
| | ▪ Demographic and individual characteristics. | |
| Cognitive | ▪ Cultural beliefs and practices. | [1], [14], [16] |
| | ▪ Acceptance of new processes. | |
| | ▪ Knowledge of digitalization. | |
| | ▪ Required skills for digitalization. | |

Source: Author's Construction

## 2.1 The New Institutional theory

The new institutional theory, proposed by Scott [12], was found to be an appropriate theory for this study. This theoretical foundation was adopted because its constructs are deemed suitable for studying the institutional environment of organizations adopting the use of technology and the issues and challenges arising from the use of information technology. These issues are categorized under regulative, normative and cognitive and would be better explained by the constructs of the new institutional theory.

The new institutional theory is regarded essential for explaining how established social structures, which include regulations, norms and cognitive processes, affect social actions and interactions [12]. The concept of institutionalization is structured around the maintenance and diffusion of elements such as regulative, normative and cultural-cognitive processes, thereby referring to an institution as a socio-cultural system that is characterized by either single or multiple traits [20].

The institutional theory acknowledges three key aspects: firstly, variations in institutional contexts arise due to interactions with the environment over time; secondly, organizations in different environments develop distinct institutional structures; and thirdly, these institutional structures tend to endure as they not only provide meaning but also facilitate access to resources from the environment [12], [21], [22].

Prior to the development of the new institutional theory, there existed what was termed the old institutional theory. Barley and Tolbert [23] mentioned that the old institutional theory is structured such that organizational decision-making is based on the rationality of technology and economics. The new institutional theory, however, disregards rationality and posits that social behaviour is controlled by regulations and socio-cultural practices [21], [22].

The new institutional theory, as posited by Scott [12], has three major pillars and their respective constituents. The three pillars include regulative, normative and cognitive, with their elements as presented in Table 3.

Table 3. Constructs of the New Institutional Theory

| Theory Element | Regulative | Normative | Cognitive |
|---|---|---|---|
| Basis of Compliance | Expedience | Social Obligation | Taken for granted |
| Mechanisms | Coercive | Normative | Mimetic |
| Logic | Instrumentality | Appropriateness | Orthodoxy |
| Indicators | Rules, laws and sanctions | Certification and accreditation | Prevalence and isomorphism |
| Basis of legitimacy | Legally sanctioned | Morally governed | Culturally supported and conceptually correct |

Source: Scott [12], [22]

## 2.2 Justification for choice of the new institutional theory

The new institutional theory is adopted for this study because its constructs provide an understanding of the regulative, normative and cognitive factors that affect the digitalization of business processes in organizations. Studies on e-government adoption have explained that international organizations apply several mechanisms through best practices and the provision of information systems assistance to project their ideas in emerging countries [3], [24]. Avgerou [25] mentioned that the new institutional theory is useful for examining technology adoption and its relationship with the institutional environment. The new institutional theory helps to investigate the social factors that affect the adoption and challenges of technological innovations.

Scott [22] further explains that the new institutional theory is relevant when a researcher seeks to explain how interactions and social actions are shaped by the components of social structures, which comprise regulations, norms and the established process of cognition. It was argued that organizations constitute several dependent structures of which technology and resources are not the only aspects of organizational structure [21]. Organizational structure constitutes sound myths, regulations, and knowledge acquired through professionalism, education and community-based opinions [22]. Avgerou [25] also added that technology should not be the only driver in information systems research but should also recognize institutional expectations. Currie [20] emphasized the need for studies on the use of technology and information systems to adopt the new institutional theory for appropriate analysis and also for the understanding of complex social phenomena.

The new institutional theory has been adopted in a number of researches and has aided in empirically examining the existing relationship between the social environment, the organization and innovations that are technologically based. This informed the choice of the new institutional theory as an appropriate framework for this study.

## 2.3 Conceptual model for institutional factors influencing digitalization of revenue mobilization

Fig. 1 exemplifies the relationships among the institutional factors and how each factor influences the use of technology underpinning revenue mobilization.

