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Barriers and Facilitators of UIDS Adoption from the User and Implementer Perspectives: A Qualitative Study

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Abstract

Purpose: This study aims to explore the perceptions of the users and implementers on UIDS adoption. This paper highlights the barriers and facilitators guided by the triple review of IS adoption theories.

Objective: To explore barriers and facilitators of adoption of UIDs from the user and implementer perspectives.

Design/methodology/approach: A cross sectional study of detailed interviews of 25 purposively selected. Interpretive thematic analysis is used to identify themes and principles and construct an initial analysis of user and implementer perspectives on barriers and facilitators of adoption of UIDS in Ugandan MDAs.

Findings: Both users and implementers wholesomely pointed out unwillingness of top management to be the major barrier among others, and also the facilitators outweigh the barriers and therefore adoption is possible.

Research limitations/implications: The findings from the present study are cross-sectional, considering the limitations therein, a longitudinal approach should be explored to study the patterns. Nevertheless, its interpretive style allows identification but a confirmatory method is recommended.

Practical implication: Closer analysis of field notes and the previous review of literature led to redefining of the interview content hence refinement and addition of more codes making it an iterative process and this yielded more concentrated content guided by both literature and interview findings.

Social implication: This study will enable the implementers to minimize on the barriers, improve on the facilitators so as to allow for adoption of UIDS that will bring about improved service delivery to the citizenry due to reduced paper work, unnecessary delays and bureaucratic tendencies.

Originality/value: It is the first paper to explore views from the user and implementer perspective concerning barriers and facilitators of adoption of UIDS. This study is important for governments seeking to enhance adoption of UIDS as it unveils the hindrances and to the academic literature, it adds little body of knowledge on adoption of identity systems.

Conclusion: Adoption of UIDs can improve service delivery, reduce fraudulent acts and reduce maintenance costs in MDAs.

Keywords: Unified Identification Systems, User and Implementer Perspective, UIDS Adoption

Introduction

The trend of identity management has taken over many economies around the world, this administrative sector is concerned with the identifying of individuals by the state for better service delivery, reduced fraud among others (Bwalya, 2017; Cofta, 2008). ICTs have become part of every transaction inclusive of identification, it is now a necessity to incorporate electronic into any transaction. According to scholars like Alshehri and Drew (2010), Ndou (2004), many governments especially in the developed world have used the unified identification systems to support their policies especially in the provision of high quality services at a relatively low cost. Research has also found out that electronic identify cards has

the potential to ensure high level security to personal details (Digital Single Market, 2016). It is also believed that the use of electronic identify cards by governments can promote efficiency, transparency, effectiveness and accountability as well as partnership with the private sector in service delivery through public private partnership (UN e-government Survey, 2016). Studies from the early adopters like Denmark, Estonia, Germany and Finland have revealed that through the deployment of the electronic identify cards initiative; there has been an improvement in service delivery and quality of life (Yonazi, 2012; Fug, 2016). Through the use of electronic identify cards; nationals of such countries can now access public services with ease regardless of their location (Digital Single Market, 2016). According to Castro (2011), the use of electronic identify cards has the potential of reducing many risks like identity theft, and enabling the safe and secure use of online applications and transactions with other users. Much as developed countries have managed to overcome some of challenges that hinder successful integration of the unified identification systems, for the developing countries it hasn't been the case (Al-Gahtani, Hubona & Wang, 2017; Jain & Kesar, 2011). There are a number of theories that explain IS innovation specifically UIDS adoption however this study will focus on three theories that is Dynamic capability theory (DCT), Diffusion of Innovation (DOI) and Technology-Organization-Environment (TOE) mainly because they comprise the study variables.

Objective

To explore barriers and facilitators of adoption of UIDs from the user and implementer perspectives.

Research Question

RQ: What are the barriers and facilitators of adoption of UIDs from the user and implementer perspectives?

The rest of the paper will be arranged as follows, next section is the literature review, in this section we discuss the Unified Identification systems Adoption and theories related to UIDS Adoption. This section is followed by methodology. The next section is results and this is followed by discussion of findings. The last section of this paper is conclusion and implications.

