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Organisational Factors and Adoption of the Unified
Identification System (UIDS) Among Government Ministries,
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ABSTRACT

Purpose: The study aimed at establishing the relationship between organizational factors and UID system's adoption among MDAs in Uganda.

Methodology: A positivist paradigm and cross-section design were adopted with a sample of 97 MDAs generated from a population of 130 government MDAs. MDAs were stratified and randomly selected from each stratum. The heads of department and permanent secretaries formed the unit of inquiry that were purposively selected. Self-administered, closed-ended questionnaire aided data collection. Pearson correlation and hierarchical regression techniques were used for data analysis.

Findings: It was established that organizational factors are positively associated with the adoption of the UID system among MDAs in Uganda.

Contribution to policy and practice: The study significantly contributes to a large body of knowledge in the adoption of information systems in the public sector that has been less investigated in developing countries like Uganda.

Keywords: *Organisational Factors, UID system Adoption, MDAs in Uganda*

INTRODUCTION

A shift from manual systems of data processing to automated information management systems has delivered more significant opportunities for entities by allowing them to manage vast volumes of data at a relatively low cost (Farahani and Pantanowitz, 2015; Zhong, Newman and Lan, 2016). Computerised applications have not only boosted businesses where the world has now become a global village but have also increased the level of connectivity via the web (Aman and Kasimin (2011). However, according to Zhu, Kraemer, and Xu (2006), organisation factors affect the decision to adopt an information technology innovation. This is primarily because specific organisation characteristics allow for or hinder innovation adoption due to the organisation's level of flexibility and ability to absorb risk (Pan and Jang, 2008). Ein-Dor and Segev (1978) list organisational size and structure as variables that affect the implementation success or failure of information systems where larger enterprises require robust information systems that facilitate information sharing within sites. Ein-Dor and Segev add that large volumes of transactions and information storage requirements result from many users of a system. The unified identification systems (UIDs) help manage this data and allow easy sharing across organisations. Accordingly, many technology users affect the need for technology innovations (Hasselbring, 2000).

In the 21st century, organisations need to develop competitive advantages based on the adequate and intensive use of information systems (I.S.), which are essential sources of innovation and success in today's market. The innovation orientation of organisations is an important aspect that encourages the information system adoption process (Rebecca, 2014). Benefits of adoption of an information system include; increased productivity, increased efficiency of internal business operations, and vertical integration hence improved networking among ministries, departments, and agencies (MDAs) (Levy and Powell, 2005).

The present study was guided by the dynamic capability theory (DCT) (Teece and Pisano, 1994). The DCT suggests that an organization's capability difference is entrenched in its ability to change its future that is constrained by its current stock of capabilities and Processes. This is determined by a set of higher-order routines (like governance structures, resource allocation processes, management systems, etc.) that shape organizational adaptability. Therefore, this study argues that technology adoption is one of the functional capabilities/ competencies that influence the absorptive capability of a firm. In most cases, strategic resources come with power, so support and involvement of strategic strategic-level managers are key in the success of innovation adoption (Anderson et al., 2016). Like any other I.S innovation, for a unified identification system (UIDS) adoption to be successful, top management has to support it. This is in line with DCT's factor of position, which suggests that the organization's future is in its stock of capabilities (Kushida and Murray, 2015). Additionally, the adoption and adaptability of an organization like the MDAs taking on the UIDS innovation is a function of support from management systems and competencies which relate to the "processes" factor of DCT.