The regulative pillar refers to government regulations and industry standards that organizations are expected to comply with, of which failure to comply would attract sanctions [26]. Regulative factors explain the driving force of social actions, which constitutes sanctions and the formulation of rules. Scott [22] stated that regulatory professionals enforce jurisdiction with support from the state. The regulative factors are exerted through force or persuasion. They sanction the legitimacy of organizational structures, processes and outputs [25]. For example, organizations are expected to adopt certain safety measures and practices for both their internal and external environment, and failure to comply with this directive may attract some form of sanctions. Regulations also exist to guide the behaviour of users in technology adoption. Regulative bodies such as governments enforce strict rules to make the implementation and use of information systems better [20]. The logical basis for the regulative pillar is to coerce a uniform response across all organizational fields in order to stimulate organizational isomorphism in terms of environmental compliance [22].
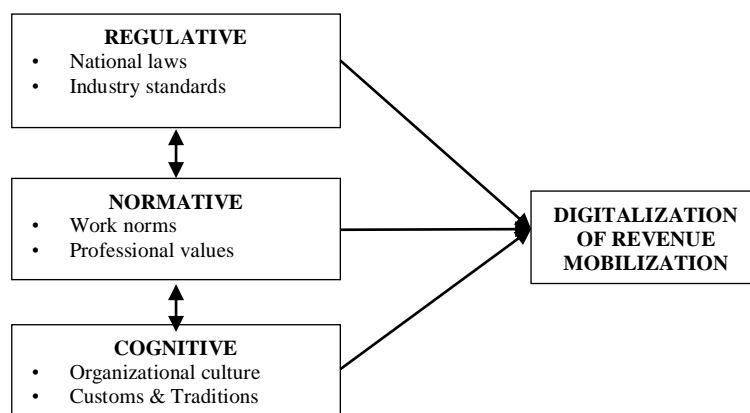
Fig. 1. Conceptual model for Institutional factors influencing use of technology

For this study, the regulatory pillar refers to the national laws and organizational standards governing digitized processes relating to revenue mobilization and its consequences. Based on this, the study posits that:

*Proposition 1: Regulative factors influence digitalization in revenue mobilization.*

The normative pillar refers to norms and values that determine legal and illegal actions in a particular social context [26]. This pillar includes norms that primarily refer to the effects of professional practice. These norms define what is acceptable or unacceptable to professional practices. Scott [22] mentioned that the normative pillar refers to the guidelines that are used by organizations to establish actions of behavioural patterns.

Normative pressures, which can arise from uncertainties, compel organizations to follow the path taken by successful organizations that are considered role models [1]. Thus, organizations are likely to imitate the practices of other organizations, which are perceived to be more effective and efficient. OReilly and Chatman [27] argued that control systems are based on shared norms and values that influence users' focus of attention and interpretation of events and guide their attitudes and behaviour. In this study, the normative pillar refers to established norms and practices that affect digitalization in revenue mobilization and further posits:

*Proposition 2: Normative factors shape the use of technology in revenue mobilization.*

The cognitive pillar constitutes taken-for-granted customs and traditions that control the processes involved in organizational decision-making [26]. Its elements explain meaningfully and understood frameworks and conceptions which are shared across an organization [22]. Cognitive factors imply the expertise and knowledge as well as thinking patterns of individuals in a social context. In instances where there are inexperienced individuals with minimal knowledge, organizations tend to learn practices of other organizations perceived to be successful. Mimetic mechanisms refer to the voluntary acquisition of certain characteristics of structure and processes by imitating other organizations seen as successful [25]. Generally, organizations tend to model themselves on other organizations rather than design new structures. In this study, cognitive factors refer to the expertise, technical know-how and thinking patterns of individuals involved in the use of digitized processes in revenue mobilization. Concerning this, the study posits that:

*Proposition 3: Cognitive factors influence the use of technology associated with revenue mobilization.*

Each of the factors of the institutional theory contains elements that provide an in-depth understanding of the pillar and its contribution to the rationale of the theory. Scott [22], in his study, stated that the three pillars of the new institutional theory are distinctively classified as regulative, normative and cognitive for analytical purposes only. The author explained further that these three pillars could overlap in practical situations.

The operationalization of the components of the new institutional theory in this study is outlined in Table 4. These components serve as exploratory guidelines which enabled the study to obtain and evaluate data on each of the institutional factors affecting the implementation and use of digitalized systems in revenue mobilization.

Table 4. Operationalization of institutional factors affecting digitalization of revenue mobilization

**Regulative**

National regulations

1. What national laws govern the use of digitalized systems in revenue mobilization?
2. Do these national regulations affect the implementation and use of digitized systems in revenue mobilization?
3. Are there standards existing to support digitalized processes associated with revenue mobilization?
4. Does the institution's policy on the use of technology comply with national laws governing digitalization?
5. Will there be a need for new laws to support the digitalization of revenue mobilization?

**Normative**

Values and standards of procedures

1. Do the institution's values and norms support digitalization?
2. Are there norms which govern the extent to which digitized processes are integrated into revenue mobilization?
3. What standards and procedures are enforced by the institution to ensure compliance with digitalization?
4. How do institutional norms enforce individual adoption of digitalization?
5. To what extent do individual and demographic characteristics enable or constrain the use of digitalized processes in revenue mobilization?