Literature Review

Unified Identification Systems Adoption

Much as developed countries have managed to overcome some of challenges that hinder successful integration of the unified identification systems, for the developing countries it hasn't been the case (Alshehri & Drew, 2010, Ahamed et al., 2017). Rigorous efforts have been made by governments in the less developed countries to ensure that they put in place clear identification systems, but this has been frustrated by some challenges (Chipeta, 2018; Gelb & Clark, 2013) such as data duplication, budget constraints, data management, unnecessary delays due to limited financial resources, and sometimes indefinite suspension of the entire integration process by the different line ministries, departments and agencies (Anderson et al., 2016; The Carter Centre, 2011; Zhu, 2004) and these are more evident in African states such as Ghana, Mali, Bokinafaso, Malawi, Nigeria, Kenya and Uganda than in any other developing economies (Gemalto, 2018; Foster, 2015). According to Gelb and Metz (2018), globally the integration process has been hindered by privacy issues based on the argument that integration may invade individual privacy by their respective governments since citizens are mandated to furnish all their details before a card is issued to them (Johnston et al., 2017; Unger, 2010). However it should be noted that most of the challenges identified above are managerial and

can be elucidated with the right mix of top management, right resource allocation prioritization, government support and technology competence, competitive pressure, user readiness, compatibility of systems as suggested by literature (Tornatzky & Fleisher, 1990; Boddy, 2010; Alshamaila, 2013; Evangelista et al., 2010, Chao & Chandra, 2012).

Theories Related to UIDS Adoption

Over the recent past, information technology (IT) has been universally accepted as an essential tool in enhancing the competitiveness of the economy of a country. It is commonly accepted today that IT has significant effects on the productivity of institutions. Its significance will only be fully realized if, and when, IT are widely spread and used. It is fundamental, therefore, to appreciate the determinants of IT adoption and their theoretical models that have arisen addressing IT adoption.

According to Marston et al. (2011), there are two branches of adoption theories; one branch is applied at the individual level and the other at the organisational level. The theories that work at the individual level comprise the technology acceptance model (TAM), the theory of planned behaviour (TPB), and unified theory of acceptance and use of technology (UTAUT). The adoption theories applied at the organisational level include the DOI and the TOE framework (Oliveira et al., 2014). The DOI and TOE theories predominately guide research on most of IT adoption of new technologies (Oliveira et al., 2014; Zhai & Liu, 2013; Alatawi, Dwivedi, & Williams, 2013).

Three theories were chose to ground this study and these include Diffusion of innovation (DOI) (Rogers 1995), Dynamic capability theory (DCT) (Teece et al., 1997) and the technology-organization-environment (TOE) framework (Tornatzky & Fleischer, 1990). According to Oliveira et al. (2014), integrating concepts from different models and frameworks provide increased ability to enhance the understanding of the adoption of new technologies and innovations.

Relevance of DCT to this study

From previous studies (Furuholt et al., 2008) the researcher confirms that DCT exploits the capabilities of an organization that can include the resources an organization owns, the strengths to uptake an innovation. In most cases resources come with power, this is why support and involvement of strategic level managers is very key in the success of an innovation adoption. Just like any other I.S innovation, UIDS adoption to be successful there has to be support from top management which is in line with DCT's factor of position which suggests that the organization's future is in its stock of capabilities, secondarily the adoption and adaptability of an organization like the MDAs taking on the UIDS innovation there should be support from government structures, resource allocation and management systems this relates to processes' factor of DCT. And this evidenced by the government of Uganda's effort through NITA-U, it has developed a data Centre, installed 336 metres of fibre optic cables across the country, built 71% websites coverage in MDAs, enacted IT security regulations to enable the integration process On the shared database or the national central database for MDAs (NIRA, 2019).

The theory confirms to the facilitators of top management support and government support and as well highlights the barrier of financial capability in understanding UIDS adoption (Allen, 2015).

Relevance of DOI to this study

For any new innovation just as the UIDS also referred to as National Integration platform three factors are always considered; relative advantage, compatibility and complexity. The push for MDAs to take on the UIDS can only be influenced by the benefits it will offer in line with daily transactions, ability to serve consistently over a period of time and ease with which it can be incorporated in their daily operations (Niek, 2017). Therefore the choice of DOI

relates to its ability to unleash an innovation through diffusion that is in early stages such as the UIDS especially in the developing countries and this was attested to by the interview results especially the user respondents (Lee, Shiue, & Chen, 2016).

Relevancy of TOE to the study

TOE has been used independently and also with other theories especially DOI in explaining IS adoption at the organisational level. The theory defines it's self on the three constructs, that is technological context, organizational context and environmental context. In studies by Oliveria and Martins (2009), Luis (2008), Chau and Tam (1997) TOE justifies IS innovation adoption in areas of technology factors such as technology competency, organization such as perceived trust and top management support and environment factors such as consumer readiness and competitive pressure and these compromise our study variables.

