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INTEGRATING CONSTRUCTS OF THE TECHNOLOGY ACCEPTANCE MODEL AND TOTAL QUALITY MANAGEMENT TO IMPROVE DOCUMENT MANAGEMENT PERFORMANCE

Sugandren Naidoo [1]
Vartharaj Chetty

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A B S T R A C T

Document management processes represent a key consideration in business success and quality management. There is ongoing pressure for the public sector to embrace these tools to increase efficiencies, reduce cost, waste and more significantly upholding their mandate of improved services to its citizenry. An exploratory sequential mixed method comparative case study design described the study's methodology. The study relied on the combination of a desktop review; semi- structured exploratory individual interviews (n=45) with municipality executive and strategic managers; focus group discussions (n=2) comprising 5 and 7 participants each and a quantitative online survey (n=186), in which executive/strategic municipal employee participants provided experiential insights into the range of factors that influenced technology acceptance of differing document management systems, whilst simultaneously offering their insights on the range of impacts on "total quality" that they experienced and observed.This study reports on the quantitative part of the study.The South African context creates a unique dynamic and, for that reason, traditional models related to technology acceptance were found inadequate.The recommendations borne out of the findings can contribute substantially towards a more in depth and incremental understanding towards the successful, implementation and adoption of a customised, purpose-built document management system for the public sectors.

1. INTRODUCTION

A range of document management system alternatives have been widely introduced globally (ranging from print-based, hybrid and paperless) but their success and usage patterns is varied because of the differing conditions under which each has been implemented. Global reports of business running costs suggest that poorly evidenced document management systems can increase running cost wastage for companies by anything from 15 percent to 65 percent of the total business running cost when compared to evidenced options and in the main, these cost differences can be the fine-line between the survival or demise of a business entity (Helmer 2012). By the same token, environmental sustainability of different document management processes represents an important consideration in business success and quality

[1] Corresponding author: Sugandren Naidoo
Email: naidos1@unisa.ac.za

management.Some, including Jones (2012) and Marton&Choo (2012) suggest that strategic decisions related to, choice, usage and overall quality contribution of document management systems within business have its historical roots, in the total quality management discourse and constructs related to technology acceptance. Coined in 1985 by the USA navy, the theory of Total Quality management (TQM) is conceptualised.

2. RESEARCH PROBLEM

Documents represent the single most universally utilised form of communication within businesses and their management is identified by some, as one of the top sources of financial wastage (Welsh, 2007) and (Department of Health and Hunt, 2013). Some, including Ugale, Patil and Musande, (2017) and David, Ngulube and Dube, (2013) have presented studies that show that up to 15% of fruitless expenditure within business is attributable to the mismanagement of document management systems especially within publicly run enterprises. Evidence has been consistent in illustrating a need for more evidence-based understanding of the problems associated with paper/document management systems as part of the wider agenda of increasing efficiencies and driving down operational costs. This is especially important within public entities because government reports from various contexts globally, show a growing lack of funds for the necessary operations and service provision that have direct impact on the wellbeing and the health of populations (McGrath, Griffin & Mundy 2016) and (McMullen 2011). The use of paper within industry has been equated to millions of tons of deforestation and beyond the search for efficient document management options., there is a need for seeking out options that are not harmful to the environment. This unresolved challenge represents a significant problem for the public service, one that is deserving of empirical study.

3. LITERATURE REVIEW

Documents represent the single most universally utilised form of communication within businesses and their management is identified by some, as one of the top sources of financial wastage (Welsh, 2007) and (Hunt, 2013). Some, including Ugale, Patil and Musande, (2017) and David, Ngulube and Dube, (2013) have presented studies that show that up to 15% of fruitless expenditure within business is attributable to the mismanagement of document management systems especially within publicly run enterprises.a growing lack of funds for the necessary operations and service provision that have direct impact on the wellbeing and the health of populations (McGrath, Griffin & Mundy 2016) and (McMullen 2011). Beyond the wasteful expenditure and efficiency imperatives, the attention given to more effective management of documents has been equalled by growing concerns related to the environmental sustainability of paper-based document management systems. The use of paper within industry has been equated to millions of tons of deforestation and beyond the search for efficient document management options., there is a need for seeking out options that are not harmful to the environment. With this imperative clearly accepted by many including Al-Yahya and Panuwatwanich (2018), there have been significant efforts and debates across industry to determine how businesses can bring about greater efficiencies in the workplace, particularly with respect to the management of documents.