**Cognitive**

Cultural beliefs and practices

1. Has digitalization become a necessity in revenue mobilization?
2. Have individuals accepted the new processes being implemented?
3. How informed are individuals on the digitalized processes involved in revenue mobilization?
4. How has the implementation of e-revenue changed the cultural setting of the organization?
5. What measures are put in place by the institution to ensure the easy acceptance of e-revenue implementation?

Source: Scott [12], [22]

## 3. Methodology

Research is founded on philosophical assumptions, which are related to the researcher's view or perception of what reality is [28]. Critical realism is useful when the researcher seeks to deconstruct and understand the structures and mechanisms underlying the subjective realities that exist [29]. Critical realist research assumes that social reality is constituted and constructed by people and that despite the deliberate effort to change their social and economic circumstances, they are normally limited by social, cultural and political powers [30]. Since the study is aimed at investigating the information technology employed for revenue mobilization and how institutional factors shape the use of information technology, the critical realist paradigm was deemed appropriate for the study to explain the differences between reality and people's perceptions of reality [31]. The purpose of the critical realist is not to predict but to explain social phenomena through examining patterns of association and possible explanation and also aims at seeking insight into key participants rather than drawing on generalization based on statistical significance [30]. By employing the institutional theory and developing propositions and questions to investigate the institutional environment of e-revenue, critical realism is deemed fit to be used as guidance.

The study adopted the qualitative approach to investigate the technology underpinning revenue collection in Ghana and also understand how the institutional environment shapes the use of this technology. The choice of a qualitative approach was a result of its ability to provide insight and gain answers to the "how" and "why" questions about the phenomena that the researcher can either have control of or have no control over [32]. From the critical realist view of

qualitative research, researchers seek to deconstruct and understand the structures and mechanisms underlying the subjective realities that exist [29]. These factors influenced the choice of the qualitative approach for this study.

## 3.1 Selection of case study

Ghana Revenue Authority (GRA) (hereafter referred to as the Authority) was purposively selected as the case for the study. The selection was because the Authority is in charge of revenue mobilization in Ghana and has implemented e-revenue services in its operations. The collection of data began in January 2019 and was finalized in March 2019. However, follow-up phone calls to personnel at the Authority were made to seek clearer information. In addition, the snowball sampling technique was also used to select people from one stage to the other to get information. This technique was adopted based on confidentiality and anonymity as the investigations went further to gain in-depth information. The breakdown of the participants of the study is presented in Table 5.

Table 5. Breakdown of interviews conducted

| Participants | Number of interviews conducted |
|---|---|
| Project Team Manager | 1 |
| Officers from the Operations Department | 3 |
| IT Officers of the Authority | 3 |
| Project Team Members | 4 |
| **Total Participants** | **11** |

## 3.2 Data collection and analysis technique

Qualitative researchers can gather data from sources including interviews, discussions, documents and observations [32]. Data for the research was collected from multiple sources, including informal discussions, observations and semi-structured interviews. Face-to-face interviews were mostly conducted with participants who were involved in the implementation and use of the technology. A semi-structured interview guide was designed based on the research purpose and propositions developed from the study to identify the various concepts and themes related to the study.

Each interview, including both formal and informal, lasted between 30 and 90 minutes. Notes were taken, and some sessions were recorded after gaining the consent of the participants. Relevant data was also gathered through interviews with some staff at the Authority. The informal discussions were had in situations where clarifications were required after the formal interview sections. The researchers, as a team, carried out the data collection activity. Table 4, which outlines the operationalization of the conceptual framework to study e-revenue, served as the interview guide.

Regarding the critical realist paradigm adopted for the study, the data collected was analyzed at different levels. Themes such as events, issues, challenges and resolution of challenges were identified, and the data were organized according to these themes [29]. Miles and Huberman's [33] transcendental realism technique guided the conduct of the data analysis for this study. Miles and Huberman's technique highlights three main stages for data analysis; data reduction, data display and drawing and verifying conclusions. In the first place, the transcribed data was proofread and displayed as quotations for the participants. This was followed by drawing and verifying conclusions which aided the researchers in developing a clear connection between and among the concepts and themes. Based on the constructs of the new institutional theory and research questions, the identified emerging concepts and themes presented diverging views and perceptions of the implementation of e-revenue, which is presented in Table 6.

## 4. Results

Currently, the information system underpinning revenue mobilization in Ghana is known as the Total Revenue Integrated Processing System (TRIPS), which has been deployed in many of the Authority's offices to support tax administration. TRIPS supports a total regime of revenue collection and management, including all direct and indirect taxes, with its series of processing modules designed to support the business needs of the Authority.