Conclusion

We appreciate other adoption theories, however DCT, DOI and TOE are extensively used at organisational level which suits our scope of MDAs and yet integration of these three theories provide the study with a comprehensive explanation of citizen's behaviour towards UIDS adoption (Dearing et al., 2018; Mikalef et al., 2017).

Research Method

A qualitative method is used to extract views from the users and implementers of the UIDS on the barriers and facilitators for adoption (Conger & Toegel, 2012). Twenty five (25) respondents were purposively selected, purposive was opted for because it gives an opportunity to select the best respondents for the research and get appropriate feedback. Data was collected using semi-structured interviews. As Qu and Dumay (2011) argue, semi-structured interviews are characterised by questioning that is directed by themes identified in systematic as well consistent way interjected with inquiries to stimulate more sumptuous responses (Alvi, 2016).

The interview guide was developed after a comprehensive review of the literature on systems adoption and factors that influence IS adoption. In this study, 25 heads of units that occupy strategic positions in the MDAs were purposively interviewed to enable us get detailed and rich content, this composed of five (5) system implementers (NITA-U), ten (10) MDA Adopters and ten (10) MDA Non-Adopters, of the twenty five (25) respondents engaged in the investigation, twenty (20) were users and these were categorised as Adopters and Non-Adopters were the Adopter-users are those MDAs that have used any of the four modules of the Integration platform and the non-adopter-users are those that have absolutely not taken on any of the modules. Each interview on average took 40 minutes, the researcher carried out the interviews herself in a period of three months. With the respondents' permission, most of the interviews were audio recorded and timed, with exception of two respondents who did not want their voices recorded but rather gave the researcher a detailed explanation and enough data from them. Thereafter the interview process involved recording and writing of responses on paper that later were transcribed into MS word, a code book developed and themes generated with MS word. Closer analysis of field notes and the previous review of literature led to redefining of the interview content hence refinement and addition of more codes and the outcome of this iterative process was a summary table (Table 1).

Validity and Reliability

In qualitative research, validity–or trustworthiness– and reliability—or consistency– are discussed in terms of the credibility, transferability, dependability, and confirmability of the instruments and results of the study (Hirschman, 1986; Miles & Huberman, 1994; Robson, 1993; Konradsen, Kirkevold, & Olson, 2013). To ensure reliability and validity, our data were subjected to triangulation. In research, triangulation helps address the limitations of a given

methodology by complementing its weaknesses with the strength of other methods (Brewer & Hunter, 1989). Denzin (1984) identified four forms of triangulation and these are; data source triangulation (retrieve data from a number of different sources to form one body of data), investigator triangulation (using multiple observers instead of a single observer in the form of gathering and interpreting data), theoretical triangulation (by employing multiple theoretical positions in interpreting data) and methodological triangulation (using more than one research method or data collection technique). This study employed data source triangulation (Casey & Murphy, 2009) to ensure accuracy, credibility and validity of the data. The authors extracted information from both the users and the implementers of the UIDS. We obtained views from 25 respondents which were triangulated / validated by views from the implementers of the National Integration platform of National Information Technology Authority (NITA-Uganda).

The Interview Findings

This section presents results from the interviews. 4.1 discusses the barriers as perceived by the users and implementers. 4.2 scans the facilitators that can improve on the adoption rate if you considered. The findings of the interviews both from the users' and implementers' persecutions pointed out related facilitators and as well as barriers that have made it challenging to embrace the UIDS. And the barriers can be summarized to include; unwillingness of top management, limited Internet coverage, resistance from employees plus use of isolated systems and complexity issues. And on the other hand, facilitators include among others; A shared IT infrastructure, lower maintenance costs, support of government, competence of IT team, the beliefs and values of the organization, the attitude of employees towards change among other things, inter-operations between systems for MDAs, availability of data sharing among entities that is through third party interfaces and all these facilitators are directed towards reduced fraudulent acts and improved service delivery.

Table 1. Frequencies of the major barriers and facilitators

Emerging themes (Barriers)	**Frequency**
Unwillingness of top management	22
Limited Internet coverage	15
Complexity	10
Financial constraints	20
Trusting the system	12
User readiness	18
Loss of autonomy	20
Government support	23
Financial Capability	10
Harmonized Chart of Accounts	21
Technology competence	14
Relative Advantage	20
Technology competence	23
Reduced maintenance and operational costs	15
Compatibility	11
Increased level of transparency	05
Financial capability	05

The table above outlines the frequencies captured on the identified barriers and facilitators.