3.1 An overview of the value of electronic document management systems – debates about paper-based and electronic options

Firstly, there appears to be some contradictory evidence about the benefits and limits of electronic systems, for example, Igbaria et al., (1997) show EDMS to be disproportionately expensive at the point of initiation, that many services and organisations often do not possess the material resources to effectively oversee their introduction. As much as this is not a distinct disadvantage, it represents a critical acceptance factor that can dissuade use of newly introduced innovations. Furthermore, others including Hsu & Chiu (2006) show that the introduction of new technologies is usually problematic because potential users are inadequately trained and as such, the full potential of the new technology is never realised. As noteworthy as these summations are, Horst et al. (2007) put forward the view that these shortcomings are not specifically about EDMS but rather speak to poor implementation readiness issues. Others including Featherman and Pavlou (2003); Grandon and Pearson (2003) and Heinze and Hu (2007) identify the benefits of EDMS over traditional manual methods of paper management. Notably, Gilani (2009:16) and Kunis (2007:31) argue that, within public services, the debates about the acceptance of different document management systems have noted the specific benefits of EDMS as ranging across several issues including – cost efficiency, environmental sustainability, quality management and efficient business function. With respect to cost efficiency, Liu and Stork (2000:24) and Vallis (2009:71) argue that, the adoption of electronic document management options can result in anything from 10 percent to 50 percent of total cost reductions.

3.2 Theoretical contribution to understanding technology acceptance model – A brief overview of seminal contributions

The Technology acceptance model (TAM) specifically and critically explores the role that identified factors such as the perceived ease of use, the perceived usefulness ended the probability of system use, all play in determining the likelihood of full implementation of

the newly introduced Information Systems. Critically, the TAM prioritises the tracing of the impact of external factors on internal cognitions, beliefs, attitudes and intentions. As a basis of its application, the TAM was derived from earlier work by Azjen& Fishbein (1969) in which they proposed the theory of reasoned action (TRA) (Azjen& Fishbein 1980). The theory of reasoned action offers insights to understanding the voluntary behaviour of individuals. It argues that intention to perform a certain behaviour precedes the actual behaviour and results from a belief that performing the behaviour may lead to particular (often beneficial) outcome. Therefore, stronger intentions lead to an increased likelihood that the behaviour of interest will be performed.

Together, the TRA and the TAM offer a widely accepted viewpoint, which centres on stating that external factors play an indirect role in influencing attitudes, perceived boundaries of normality and how these psychological factors have a significant impact on individual decisions to take up new technologies. Legris et al. (2003) specifically test the application value of these two theories combined together. In their review of literature, Legris et al. (2003), consult over 80 Scientific publications (published between 1980 and 2001) as the basis for identifying the empirical value of the TAM and the TRA. For example, the TAM has been integrated with the Theory of Reasoned Action (TRA)) successfully as a basis for expanding current theories about the factors that impact technology usage.

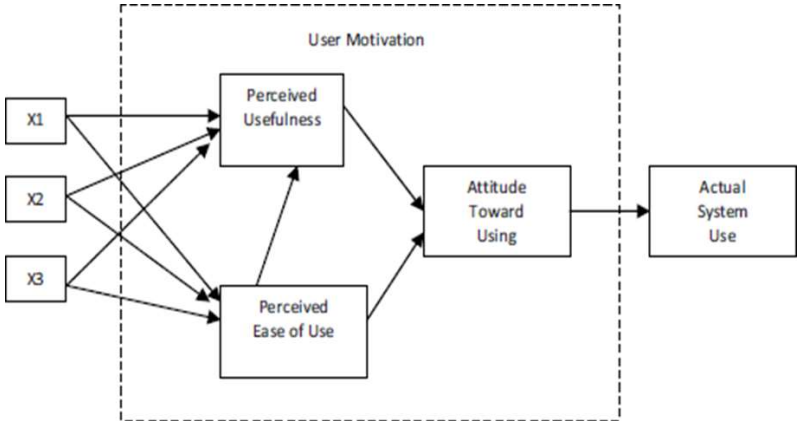

Figure 1. Davis' Original Theory of Technology Acceptance Source: Davis, 1986

Davis' original conception of the TAM has been revised by himself and others over the course of time with the most current version showing inclusion of wider determining variables as indicated below in Figure 2.