In this section, there is a discussion on how institutional factors influence the use of the system, including an examination of the underlying propositions stated in the study, which is to understand how cognitive, normative and regulative factors shape the use of the technology in generating revenue at the Authority. Regulative, normative and cognitive effects on the use of the system stem from the institutional environment in which the system is being accommodated and its effect on the actual usage of the system by end-users.

## 4.1 Regulative effects on digitalization of revenue mobilization

The regulative effects on the use of the system involved the national laws and regulations that demanded compliance and enforcement. The three major national regulations that affected the use of the system were the GRA Act, 2009 (Act 791), the Tax Identification Number (TIN) Act, 2002 (Act 632), and Electronic Transactions Act, 2008 (Act 772). These Acts and how they influenced the use of the system are discussed below.

A specific section under the Act that affected the use of the system was Section 2, which outlined the objects of the Authority. According to Section 2, the Authority is to provide a holistic approach to tax and customs administration, promote the efficient collection of revenue and the equitable distribution of tax burden, ensure greater transparency and integrity, improve information linkage and sharing of information among the divisions of the Authority, provide a one-stop service for taxpayers for submission of returns and payment of taxes and to provide for other matters related to the improvement of revenue administration. These objects of the Authority are required for the use of a holistic system by the Authority. The project team manager explained that;

> "The use of TRIPS is to enable the Authority to execute the requirements of the Act and hence informed the modules that were developed for the system."

With this clarification, personnel are compelled to cooperate with the technological innovation that has been introduced to support the operations of the Authority.

In addition to the GRA Act, the TIN Act, 2002 (Act 632), which was established to regulate the TIN system under which taxpayers were given identification numbers, also affected the use of the system. One of the important modules in the system is the taxpayer registration module which ensures the registration of all taxpayers into the system. The Act compels every person who is liable to pay tax or required to withhold tax at source to be issued with a TIN, which is unique by a designated public officer within not more than 14 days from the date of an application. A respondent explained that;

> "Personnel with the responsibility of issuing TINs to taxpayers are required to use TRIPS for registration and issuance of TINs within the stipulated time given."

In a nutshell, the TIN Act and other legislation, such as the Electronic Transactions Act of 2008 (Act 772), required effective compliance by personnel and taxpayers to ensure the effective use of the systems.

## 4.2 Normative effects on digitalization of revenue mobilization

The normative pillar consists of the shared values and standard procedures that affect the use of the system. Both national standards and the values of the institution affected the use of the system. These values and standard procedures demanded compliance but mostly were not mandatory and did not attract strict sanctions when violated. The normative effects are discussed below.

National standards require end-users of a system to be trained. Users are required to be trained on the effective use of a newly adopted system as well as educated on the associated benefits. From the interview, a project team member noted that;

> "The project team complied with this standard by organizing training sessions on the use of TRIPS and the maintenance of its infrastructure for end-users before the deployment of the system and also dedicating offices as ICT training centres to facilitate periodic training programmes on the use of TRIPS."

An Information Technology officer at the Authority added that;

> *"Taxpayers were educated on the benefits they can derive from using TRIPS on the website of the institution, and also, taxpayers who wanted to access the e-portal services of TRIPS were given guidelines on the services that they wanted to access on the website. In addition to this, videos illustrating how to access any service on the portal were made available on the website to be easily followed by taxpayers."*

It is also a standard requirement for all end-users to comply with rules and guidelines on the use of the system. There is a need for users to adhere to all regulations associated with the use of the system. Training users on the use of each module of the system require compliance with regulations governing the architecture of the system. The project team manager explained saying;

> *"Not every module of TRIPS can be accessed by all users. Access to GRA officers is limited to modules that support their unit operations, whereas management is given access to the entire system with other unique features. Taxpayers have access mainly to the e-services portal through which they can access all taxpayers' services. These limitations of service are expected to be complied with by all users to avoid any form of sanctions associated with their violations."*

The Authority adhered to a standard requirement of establishing a project team to spearhead the development, implementation and deployment of the system. This was required to undertake thorough studies in the erstwhile systems used, including business processes; ICT infrastructure required; available facilities; and user requirements to ensure effective change management and the inclusion of all stakeholders. The project team was also to supervise and control activation processes, upgrade, set-up, integration and configuration of the software for the various modules required on the platform. According to a project team member;

> *"The project team comprised selected personnel from the former revenue agencies. This was to involve all stakeholders in the use of the system based on their ranks and also to ensure a smooth transition of business processes with the use of TRIPS through effective training sessions."*

In addition, the decision of the government to adopt e-government services affected the development and use of the system. This mandate affected most government institutions and forced them to adopt the use of technology to support their business processes to meet national standards. This, in effect, contributed to the effective use of the system. The institution supported the developmental, implementation and deployment processes of the system and promoted its use by the Authority's officers as well as taxpayers. The aim was to serve customers efficiently, increase revenue generation, improve revenue mobilization and support the government's decision to meet international standards through digitalization. With financial support from the World Bank, the project experienced a speedy developmental process with ease in the acquisition and purchase of required ICT infrastructure, sponsorship with training sessions, construction of conducive office spaces and provision of miscellaneous. Even though non-compliance with the government's decision to go electronic did not attract any form of sanction, it contributed to the adoption and use of the system.