Barriers to UIDS Adoption

Unwillingness of top management

According to Chao and Chandra (2012), top management support is one of the consistently found and a highly critical factor that influence UIDS adoption and implementation. It is commonly believed that top management support plays a vital role in all stages of adoption of Information system innovations (Alshamaila, 2013). There is also evidence in the innovation literature that suggests top management support is positively related to the adoption of new technologies in organizations (Al-Azizi, Al-Badi, & Al-Zrafi, 2018; Cavaness & Manoochehri, 2013). The interview results from the implementers indicated that top management did not support the adoption of UIDS giving reasons to do with loss of financial power most especially the accounting officers of the various MDAs since the system was to leading to the integration and centralization of resources, the other reason for unwillingness was loss of business in terms of the existing isolated systems that were projects that were worn by these officials. From Table 1 results, 22 respondents out of 25 (88%) argue that Unwillingness of top management is a major hindrance.

Leadership is always the biggest challenge, if top management is not convinced, no innovation not necessarily IT innovation will ever succeed (MDAI5, Male, 52, MDA implementer).

Financial capability

The users of the system pointed out financial capability. Without adequate funding, any innovation is bound to fail (Okiy, 2015). Finance is a lubricant that facilitates the mobility of any project, without it, it has to fail, this is because financial capability brings together all the implementing staff to ensure that they all focus at achieving one main goal. The UIDS adoption calls for a number of financial obligations ranging from the hardware, software, the infrastructure, the installation and training costs, these are all costs borne by an MDA.20 out of the 25 respondents pointed who were the users that they are financially very constrained to attract more costs.

With your background of IT, you should be aware that these systems come with a lot of financial obligations yet this particular one we shall be paying a certain fee to use or retrieve any information from it, yet in our budget this was not allocated a vote (MDAN2, male, 47, MDA Non-Adoptee).

Complexity of the system

Complexity is the degree to which the innovation is perceived as difficult to understand and use (Grandon & Pearson, 2004). According to Jain and Kesar (2011), the users were hesitant because they were anticipating need of high technical skills to run the system, and also the shift or the integration process to be complex

The employees are afraid of losing their jobs in case new system is complex and not friendly using the past experiences from the existing systems (MDAN2, male, 47, MDA Non-Adoptee).

Trusting the system

Trust is perceived as feelings of security when relying on an entity, trust is strongly linked with customer readiness in adoption of an IS innovation (Awa, 2012; Unger & Penski, 2010). Trusting the system entails privacy, safety and security features which ensures confidence to the employees that using the system is safe for them in terms of their personal information, security to the job not to be hacked and protection from manipulation.

Otherwise us taking on the service but our clients think otherwise can be a very big challenge that is why I think their attitude matters because this comes with loss of information power, the customers must trust the process to embrace the service (MDAD2, male, 40, MDA Adoptee).

User readiness

User readiness was identified as another hindrance to the adoption. User readiness is defined (Liljander et al., 2006; Weerakkody, El-Haddadeh, & Al-Shafi, 2011) as a state of mind, a person's predisposition toward using new technologies either in a home life or work, apart from attitudes and readiness can be defined in terms of access to internet, availability of machines among others. In this study it was indicated that readiness was double-speared, where the employees of the MDAs were not willing but as well the organisations had insufficient infrastructure to support the same.

Resistance from the employees especially the elderly whose one major concern is retirement and how to deal with the hustle after no salary rather than learning new systems and the hustle of cramming new passwords (MDAN6, male, 42, MDA Non-Adoptee).

Limited internet coverage

Limited internet coverage is closely related to user readiness given the requirement of the UIDS being web based meaning that it needs constant internet to keep in use (Chong, Ooi, & Lin, 2009).

The major challenge that has always bothered overtime is internet, the capacity is still affecting us and when all users logon it slows down completely (MDAD1, male, 37, MDA Adoptee).

System Implementers

System Implementers also mentioned internet to be a challenge. *However on a general ground one would think of the internet connectivity despite the MY UG and also the internet provided to MDA officials, and maybe finally the issue of compatibility due to several isolated IT systems sometimes it is hard to marry with ease."* (MDAI3, male, 48, MDA implementer).