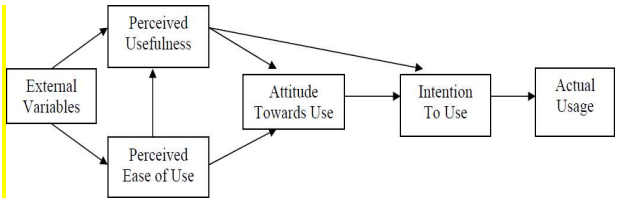

Figure 2. Davis' revised Theory of Technology AcceptanceSource: Davis, 1986

It should be noted that Davis (1985) attributes the genesis of his TAM to the Theory of Reasoned Action by Fishbein and Azjen (1975) which identifies that primarily, an individual's intention to adopt a behaviour is the single most important predicting factor in their decision to act. Fishbein and Ajzen (1975, 1991) importantly highlighted that the determination of behavioural intention is a result of the combined interplay between a person's attitudes toward that behaviour; their perceived control of the behaviour and any subjective norms that they would have assumed with respect to the behaviour or in this case, the adoption of a new technology. The TRA is depicted below in Figure 3.

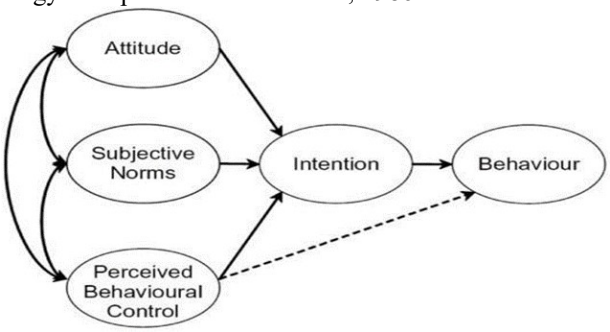

Figure 3. Theory of Reasoned Action (TRA) (Source: Fishbein & Azjen,1975)

Some researchers, including Silva et al. (2014) suggest that strategic decisions related to choice, usage and overall quality contribution of document management systems within business have their historical roots, in the total quality management discourse and constructs related to technology acceptance. As such, the theoretical grounding of the study refers both to theory related to total quality management andtechnology acceptance theoretical areas. The former i.e. total quality management theory is particularly important because it confirms the widely held view that much of the changes that are introduced in industry are a result of the competitive pressures and the need to satisfy the range of customers that any service has to satisfy. In this regard, Total Quality management represents an important strategy for ensuring stakeholder satisfaction.

For the purposes of the current study, it is important that a sound understanding of founding philosophies, concepts and primary principles is elicited.

3.3 Total quality management theory: A conceptual overview

Some researchers, including Silva et al., (2014) suggest that strategic decisions related to choose, usage and overall quality contribution of document management systems within business have their historical roots, in the total quality management discourse and constructs related to technology acceptance. As such, the theoretical grounding of the study refers both to theory related to total quality management andtechnology acceptance theoretical areas. The former i.e. total quality management theory is particularly important because it confirms the widely held view that much of the changes that are introduced in industry are a result of the competitive pressures and the need to satisfy the range of customers that any service has to satisfy. In this regard, Total Quality management represents an important strategy for ensuring stakeholder satisfaction. For the purposes of the current study, it is important that a sound understanding of founding philosophies, concepts and primary principles is elicited.Although a long-standing issue, the importance of TQM as a strategic focal point is a recent emergence and some, including Jung and Wang (2006) see it as a reaction to the growing customer demands for quality 'fit-for-purpose' products. With regard to the development of document management systems, total quality management is the primary motivation for effecting any change in the choice of system that an organisation that uses.

3.4 A summative overview of key elements of TQM

Literature on Total Quality management has been collated and reviewed by a number oftheorists including (Excellence 2001) and Holmes and McElwee, (1995) with the primary aim of providing a conceptual overview of what its key elements are. Some including Zbaracki (1998) suggests that there are six major components to TQM;

- Management commitment and leadership
- Employee involvement
- Continuous improvement
- Supplier Quality assurance and management.
- Customer focus
- Education and training

3.5 An integrated model for TQM

The above discussions provide an overview of the different concepts and/or elements of TQM. Geraedts, Montenarie and Van Rijk (2001) and Tapiero (1990) acknowledge that TQM is, by its very nature, a complex phenomenon because of the many considerations that should be made in understanding what quality is and who it is who is defining it. Deming (2001) cited in Swinton, (2004) proposes a building-block theory of TQM which attempts to collate the differing aspects of TQM into a diagrammatic representation below.