### 4.3 Cognitive effects digitalization of revenue mobilization

The cognitive effects encompass the customs and traditions that control the processes involved in organizational decision-making. These effects refer to the traditional and historical ways and other related activities that influence the use of technology. The effects of the normative pillar on the use of the system are discussed in this session.

The integration of the three former revenue agencies into one body and their different business cultures affected the use of the system. These former agencies had their business processes defined to meet their goals and aims. However, the integration of these bodies into one Authority redefined goals, business processes and procedures geared toward the achievement of set goals. An officer from the operations department explained that;

> *"Officers had to quickly adjust to new business processes and procedures as well as forms being redesigned to suit information required by all agencies from taxpayers."*

Change management contributed to the use of the system. The process of preparing, managing and re-enforcing change posed a challenge for the Authority. Making staff understand and preparing their minds to accept the change in business processes, managing the change and enforcing change influenced the adoption and use of the system. This was due to the change in people, especially with management, re-engineering of processes, the introduction of new technology and most of all, change in organizational structures. However, with the help of the project team, this challenge was managed using the Awareness Desire Knowledge Ability Reinforcement (ADKAR) model developed by the team. During an interview with a member of the project team, he stated that;

> *"The team ensured that officers were made aware of the need to change, emphasizing its importance, educated to develop the desire to participate and support the change, acquire knowledge about how to change, trained on the ability to adopt new skills and behaviours and also encouraged to embrace the change. The team was able to address issues concerning change mostly with training sessions and forums where stakeholder interaction and sensitization, staff coaching and employee readiness for acceptance were emphasized on."*

Legacy systems also influenced the use of the system. The use of the erstwhile systems and the extent to which staff of the former revenue agencies familiarized themselves with the systems affected the use of the system. As discussed earlier, before the establishment of the Authority, the former three revenue agencies used information systems to support their business processes. After having used these systems for an extended period and becoming accustomed to them, it proved challenging to transition to a new system, especially immediately following the integration of the agencies. An officer from the operations department complained that;

> *"Familiarization with former systems affected the Domestic Tax Revenue Division (DTRD) mostly because the division was an integration of both former agencies. Officers of those agencies had to come to terms with the new ways of going about their business processes and at the same time be abreast with the use of TRIPS."*

Some of the workers required a number of computer literacy training sessions to be abreast with technology to aid their easy acceptance of the system. Computer literacy did not only apply to officers but taxpayers as well. Many of the taxpayers who are computer literate utilize the e-services portal to fully benefit from the system. However, other taxpayers who are computer illiterate continually use the traditional methods of tax filing and payments. The help desk was introduced to assist users with any form of challenge they might encounter with the use of the system so as not to deter them from using the system.

Table 6 summarizes the analysis of the institutional effects on the digitalization of revenue mobilization.

Table 6. Institutional effects on the digitalization of revenue mobilization

| Institutional Pillar | Requirements | Effects on the use of the System |
|---|---|---|
| | *GRA Act, 2009 (Act 791)* | |
| | - The Authority is to provide a holistic approach to tax administration. | ▪ The Authority is mandated to adopt and use the system for all tax administrative duties. |
| | - Objectives of the Authority. | ▪ As a result of the objectives of the Authority, the system is used to achieve its objectives which include an efficient collection of revenue, greater transparency and integrity and improvement in information linkage and sharing among all divisions. |
| **Regulative Pillar** | - Citizen-Friendly Service. | ▪ As a result of creating a citizen-friendly service, the e-services portal of the system was configured to enable the institution to provide quality customer service to taxpayers. |
| | - Compliance. | ▪ As a result of compliance, personnel of the Authority are compelled to use the system for business operations to ensure cooperation and compliance with institutional regulations. |