The government of Uganda through National Information Technology Authority (NITA), developed a data Centre, installed fiber optic cables across the country, built 71% websites coverage in MDAs, enacted I.T. security regulations to enable the integration process on the shared database or the national central database for MDAs (NIRA, 2019). However, notwithstanding the efforts by the government to acquire a unified identification system (UIDS), the majority (88%)

of MDAs have not accessed the service modules on the National Integration Platform (National I.T. survey report, 2018). The challenge of low adoption of UIDs is exhibited in the rising cases of corruption and other crimes where culprits go unidentified, wastage of resources, lack of transparency and accountability that have characterised MDAs in Uganda (NITA, 2019). According to the Auditor General's report to Parliament for the financial year 2017/18, several shortcomings related to the UIDs adoption were reported on MDAs. These include sector delays to submit work plans, lack of service delivery standards, among others. Consequently, 54% of the MDAs failed to attain a satisfactory score on the certificate of compliance. The factors that explain a low UIDS take-up rate among MDAs have not been fully explored in Uganda. From an organization's perspective, Albert (2017) posits that adoption of an innovation is notably affected by organisational factors such as top management support, financial capability, and technology competence but these have not been examined among Uganda's MDAs.

This paper therefore examined the relationship between organizational factors and the adoption of the UID system among MDAs in Uganda, with a view of recommending strategies for enhancing the adoption rate. The findings of this research enrich the current immense literature and enhance the practitioners' understanding of the decision-making processes involved in a firm's adoption of an information technology innovation.

LITERATURE REVIEW

Besides being conducted in developed economies and solely on the private sector, existing studies on the adoption of information system innovation have yielded mixed findings. For instance, a comprehensive qualitative survey by Clohessy and Acton (2019), investigating the influence of organizational factors on blockchain adoption in Ireland, identified organizational factors as top management support and organizational readiness. In the same vein, the study further identified that top management and organisational readiness are enablers for blockchain and further identified that large enterprises are likely to take on blockchain than medium and small-sized enterprises and the study concluded that a low level of blockchain awareness was due to lack of positive influence of top management. Furthermore, Aman and Kasimin (2011) carried out a study on how Organisational factors affect cloud computing adoption in small and medium enterprises (SMEs) in Malaysia's service sector. This study hypothesised three factors; top management, Information technology (I.T.) resources, and Employee knowledge. With a questionnaire, data were collected from 140 SMEs and the findings indicated that out of the three hypothesised, only I.T. resources were significant in explaining cloud computing in Malaysian SMEs. The results suggested that despite the benefits of cloud computing to SMEs, such as cost-saving and relative advantages, they cannot be achieved unless adequate I.T. resources are allocated.

Besides, Gunasekaran and McGaughey (2006) carried out an empirical study on predicting the organisational adoption of B2C e-commerce. A literature review on the prediction model identified four organisational factors; relative advantage, competitive pressure, channel conflict, and technical resource competence. Correlation and regression analysis on data from 140 different retail companies in Hong Kong indicate that relative advantage, competitive pressure, and technical resource competence have positive effects on the adoption of online retailing. Channel conflict was found insignificant in explaining online retail in the Hong Kong context. In a related

case, a systematic review on factors that facilitate the adoption of e-business in firms by Moreno, Beatriz, Sánchez, Juan and Carmen (2016) identified organisational factors to include firm size, top management backing, expected benefits, age of an organisation, human capital and international projections. Of these factors, global predictions were found to be insignificant in influencing electronic business adoption. Likewise, Shiwei, Casey, Lin and Dianne (2018) carried out a study on understanding the factors affecting the organizational adoption of “Big Data” system for 2009-2015. This study established internal technical support, top management support, I.T. experience, I.T. in use, I.T. knowledge by top management, I.T. expertise among employees, I.T. expertise among supervisors, I.T. training, positive attitude to I.T. use, and organizational structure as organizational factors that influenced the system adoption.