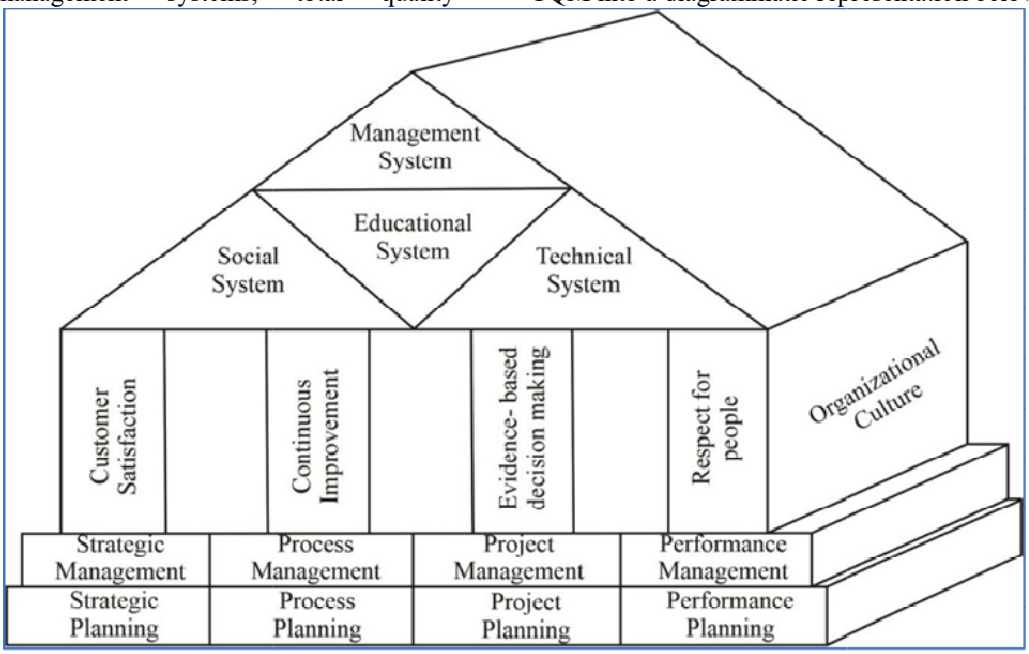

Figure 4. The House of Total Quality Model (Source: Voehl, 1992)

The above "House of Total Quality Model was initially posited by F. Voehl in 1992 and is made up of six elements that combine house and architectural metaphors with important quality concepts to describe the different aspects that should be considered within any quality discussions. Voehl's six elements include:

1. Subsystems of the organisation, such as management system, education, social and technical subsystems (roof).

2. Continuous improvement of customer satisfaction, basing decisions on facts and respect for people (pillars of quality).
3. Strategic management, processes, projects and tasks (base).
4. Strategic planning of processes, projects and tasks (benches).
5. Development of organization (mortar).
6. Corporate culture (the wall).

The above-identified House of Total Quality model shows the wholly inclusive approach to quality management and any implementation of any quality management process should be centred on the operationalisation of key organisational processes, methods and techniques. This wide-encompassing view has been used within the current study to inform that way in which quality issues have been explored.

3.6 Application of the theoretical framework in this study

As indicated earlier, the combined exploration of concepts related to technology acceptance and total quality management is used as a basis to guide both the data collection and analysis processes. To that end, the resulting data collection procedures are designed to ensure inclusion of each of the factors/influences and variables that the theories highlighted. Furthermore, the decision to collect data from the varied perspectives of different stakeholders within the document management sphere was largely informed by explorations of relevant theoretical framings of the subject under study.

4. METHODOLOGY

4.1 Research paradigm

Polit & Becker (2014) define epistemology as the philosophical study of the nature, origin, and limits of human knowledge. Within the current study, a number of research paradigms were deemed relevant and as such, each is discussed;

Interpretivism is a paradigm that maintains that all human beings are engaged in the process of making sense of their worlds and continuously interpret, create, give meaning, define, justify and rationalise daily actions (Babbie & Mouton 2001:28).Hermeneutics has a partial resonance with the current study because some of the focus on how individuals experience change upon the introduction of a new technology and that understanding of the phenomena should be based on the lived experience.

4.2 Population and sampling

The total target population for the current study was 364 potential participants ("Integrated Development Plan Annual Review", 2016/2017). Parent /source population =23000 employees employed by the municipality and who utilise the services of the administration unit. The epi-info sampling calculator (www.epi-info.com) was used to calculate the sample size and calculations were carried out using the following population parameters:- Target Population = 364 respondents comprised of Mayor (n=1); Executive Committee(EXCO) (n=10);Councillors (n=206 ;City Manager (n=1); Deputy City Mangers (n=6); Heads Of Departments (n=80) and operational staff (n=20).This is a total of 364 respondents within the target population.
A confidence level of 95% and a confidence interval of 5%, were used and based on these, the predicted sample size was 168 respondents. To allow for attrition, a further 10% was added to the sample size i.e. 17 respondents, culminating in a total of 186 respondents being recruited to take part in the survey.
The research study was carried out over four phases, which included focus groups, semi structured interviews and a survey questionnaire. This study will focus on the quantitative analysis only.