| Institutional Pillar | Requirements | Effects on the use of the System |
|---|---|---|
| | *TIN Act, 2002 (Act 632)* <br> - Registration and Identification. | ▪ The taxpayer registration module of the system ensures the registration and issuance of TINs to taxpayers, which is a national responsibility of all taxpayers. |
| | - Validation Checks for Confirmation. | ▪ Personnel of the Authority are compelled to use the registration module for validation checks with other designated government institutions during registration. |
| | - Application for issuance of TIN. | ▪ Taxpayers are expected to apply for the issuance of TIN, and with the aid of the e-registration feature of TRIPS, taxpayers are allowed to register for TINs online for convenience. |
| | - Use of TIN. | ▪ All TINs used for business and official transactions should be generated by the system only. |
| | *Electronic Transactions Act, 2008 (Act 772)* <br> - Legal certainty and confidence in e-transactions | ▪ Promotes the use of the e-payments portal and ensures the safety of payments made online. |
| | - Promotes e-government services | ▪ The use of the system received massive support from the government through the e-government project. |
| | - The authenticity of digital documents | ▪ Advocates for the equal treatment of digital signatures hence promoting the use of digitalized processes. |
| **Normative Pillar** | Training on the use of the system. | ▪ Publicity of the system. <br> ▪ Stakeholder involvement and commitment to the system <br> ▪ Ease of use of the system. |
| | Rules and guidelines governing the use of the system. | ▪ Limits access to all users of the system depending on ranks. <br> ▪ Secures the system and prevents unauthorized intrusion. <br> ▪ Ensures user-comportment with the use of the system. |
| | Establishment of a Project team. | ▪ Aided in the acquisition of ICT infrastructure required for the development, deployment and maintenance of the system. <br> ▪ Smooth transition of business processes onto the system. <br> ▪ Ensured stakeholder involvement. |
| | E-Government adoption. | ▪ The adoption of e-services by the government informed the development and use of the system. <br> ▪ Financial assistance in the development and maintenance of the system. |
| | Standards and Practices of other organizations. | ▪ Ensured the development of an efficient system for revenue mobilization to meet global and international standards. |
| **Cognitive Pillar** | Integration of different businesses and cultures. | ▪ This resulted in a delayed adoption process and use. <br> ▪ Extension in the period for changeover of business processes onto the system. |
| | Change Management. | ▪ Awareness of the need to change. <br> ▪ Developing the desire to participate in and support change. <br> ▪ Knowledge about how to change. <br> ▪ Ability to adopt new skills. <br> ▪ Reinforcement to embrace change. |
| | Legacy Systems. | ▪ Difficulty in accepting a new system. <br> ▪ Delay in data migration. |
| | Computer Literacy. | ▪ Lack of responsibility and ownership of the system. <br> ▪ Reluctance to accept the new system. <br> ▪ Under-utilization of the system. |

Source: Authors' Construction

## 5. Discussion of findings

This section addresses the research question of the study by discussing the propositions of the study after a thorough review of the literature.

### 5.1 Proposition one (P1): Regulative factors influence the digitalization of revenue mobilization

From the analysis of findings, the regulative pillar, which refers to government regulations that organizations are expected to comply with, and failure to comply would attract sanctions [26], influenced the use of the system. The regulation on the establishment of the Authority, which mandated the Authority to adopt and use a holistic system for all tax administrative duties, led to the development and, in effect, the use of the system. Section 1 of the GRA Act, 2009 (Act 791) specifically required the Authority to adopt a unique technology that could integrate the business processes of all former revenue agencies to support the integration of these agencies and to ensure a smooth changeover process. This served as a driving force for the action taken by the organization with support from the government.

Another regulative force that influenced the use of the system was the TIN Act [34]. The Act governed the registration and identification of taxpayers with the issuance of TINs. As a national obligation of all taxpayers, the registration process is expected to be completed by all taxpayers resulting in the issuance of TINs.

Again, the Electronic Transactions Act, 2008 (Act 772) contributed to the use of the system. Regulations from this Act governed the legal certainty, confidence and authenticity of digitized documents and signatures. Findings of most studies on digitalization often emphasize the existence of a lack of trust and confidence in digitized documents [1], [5]. The Act promoted the use of digitalization by ensuring users' safety on e-payments as well as advocating for the equal treatment of digital signatures. This Act influenced the use of the system, especially on the part of taxpayers and assured them of their safety concerning accessing certain services provided by the system.