Loss of autonomy of one's data was indicated largely by the system implementers. The adoption of UIDS will call for centralisation of MDAs' information where all information is centrally shared and that means as individual or better still as organisation, there is always information that is dear to an institution that would not be shared, for instance the ministry of defence some of its information cannot be shared (Warda & Khadraou, 2011).

As I have indicated our biggest challenge is the unwillingness of our consumers, fear for loss of autonomy on one's information or an organization for this case and generally creation of new data." (MDAI2, Male, 52, MDA implementer).

Facilitators for UIDS Adoption

Government support

ICT in Uganda is one of the SDGs, this is an initiative funded and promoted by the government, government support is defined as ways in which government regulation (laws), and this has influence on the adoption of IS innovation (Zhu, Kraemer & Dedrick, 2004), this is supported by other scholars (Zhu et al., 2003, 2006; Zhu & Kraemer, 2005) that agree that government support is a big facilitator of UIDS adoption where from the results from the interview showed a 92% agreement (23 out of the 25 respondents).

The government has to give its stand on an innovation, luckily enough for us, this was an initiative by the head of state and all the computer bills and data protection bills are in favour of the UIDS (MDAI4, male, 49, MDA implementer).

The implementers informed the interviewers that the availability of financial resources set aside by the government have made the process swift. Unlike the private institutions that face resource poverty (Evangelista et al., 2010; Alshamaila, 2013), the government set aside funds to facilitate the project through its agency National Identification and Registration Authority (NIRA). Only 5 out of 25, of which these 5 were all system implementers argued that financial capacity was not a challenge but rather a regulatory issue that had halted the process.

This project was an idea of His Excellency the president, the outstanding challenge of the implementation is more of a regulatory issue than financial or even technological, the financial resources were put aside for this work and our friends overseas are supporting us as well (MDA2, male, 42 , MDA Implementer).

Technology competency

In an organization, knowledge of IT is a major factor in the adoption of new technologies (Mokone, Eyitayo & Katongo, 2018; Fichman, 1997). An organization with existing knowledge of new innovation makes adoption effortless and retains knowledge of innovation adoption (Al-Gahtani, Hubona & Wang, 2017; Lertwongsatien, 2000). Uganda has a coverage of 71% websites, *390* online/electronic services, and many other isolated information systems already in use such as the electronic registration, Integrated Financial Management System, Integrated Personnel and Payroll System, Education management information systems among others this is evidence that the MDA employees have the necessary IT skills to run the new system.

Not necessary technological competence but rather a regulatory issue which is more of automation of services, and the privacy issues that come along (MDAI1, female, 34, MDA implementer).

Increased level of transparency

Harmonised chart of accounts. This is achieved through using public key infrastructure to share highly sensitive information (Yildiz, 2017), every organization has its information that is so dear to them yet this system requires that an institution to link and share information with sister agencies through agreed protocols, this kind of a shared IT infrastructure helps in lowing maintenance costs, creates inter-operations between systems for MDAs and local governments hence resulting into high connectivity between MDAs and generally improved service delivery.

From interaction the major hindrance currently is the loss of power to access of "financial deals", recently we had a challenge when the Civil Aviation officials sabotaged the exercise where we hosting around 200 guests (MDAI3, male, 46, MDA implementer).

Relative advantage

Relative advantage, in the context of this study was a utility of enabling easy access to complete information of a person, facilitates quick client service, pave way for clean-up of database, enhance effectiveness in curbing incidences of fraudulent claims, ensure data security and shorten the time for administration time (Alshamaila, 2013) and it is one of the key determinants that would influence a person or an organization to adopt an IS innovation. Previous technology adoption studies indicated that optimistic opinions and attitudes by prospective adopters of innovations offered an incentive for the adoption of emerging technologies (Arts et al., 2011, Roger, 2003). *Since we started using the national Integration platform we have enjoyed a number of benefits for instance real time reporting and dash boarding, reduced maintenance and operational costs this is because there is reduced movements and printing services and obviously this comes with an increase in revenue, there is a greater improvement in collaboration among departments and workflows, high levels of data security and data quality and with our suppliers there has been a great improvement in the supply chain among others for the interest of time* (MDAD4, male, 49, MDA Adoptee).