5 DATA PRESENTATION:

The final data collection phase of the study was a questionnaire-based survey in which identified respondent groups were represented.
As per sampling plan, a total of 186 respondents took part in the survey aspect of the study.
The sampling plan for the survey (Phase 3) was based on a Parent/Source Population = 23,000 employees employed by eThekwini and who utilize the services of the administration unit.
The target population was made up of 344 respondents comprised of Mayor (n=1); Executive Committee (Exco) (n=10); Councillors (n=206); City Manager (n=1); deputy city managers (n=6); Heads of departments (n=40) and Deputy Heads of Departments (n=80).
Through simple randomized sampling, a total of 186 survey respondents from the parent or source population took part in the survey.
The survey focused on eliciting feedback from respondents about the factors that respondents believed to be influential in determining their selection, uptake, and consequential utilization of an electronic DMS.
The replication of this inquiry within a quantitative survey was intended to assess the extent to which findings from previous phases of the study could be generalizable to wider population groups.

5.1 Data Analysis and Interpretation:

The sample of management respondents who took part in the online survey had the highest representation of 30-39-year-old (n=43; 23.19%) followed by those aged between 50-59 years old (n=36; 19.35%).
Notably, the cohort included three respondents who are under the age of 19 years old, and a significant proportion were aged between 59 and 65 years old (n=31, 16.67%).

Respondents were asked to provide information about their highest educational level attained, and from this process, more than half of the respondents (n=96; 52%) indicated that they had reached or attained at least a secondary school level of education.

Those with at least a tertiary education qualification represented 32% (n=59) of the respondent.

Most of the respondents had been employed within their current positions for at least three years and, as such, were expected to have sound awareness of their role expectations and most importantly what the key document management system requirements were.

The findings from the current study suggest that respondents were adequately experienced in their respective positions and therefore could offer meaningful insight into the barriers and motivating factors for their decisions to use (or not use) electronic document management systems.

Data was collected from respondents about their self-assessed competence in information technology (IT). This variable was identified as a factor of interest as predecessor research (Ammar and Ahmed, 2016) has shown that perceived competence in IT can have an influence on motivation to uptake a new technology.

Over half (n=94; 51%) of the respondents identified themselves as having “basic-user” competencies in IT. 34% (n=64) and 15% (n=28) of the respondents indicated intermediate and advanced user status, respectively.

The current study's developed conceptual framework is a combination of the modified Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris & Davis, 2003), and the Total Quality Management Theory (TQM) (Silva et al., 2014). These frameworks directed the researcher to a number of variables of interest, including attitude towards use, perceived cost, perceived ease of use, perceived usefulness, satisfaction and enjoyment, subjective norms, behavioral control, perceived security, perceived risk, perceived compatibilities, individual mobility, and personal innovativeness.

To collect feedback on these variables, respondents were asked to provide their opinions, ranging from strongly disagree to strongly agree, on a number of statements related to the above-specified themes. The responses offered by the survey participants for each investigated theme are presented below.

For the theme of "attitude towards use," 147 (79%) of the respondents either strongly disagreed, disagreed, or had neutral opinions regarding the influence of attitude towards use and its impact on whether it influenced their choice to use a specific Document Management System (DMS). The complete overview of the respondent responses for this theme is presented in the table below.

Table 1. Attitude towards use

Question (Theme: Attitude Towards Use)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
My pre-existing attitudes towards any document management system plays an important role in deciding whether I use it.	20	102	25	24	15
The attitudes of colleagues towards any document management system are likely to influence me in similar ways and will drive my decision to accept this technology	33	73	40	29	11
I accept that my attitudes towards any document management system does not have any bearing on whether or not I decide to use it.	10	8	47	86	35
Using the latest document management system will earn me support and favour from my peers and my management.	29	59	55	23	20
My attitude toward accepting a new document management system may affect my performance and that of the rest of the department in which I work.	10	30	40	60	46

One close assessment, respondents feedback on the five domains that are related to attitudes towards use, broadly indicated that individuals felt that their attitude had limited influence on the decision about whether to use the newly introduced document management system. In summation, individual attitude towards a specified document management system was seen as having minimal influence on the ultimate decision on whether or not to use that specific alternative. Perceived costs will feature next.