From the above literature, it can be noted that scholars have come up with mixed findings on which organisational factors explain the adoption of new technologies. This can be explained by the different methodological approaches employed, besides basing on solely the private sector in developed economies. The current study congruently studied organisational factors such as top management support, financial capability, and technology competence as organisational factors in explaining the adoption of UIDS in Ugandan government MDAs. The present study, hypothesised as follows;

H₁: Organisational factors are positively associated with UID system adoption in Uganda

METHODOLOGY

The study was premised on a positivist paradigm and used a cross-sectional research design (Sekaran and Bougie, 2010). A population of 130 Government MDAs (22 ministries, 58 departments, and 50 agencies) was considered (NITA Report, 2018). Using Krejcie and Morgan’s table (Krejcie and Morgan, 1970), a sample of 97 MDAs were selected. These were first stratified by their respective categories (i.e., Ministries, Departments, and Agencies) and then selected randomly from each category. The study considered heads of department and CEO/Permanent secretaries as the unit of inquiry. Respondents were purposively selected due to their small numbers and their strategic roles in adopting the UID system among MDAs, thus giving appropriate feedback. The study employed a self-administered, close-ended survey questionnaire to collect data because it was economical and gave respondents freedom and space to work at their own pace and anonymously (Saunders, Thornhill and Lewis 2007). Organisational factors and UIDS adoption were anchored on a five-point Likert scale of 1 (strongly agree) to 5 (strongly disagree) to create a middle point to cater for respondents who were indifferent on the study variables (Creswell, 2003). Organisational factors were earlier conceptualized as a four-factor variable (i.e. top management support, financial capability, and technological competence), but the exploratory factor analysis retained only two factors (i.e. top management support and technological competence). Besides, adoption of the UID system was conceptualised as a univariate variable (Ajay, Mandalika and Manish, 2019; Rasha and Othman, 2016).

To minimize common methods bias, the study considered protecting respondents' anonymity by not indicating their names on the questionnaire and improving scale items through their careful construction (Jakobsen and Jensen, 2015). As highlighted by Richardson, Simmering, and Sturman et al (2009), item ambiguity is the most common problem in the comprehension stage of responses. Consequently, the study defined unfamiliar terms, avoided vague concepts, provided

their examples, and kept questions specific, simple, and concise (Tourangeau, Rips, and Rasinski, 2000). Besides, the study conducted a validity test where it was confirmed that the content validity index (CVI) for all constructs was above 0.7 as recommended by (Field 2009). Likewise, convergent validity with average variance above 0.7 and discriminant validity with average variance extracted above 0.5 confirmed construct validity for all constructs (Smith, 2011 and Straub *et al*, 2004). Reliability was confirmed given that all constructs yielded Cronbach's Alpha Coefficients above the cut-off point of 0.7 (DeVellis, 2003).

Furthermore, exploratory factor analysis was conducted to test for the unidimensionality of the measurement scales (Hair, Black, Babin, and Anderson, 2010). As recommended by Pallant (2015), principal component analysis (PCA) and varimax rotation were performed to identify the cluster of variables and reduce the measurement items to a manageable set of factors. Consequently, all constructs yielded Kaiser-Meyer-Olkin (KMO) above 0.6, with a significant ($P < .001$) Bartlett's test of sphericity, hence indicating a good model fit to the data (Field, 2009). Furthermore, parametric assumptions of normality, linearity, homogeneity of variance, and independence of errors were found tenable, forming the basis for Pearson correlation and hierarchical multiple regression as the fundamental analytical techniques in data analysis (Field, 2009).

RESULTS

Descriptive Results

Results indicated that most respondents were masters' holders (56.4%), followed by -post-graduate diploma holders (29.9%). This suggests that respondents were experienced and highly educated to comprehend the research questions, thus giving accurate responses. The heads of procurement (42.8%), H.R. (27.7%), and I.T. (20.1%) departments dominated in the study. This means that respondents were well-positioned to understand the dynamics of UID system adoption among MDAs as they are involved in decision making. The majority of MDAs, had spent more than 30 years (43.0%) and were government departments (46.7%), government agencies (36.9%), and a mild 16.4% of ministries. This means that most MDAs that participated in the study were experienced and well placed to have experienced the effects of adoption or lack of it in their operations, thus giving more accurate answers. Furthermore, with high mean scores for organisational factors (Mean=3.13), it was established that all respondents agreed that the adoption of UIDs among MDAs was highly influenced by organisational factors. From the results, respondents concurred that if MDAs address technological factors such as top management support and technology competence, UIDS adoption would be high among MDAs.