Compatibility

According to Bose and Luo (2011), compatibility is a measure of the effectiveness of how well the technology fits the job that it intends to run, culture where it is going to work, and experiences and needs of future adopters. The less compatible an innovation is, the higher the uncertainty associated with the adoption process (Oliveira et al., 2014). When the innovation has more matches with the organization's beliefs and values, with is well-suited with the current work requirements, fits well in the organization's existing systems and is attuned with this organization's IT infrastructure (Lin & Chen, 2012; Wanga et al., 2014).

The compatibility with the existing systems, and how swift it is to use remember I told with the installation of the IFMS we lost some very competent staff and lastly the presence of IT supportive and collaborative staff, this doesn't mean that our IT staff are not supportive, delays in resolving application bugs (MDAN8, male, 51, MDA Non-Adoptee).

Table 2. Summary of themes from interviews in qualitative data

Theme	Sub-themes	Properties
Barriers	• Unwillingness of top management • Limited Internet coverage • Complexity • Trusting the system • User readiness • Loss of autonomy	- Leadership is always the biggest challenge, if top management is not convinced no innovation not necessarily IT innovation will ever succeed etc. - Challenges include isolated IT systems, high maintenance costs for each MDA yet the source of funds is one (the government), isolated IT services among and between MDAs and LGs this affects service delivery and facilitates a lot of bribing and all sorts of corrupt tendencies amongst officials. - The complication and risks that are associated with dealing big data and obviously the IT infrastructure - These systems come with need of constant internet supply where there are a variety of cabling I am sure as an IT person you know that, IT support, computers not all MDAs have enough computers as the case here, insecurities that put the employees in more danger of losing the organization's sensitive information. - Fear for loss of autonomy on one's information or an organization for this case and generally creation of new data, the unwillingness of our consumers, consumers I mean the government agencies and the citizens, they feel like their information is going to be used against them and for MDAs they don't want to lose their respective budgets.
Facilitators	• Government support • Financial Capability • Technology competence • Relative Advantage • Increased level of transparency. • Harmonized Chart of Accounts. • Compatibility • Reduced maintenance and operational costs	- The government has to give its stand on the system, away from the employees, the clients have a contribution to the success or failure of the proposed so they should never undermine the privacy and security issues. - The availability of computers per employee, reliable internet connection, and the benefits the new system can offer. - The advantages or benefits associated with taking on the centralized system, if they are no benefits that accrue to the usage of the integrated system then it as good as not being adopted. The compatibility with the existing systems, and how swift it is to use remember I told with the installation of the IFMS we lost some very competent staff and lastly the presence of IT supportive and collaborative staff, this doesn't

		mean that our IT staff are not supportive, delays in resolving application bugs - A shared IT infrastructure, lower maintenance costs, inter-operations between systems for MDAs and local governments and high connectivity between MDAs and generally improved service delivery. - Presence of internet connection, supportive IT support, basic IT skills for the employees, availability of functioning computers because sometimes the computers may not be working or not in good shape, the user friendliness of the system among others.

Discussion

From the interaction with the implementers and users, the researcher found out that most of the facilitators and as well barriers are cross-cutting, for instance the most mentioned barriers were unwillingness of top management, resistance from employees and beneficiaries of the old existing systems and also the complexity of the new adopted system and facilitators of government support, availability of financial and technology competence of most IT staff in the MDAs were sufficiently suggested.

Conclusion, Implications and Limitations

The results suggest that the contribution of facilitators and barriers adopt UIDS is better explained when tackled from both user and implementer perspectives.

Overall, our study offers several implications. From an academic point of view, we explore the barriers and facilitators in explaining UIDS adoption in MDAs. Our results imply that the presence of resource in an organization more specifically the IT resources such as availability of computers, constant internet supply and a supportive IT team enhances the intention and effort to adopt UIDS in MDAs.

The guidance offered to policy makers is to focus on focus on technology competency programs and encourage all MDAs to fully facilitate their organizations with IT resources and ensure a very supportive IT team so as to be in position to align the philosophy of government service and UID management in Uganda and other developing countries at large in order to improve service delivery.

Despite the contributions and implications, this study is limited in the following ways. First, this study was limited to MDAs in Uganda, and it is possible that the results may only be generalized to MDAs in developing countries. Second, the use of qualitative method, is sometimes subjective, a triangulation might reveal more contributions. Lastly, given that a cross-sectional survey method was employed, changes overtime cannot be assessed, and estimates of how quickly study measures might respond to any changes cannot be provided. This is likely because organizations change, as well as systems and circumstances surrounding them. Future studies might benefit from the use of mixed methods and longitudinal data for adoption of UIDS in developing countries

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