5.2 Perceived cost

The rationale here was to attempt to measure the impact of the perceived cost on participants' behaviors with regard to using and adopting new innovation and technology. TAM is extensively accepted as a guide to understanding user’s acceptance behavior. Perceived

usefulness and Perceived ease of use are the core determinants of individuals' intention to accept or reject new technology. While TAM is used as the baseline model, perceived cost is viewed as an additional independent variable (Rind, Hyder, Saand, Alzabi, Nawazi & Ujan, 2017).

The table that follows is indicative of the respondent's behaviors with regards acceptance or rejection of new innovation or technology.

Table 2. PerceivedCost

Question (Theme: Perceived Cost)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
My perception about the fairness of the cost of the proposed document management system is an important consideration in whether or not I decide to accept and adopt that system.	48	75	48	10	5
The perceived cost of any document management system has no influence on my decision to accept and /or adopt this system.	7	4	12	98	65
Cost of a newly introduced document management system represents one of the most important determining factors that influences acceptance of that system.	59	65	40	15	7
The cost of any new system determines its quality.	24	66	53	10	33

With regard to the fairness of the cost impacting their decision to accept or adopt the innovation, participants 75 (n=40%) disagreed, with a further 48 (n=26%) strongly disagreeing with the statement with regard to their acceptance or rejection of the innovation. Participants 48 (n=26%) remained non-committal. In summation, the majority of respondents 123 (n=66%) held the view that the fairness of the cost is not a consideration when adopting new innovation. The next determinant to be discussed will be Perceived Ease of Use.

5.3 Perceived ease of use

The Technology Acceptance Model (Davis et al. 1989) is a measure of the relationships of Perceived Ease of Use (PEOU), Perceived Usefulness (PU) and Attitudes aligned to Behavioural Intention (BI).

PEOU is one of the determinants that participants must embrace for the adoption and acceptance of new technology. Understanding the participants' perceptions may help to increase the sustained use and adoption of new innovation. The following table is a numerical summary of their Perceptions regarding Perceived Ease of Use.

Table 3. Perceived ease of use

Question (Perceived Ease of Use)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
I will not use a system that I view as difficult to use regardless of how much it is likely to improve job performance.	37	80	32	23	14
I am not deterred from using a DMS by its apparent difficulty in use.	16	23	40	72	35
I accept that all new systems will be difficult to use.	17	30	38	65	36
I believe that perceived-ease-of-use is one of the key most important determining factors which influence my decision to use any DMS.	14	13	28	82	49
Difficulty in using a DMS is often a result of computer literacy more than anything.	29	43	71	33	10

Five position statements were included to test the Participants perceptions with regard to Perceived Ease of Use. With regard to the first position statement about not using a difficult system irrespective of job performance improvement, 80 (n=43%) disagreed with the statement. Simply put, these participants were of the opinion that the improvement in job performance or ease of use far outweighs that of a difficult system or invention. A further 37 (n=20%) held the view that they too will also accept the system irrespective of the difficulty factor by strongly disagreeing with the position statement. The next determinant to be discussed is Perceived Usefulness.

5.4 Perceived usefulness

Initially informed by the technology acceptance model (TAM), perceptions related to the usefulness of any new

innovation were seen as having some relevance on whether or not individuals take up the innovation. The table below offers a numeric summation of the responses in relation to the theme of perceived usefulness.

Table 4. Summation of perceived usefulness

Question (Theme: Perceived usefulness)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
The fact that a DMS does what it promises to achieve is the most important factor to consider when deciding whether to accept and /adopt new technology.	13	31	21	65	56
Usefulness of a DMS means that it will make the job less difficult to do.	13	23	35	62	53
Usefulness of a system strongly influences how employees perceive it	17	26	30	60	53
Usefulness can only be measured by whether the system makes important performance improvements for clients of the service.	10	9	11	105	51
There al usefulness of a system can only be determined after it has been fully implemented.	11	7	16	112	40

5.5 Satisfactionand enjoyment

Apart from an assessment of the appropriateness of a system to the task at hand, theresearcher carried out a specific evaluation of the role that satisfaction and enjoyment ofthe system had on decisions on whether to use it. A detailed analysis of areas includedinthis theme isprovided inthe tablebelow.