### 5.2 Proposition two (P2): Normative factors influence the digitalization of revenue mobilization

The normative pillar refers to norms and values that determine legal and illegal actions in a particular social context. This pillar includes norms that primarily refer to the effects of professional practice. These norms define what is acceptable or unacceptable to professional practices. The goal of building end-user capacity to use the digital platform effectively and efficiently influenced the meeting of specific normative standard requirements. This was necessary because of the transition from erstwhile systems to the use of an integrated system which is noted in studies as an aid for the use of information systems [3], [18], [19]. Training end-users on the use of the system was a standard requirement which led to the effective use of the system. Various training sessions were conducted on the use of the system, and as evident from the analysis of findings, it was required of all end-users to use a holistic technological tool in their daily operations at the Authority. The significance of the training sessions was to publicize the system, create awareness of the system, ensure stakeholder involvement and commitment to the system and also ensure ease of use of the system. Training is an essential tool for promoting the use of IS [35]. The training also caused end-users to comply with guidelines and rules governing the use of the system. This was to regulate the extent to which users had access to the system and ensure the security of the system as well as user-comportment.

Another requirement that influenced the use of the system was the establishment of a project team to spearhead the development of the system and to ensure a smooth transition. The team led the acquisition of the ICT infrastructure required for the development, deployment and maintenance of the system. Nonetheless, the project saw massive support from the government and the World Bank financially. Donor support is considered to be very important to the use of IS [36]. This support hastened the developmental process of the system and aided in the deployment of the system in a number of offices within a given period. The decision of the government to adopt e-services informed the development and use of the system by the agency for revenue mobilization. Studies have argued that the government and, to a larger extent, the World Bank can influence the articulation of innovations and policy-making, especially in developing economies [36].

Standards and practices of other organizations also influenced the use of the system. As discussed earlier, the modules of the system were imitated from an already developed system used for revenue mobilization internationally. In view of this, the efficiency of the system was perceived to meet global and international standards. This informed the decision to opt for the system as an integrated system to aid in revenue mobilization in Ghana.

### 5.3 Proposition three (P3): Cognitive factors influenced the digitalization of revenue mobilization

The Cognitive factors imply the expertise and knowledge as well as thinking patterns of individuals in a social context. E-government studies have argued that there exists a significant relationship between organizational culture and employee attitudes toward the use of Information Systems (IS) [37]. Organizational culture is also considered a significant factor in the adoption and use of IS [38]. The agency had just been established through the integration of the three revenue agencies that already had their own cultures with different business processes. The integration of different businesses and cultures resulted in the delay of the adoption process hence affecting the use of the system. Due to the differences in organizational cultures, the period allocated for the changeover of business processes onto the system across all deployed offices was delayed, and this also affected the use of the system. However, even though timelines set for the implementation and deployment of the system were delayed, the team emphasized the need to embrace the new and emerging organizational culture to ensure a successful changeover of the business process and hence accommodated the slow pace of deployment.

Change management also posed a great influence on the use of the system. Preparing the minds of end-users on the acceptance of new processes with an integrated system was quite a challenge but a necessity to promote the use of digitalization. As noted in the literature, an organizational culture that embraces the assumptions, tenets, practices, and history allows for easy identification with the organization and increases the urge to work to achieve the common goal of the organization [1]. To expedite the change management process and ensure the effective utilization of the system, users were informed about the necessity of change, motivated to develop a willingness to participate and support the change, educated on how to acquire and adapt to new skills, and encouraged to embrace the change. User education was essential to the acceptance and use of digitalization. This was done to enhance the adoption and use of the system.

In conclusion, it is observed from the discussions above that the cognitive pillar brought out most challenges faced with the acceptance and use of the system. Studies have argued that challenges are inevitable in the use of IS, especially in the public sectors [1], [5],[39]. This was noted in the cognitive pillar and its effects on the use of the system.

## 6. Summary, conclusion and recommendation

The study explored the institutional factors influencing the use of technology in revenue mobilization by a government agency. Specifically, the study sought to examine how cognitive, normative and regulative factors influence the use of information technology in mobilizing revenue at the Ghana Revenue Authority.

To address this objective, the new institutional theory was adopted as a guiding lens to study the institutional environment of information technology usage. The theory was chosen to analyze and understand how the institutional pillars shape the use of information technology. After an extensive review of the literature, appropriate propositions were developed. The study employed semi-structured interviews to collect data from the organization in question, with the new institutional theory informing data analysis of findings.

### 6.1 Summary of the research findings

Understanding how regulative, normative and cognitive factors influence the use of technology necessitated the use of the new institutional theory to validate the propositions developed in the study. Factors of each pillar were identified and examined to investigate their effects on the digitalization of revenue mobilization in an emerging economy.