Pearson Correlation Results

As recommended by Field (2005), Pearson correlation analysis was conducted to measure the association between organisational factors and the UID system's adoption among MDAs in Uganda. Organisational factors were earlier conceptualized as a four (4) factor variable (top management support, financial capability and technological competence); the exploratory factor analysis retained only two factors (top management support and technological competence). The two factors were subjected to a Pearson correlation, and hierarchical multiple regression analyses and the results are presented in Tables 1 and 2, respectively.

Table 1: Pearson Correlation Analysis for Organisational Factors and UIDS Adoption

	1	2	3	4
1 Organization Factors	1			
2 Technology competence	.66**	1		
3 Top management support	.18**	.23**	1	
4 Adoption of UID System	.14**	.43**	.35**	1

Note: ** $p < .001$ (1-tailed) $N = 97$

Source: Primary Data (2020)

The results in *table 1* show a positive, significant relationship between organisational factors and the adoption of UIDS ($r = .14, p < .01$). This means that a positive change in organisational factors will result in an increase in the adoption of UIDS among MDAs. This is true in that an organisation's orientation influences the decision to adopt an innovation. This is primarily because certain organisation characteristics allow for or hinder innovation adoption due to the organisation's flexibility and ability to absorb risk. Congruently, the above results are attributed to specific organisational factors such as top management support ($r = .35, p < .01$), and technology competence ($r = .43, p < .01$) that exhibited a positive significant relationship with adoption of UIDS. This means that new technology is more likely to be successfully adopted by MDAs and integrated into an organisation if the employees are competent enough and understand its functionality and benefits, and have the support of their superiors. Support from top management ensures the commitment of resources and the cultivation of organizational climate conducive to successful system adoption. The above results, render support to hypothesis H₁ above.

Regression Results

Hierarchical multiple regression analysis was conducted to determine the predictive power of organisational factors in explaining the UID system's adoption among MDAs. Results are indicated in table 2.

Table 2: Regression results on the elements of organizational factors and UIDS Adoption

	Model 1			Model 2		
	B	S.E.	β	B	S.E.	β
(Constant)	2.482	0.116		1.398	0.16	
Top management Support	0.285	0.035	.348**	0.215	0.033	.262**
Technology Competence				0.394	0.043	.370**
R Square		0.348			0.5	
Adjusted R Square		0.119			0.247	
R Square Change		0.121			0.129	
F-Statistic		66.815			80.987	
Sig F-Statistic		.01			.01	
F-Change		66.815			83.779	
Sig. F Change		.01			.01	

Note: ** $p < 0.01, N=97$; Dependent Variable: Adoption of UID System

Source: Primary Data (2020)

The results in *table 2* show that organizational factors are significant predictors of adoption of UIDS as they contributed a significant 25% to the variation in the adoption of the system (model 2). In terms of individual contribution, it was observed from the regression results that technology competence contributed 13% (model 2) to the predictive power of the model (F -change 83.779, $p < .01$) with a significant beta coefficient ($\beta = .370$, $p < .01$). These results indicate that a unit increase in technology competence will result in 0.37 units increase in the adoption of UIDS among MDAs. Thus, the more employees of MDAs possess the required skills and experience in using the system, the higher the chances of the system being adopted. Besides, top management support followed closely with a contribution of an additional 12% (model 1) to the predictive power of the model (F -change 66.815, $p < .01$) given a significant beta coefficient ($\beta = .345$, $p < .01$). This implies that a unit change in top management support results in an increase in UID system's adoption by 0.345 units. These results, imply that before management decides on whether a system should be adopted, they must first ensure that all workers possess the required technological competencies. These findings coincide with hypothesis H_1 that was supported.