Table 5. Satisfaction and enjoyment

Question (Theme: Satisfaction and Enjoyment)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
My satisfaction in using a DMS will influence my support of its continued use.	21	30	42	54	39
Satisfaction and enjoyment of using a DMS have limited or in significant influence in determining whether or not the system will be consistently utilised.	20	41	30	60	35
User satisfaction is primarily a result of how well the DMS performs identified job-tasks.	14	20	29	73	50
Large workstations will have limited influence in determining my satisfaction and enjoyment	16	40	50	48	32
The ergonomic design will play a huge role in my continued utilisation of the DMS	12	30	40	70	34

According to the feedback received, 46% (n=86) of the participants in the study perceived satisfaction in using a DMS as a highly influential factor. The respondents also believed that user satisfaction with the system was related to higher system performance, which was reflected in survey findings.

Table 6. Responseson subjective norms

Question (Theme: Subjective Norms)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
My peers'opinions about the newly introduced DMS influence my own motivation to wards using it.	30	41	52	43	20
Industry reputation as it relates to a DMS influences my willingness to accept and adopt it.	30	58	36	29	33
My decision(s) about whether to utilise a newly introduced DMS are entirely based on my own self-assessment of benefits with little influence from others.	14	21	30	64	42
The reputation of the DM Sheld by senior colleagues is an important influence in my own beliefs about the system.	20	39	55	41	42
Locally developed DMS can deliver an equally efficient service than those developed in more developed countries in the northern hemisphere.	32	42	42	42	42

Specifically, 152 (81%) of the participants believed that the more satisfactory and enjoyable their experience was in using a DMS, the more likely they were to perform well. The following table offers an item-by-item summary of the responses obtained regarding subjective norms. In summary, respondents believed

that the opinions of their peers, both at the same level and those who were superior, had a significant impact on their motivation to adopt a new DMS.

Behavioural control, as introduced by Azjen (1988) in his theory of planned behavior, is explained in the table below.

Table 7. Responseson behavioural control

Question (Theme: Behavioural Control)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
It is important for me to be able to be contributing to the development of a DMS as an intended user.	16	33	30	61	46
Being involved in the development and regular evaluation of a DMS provide important motivation to me to accept and adopt it.	20	35	23	50	58
Development of a DMS is for IT experts and there is no need for my involvement as a potential user.	16	30	54	50	36
Being asked to adopt a DMS that was decided on by my management without my involvement negatively influences my motivation to use the system.	14	25	60	59	28
The most important contributors for determining the design of an intended DMS must be the potential users rather than the IT developers.	28	13	43	64	38

In the context of the study, the construct of Perceived Security was investigated using the TAM framework. It was found that a significant number of respondents (74%, n = 137) believed that they should play a contributory role in the development of the particular DMS as intended users, emphasizing the importance of Perceived Security in the adoption and usage of new technology.

Table 8. Responses on perceived security

Question (Theme: Perceived Security)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
The assessed security of a DMS is of paramount and critical importance in deciding whether to accept and/or adopt it.	17	25	23	69	52
As an end-user, the security of a DMS is not my concern but rather, that of senior management who decided on its procurement.	30	60	70	14	12
System security is primarily related to system-user behaviour's and can be individually determined by different users.	16	40	53	41	36
Security concerns of a system should be balanced against potential usefulness of the system in achieving performance requirements.	10	22	36	63	66
Systems with limited security but high usefulness can be adopted with precautionary measures e.g. using an Electronic –DMS (EDMS) with a paper-based alternative to protect against potential security shortcomings of the newly introduced EDMS	8	14	57	56	51

Categorically, 77% of the participants (n=144) stated that security is of critical importance and agreed with the statement.

Perceived risk is an important construct in the Technology Acceptance Model as it relates to the potential negative consequences of adopting a new technology.

The table below summarizes the responses from participants regarding their perceived risks associated with the new DMS.

Table 9. Assessing perceived risk

Question (Theme: Perceived Risk)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
New technology always poses more risks than any comparable existing systems.	32	41	43	43	27
Perceived risk is the single most important reason for not utilizing a newly suggested DMS.	22	33	35	60	36
My assessment of a system's risk is influenced by the views of peers	43	60	39	30	14
Perceived risk of a systems can be locally managed by training potential users to be more security literate.	10	19	31	72	54
Assessment of a systems risk should be undertaken by strategic managers who procure new DMS and is not a concern for potential users.	17	22	58	51	38

Of the 186 respondents, 131 (70%) agreed with the statement that perceived risk is the most significant factor for not using a new DMS. Perceived compatibility is a measure of how relevant individuals perceive the technology to be to their job. The table below shows the responses of the respondents regarding four domains related to perceived compatibility.