In a nutshell, each factor of the institutional environment influenced the use of technology for revenue mobilization. The finalized model is presented in Fig. 2.
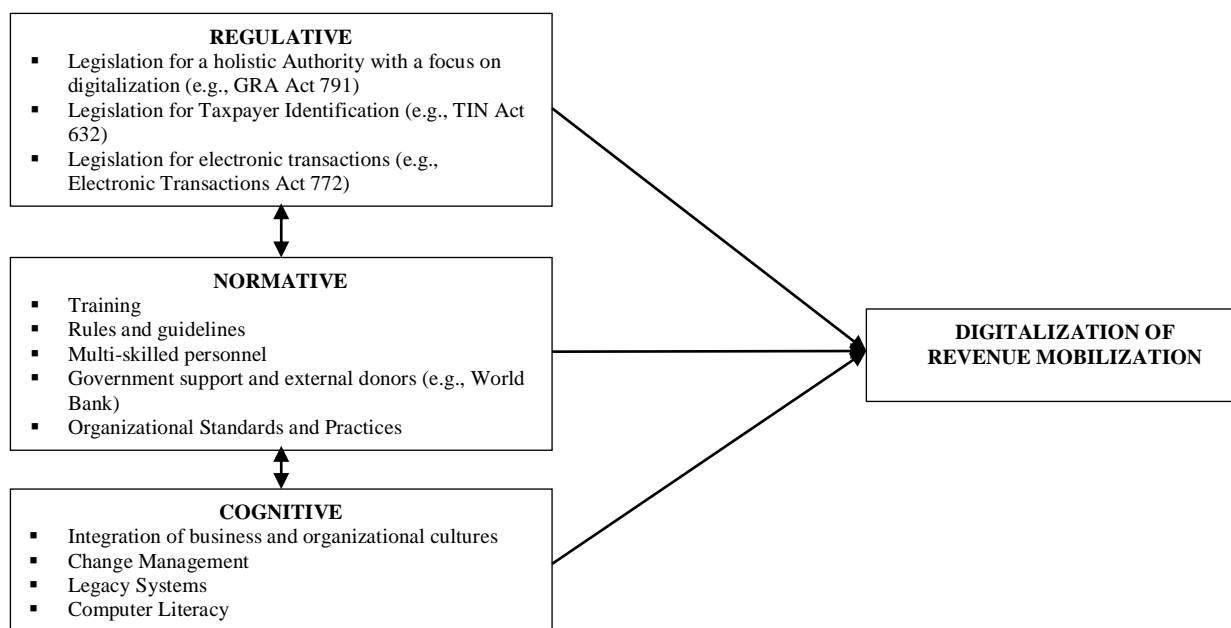
Fig. 2. Model for institutional factors influencing the digitalization of revenue mobilization

## 6.2 Implications of the study

Significant contributions have been made to research, practice and policy.

Concerning research, this study contributes to the body of knowledge on the emergence of the digital economy by exploring the use of e-revenue systems and procedures, which had received little attention. Secondly, the application of the new institutional theory also encourages researchers to pay more attention to the social aspect of technology acceptance and use with a minimal concentration on the technical aspect. These enhance the understanding of factors which influence the digitalization of revenue mobilization. Information Systems "are" people, and regardless of how robust a system is, it is still a known fact that the views and attitudes of end-users should be considered. However, in situations where there is a need for researchers to look at both the technical and social aspects of the acceptance and use of information technology, the new institutional theory can be combined with other theories. Thirdly, the study establishes the need for IS researchers to extend their studies to other aspects of the digital economy, such as the use, benefits and challenges of e-revenue systems rather than the over-concentrated studies on IS adoption and acceptance.

The study contributes to practice by drawing out social issues that affect the use of information technology. These issues must be critically looked at to promote the digitalization of business processes. There is a need for organizations to build institutional capability and skill through the development, implementation and use of digitalized systems. Periodic training on the use of IS could increase the desire to adopt and use a system.

Concerning policy, there is a need for emerging economies to adequately analyze both national and international legal frameworks that have implications for the use of information technology. The study advocates for government to institute very effective policies and guidelines and ensure compliance to achieve effective use of information technology.

## 6.3 Limitations and future research directions

Due to time constraints for the completion of this research, the study did not cover all 67 offices of the organization under study, especially offices located in rural areas. Moreover, the newly adopted system was still under further

deployment stages in the rural offices pending completion. This limited the study only to offices where the system had been deployed.

The study also focused on a specific single case phenomenon which was directed by the research title. However, the findings of the study can be applied to other projects on digitalized systems. Furthermore, the findings of this study are limited to the regulative, normative and cognitive factors that influence the use of digitalized systems which focused only on the social aspect of information technology use. The use of the new institutional theory, together with other theories, could project different findings as related to the technical aspects of technology use.

Additionally, future studies can review the effectiveness of each module in the software to ascertain how it enables or constrains the digitalized revenue mobilization process. Other theories can also be used in future research to unearth other pertinent issues related to the use of digitalized systems and to offer more generalizations to the findings of the study.

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