DISCUSSION OF RESULTS

Consistent with the dynamic capability theory, the study tested the relationship between organizational factors and the UID system's adoption among MDAs in Uganda. Based on theoretical assertions and existing literature, the study hypothesized a positive relationship between organizational factors and all its dimensions with the UID system's adoption. The study considered top management support and technology competence as the key organizational factors related to the adoption of the UID system among MDAs in Uganda.

Consequently, Pearson correlation analysis was conducted, and results (*table 1*) indicate that organizational factors as a global variable portrayed a positive significant relationship with the UID system's adoption system at the $p < .01$ level. In a related case, all dimensions (top management support and technology competence) were found to have a significant positive relationship with the adoption of the UID system among MDAs in Uganda at the $p < .01$ level. This was further confirmed from the hierarchical regression analysis (*table 2*) model's predictive power. It was established that organizational factors contributed 2% to the model's predictive power with a significant beta coefficient at the $p < .01$ level. Furthermore, a hierarchical regression analysis of dimensions revealed that each of the organizational factors made a significant contribution to the model's predictive power with technology competence and top management support contributing 13% and 12% to the model, respectively. The above results point to the fact that once employees of an MDA possess the required competencies to implement and manage the system besides top management support, there will be increased adoption of the UID system.

The above results rhyme with Pan and Jang (2008) assertions who avert that organisation factors affect the decision to adopt an information system innovation. This is primarily because specific organisation characteristics allow for or hinder innovation adoption due to the organisation's flexibility and ability to absorb risk. Furthermore, these results agree with Buhr (2015), who notes that new technology is more likely to be successfully adopted by employees and integrated into a firm's business if the employees understand the advantages of its use and have the support of their superiors. Additionally, the findings of this study concur with the empirical findings of other scholars. For instance, while carrying out a study on how organisational factors affect cloud

computing adoption in small and medium enterprises (SMEs) in the service sector in Malaysia, Aman and Kasimin (2011) established that despite the benefits of cloud computing to SMEs such as cost-saving and relative advantages, that they cannot be achieved unless adequate I.T. resources are allocated by top management and employees poses the required competences for its efficient implementation. Similar results were obtained by Gunasekaran and McGaughey (2006) in their empirical study on Predicting the organisational adoption of B2C e-commerce in Hong Kong. Their study found out that organisational factors such as technical resource competence have positive effects on the adoption of online retailing and that channel conflict was insignificant in explaining online retail in the Hong Kong context. Also, a systematic review on factors that facilitate the adoption of e-business in firms by Moreno *et al.* (2016), identified organisational factors such as firm size, top management backing, and expected benefits to be influential in the adoption of e-business systems.

Besides, the results of the present study rhyme with the assumptions of the Dynamic capability (DCT) Theory (Teece et al., 1997). The DCT suggests that an organization's capability difference is entrenched in its top management's ability to change future range of capabilities. It also postulates that an organization's effectiveness is based upon its fitness towards internal and external factors such as environment, organization size, and organization strategy (Donaldson, 2001).

Conclusion

Following the findings presented, the study concluded that the UID system's adoption among MDAs in Uganda is a function of organisational factors such as technology competence and top management support. It was confirmed that these factors work in a synergic way to influence the adoption of any technological innovation. Thus, low adoption of the UID system among MDAs in Uganda stems from its MDAs failing to recognise and embrace these factors.

Recommendation

The study suggests that MDAs should clearly define the vision and priorities for the UIDs before its adoption in operations. This can be achieved through 1) Involving the leaders at every stage of the development so that deployment is easy and acceptance is enhanced 2) Availing information on the MDA websites in time to allow for critique and involve them in the proposal development and 3) Seeking guidance from the leaders at all levels not at strategic level only. The study established that the adoption of UIDS comes with commitment of resources which determines the decision to adopt or reject. Thus, with the digital era, leaders of MDAs in Uganda are challenged to offer direction on UID system. There is need for the leaders to define their direction in favour for the transformation because as per the present study findings, when the leaders are not supportive of the advancement, the UID system is bound to fail.

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