Table 10. Perceived compatibility

Question (Theme: Perceived Compatibility)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
Compatibility between DMS capabilities and the requirements of the service are a critical deciding factor in my decision to up take / accept and/or adopt a new technology.	9	24	28	79	46
Determinations about a DMS are outside the locus of control of end-point users and do not play a role on an individual's motivation to use a newly introduced system.	8	22	60	57	39
End-point users of a DMS do not possess the in-depth expertise about a system to make accurate judgments about its compatibility with the job requirements.	13	30	32	66	45
Compatibility of a DMS with the job requirements can be assessed after an agreed trial period (e.g. of6 months) and I am willing to fully utilise the system in its trial period even if it means duplicating systems with the pre-existing alternative(s).	19	33	43	49	42

A significant number of respondents, 153 (n=82%), strongly agreed, agreed or were neutral to the posited statement that there must be alignment between the DMS capabilities and the relevance of their job.

Individual mobility:

TAM has undergone numerous modifications and extensions in order to include additional variables to facilitate its ever-increasing predictive power. Technologies have increased mobility of human interactions both in social spheres and professional domains. The table below presents the four domains in relation to individual mobility, incorporating the participants' responses.

Table 11. Individual mobility

Question (Theme: Individual Mobility)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
The ability for me to personally customize my user functionalities plays an important role in influencing my decision(s) to accept and/or adopt a DMS.	29	54	39	47	17
Systems that allow individual customization to provide more efficient performance with regard to core job expectations.	20	40	29	54	43
Being able to customize my functionalities is not a necessary pre-requisite tome using a using system.	17	35	40	55	39
Flexibility of a system is one of the most importantaspects that influence my motivation to accept and /or use it.	12	14	10	77	73

With regard to personal customisation of user functionalities in relation to acceptance or adoption of the DMS, 67% (n= 122) of the respondents were neutral, disagreed or strongly disagreed, while 55% (n=103) affirmed their stance with the statement.

Personal innovativeness is potentially crucial and a significant driver in the adoption and acceptance of new technological innovations. The following table comprises the participants' responses with regard to personal innovativeness.

Table 12. Responses to personal innovativeness (Source: Author's own, 2019)

Question (Theme: Personal Innovativeness)	**Strongly disagreed (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
I believe that any newly introduced system should be at the "cutting edge" of innovation and should surpass systems utilised by similar service providers.	23	40	58	33	32
Innovativeness is not as important to me as the system's ability to perform to identified work and task expectations.	18	27	40	52	49
The future of document management systems will be IT-base and it is important that all innovative approaches make use o that above all.	16	30	35	60	45
The security risks associated with using innovative IT DMS options are a minor consideration and should not be the basis decision whether or not a new system should be introduced.	31	45	50	34	26

There appears to be a stalemate from respondents with regard newly introduced systems being at the "cutting edge" of technology.

5. OVERVIEW OF KEY FINDINGS

The responses from the online survey were in agreement with the general themes that emerged from the individual interviews and the focus group discussions. Importantly, themes were statistically substantiated by virtue of the fact that the survey had statistically significant representation with 186 respondents. In summation, findings identified offered a basis for the development of theory on what factors have noteworthy influence in document management system choice.

6. RECOMMENDATIONS

The recommendations borne out of the findings can contribute substantially towards a more in-depth and incremental understanding towards the successful, implementation and adoption of a customised, purpose-built document management system for the public sectors. The eThekwini Municipality has no doubt made and is making huge strides in trying to provide basic services to the citizenry, but the opportunity to embrace technologies increasingly in their strategic endeavors will go a long way in better servicing the community. The time is now.

7. CONCLUSIONS

The current study adopted and embraced the exploratory sequential mixed method design as this was best suited to answering the key objectives. Data analysis, presentation, and interpretation was then expounded, and this ultimately culminated in the proposed framework being developed. The model is so designed that further testing will facilitate a better understanding of the technology acceptance behaviors and also contributes to the understanding of the dynamic nature of the technology acceptance process. The recent surge in technology in creating competitive advantages are at the vanguard of opportunity, but as we note almost daily, it is a formidable challenge for management and organizations. The degree of technocratization and enabling a facilitating environment is a huge challenge for public sectors. However, with a concerted effort, strategic orientation, and armed with a better understanding of the factors that contribute to successful implementation and adoption of technology, the level of success is raised.

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Vartharaj Chetty
Durban University of Technology,
South Africa
devan.chetty08@gmail.com

Sugandren Naidoo
Department of Operations
Management College of
Economic and Management
Sciences,
South Africa
naidos1@unisa.ac.za
ORCID: 0000-0003-4284-516X