The Impact of Knowledge Interpretation and Organizational Context on the Use of Electronic Recordkeeping Systems

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Abstract

Transparency and accountability in society is underpinned by the requirement to create and maintain trustworthy digital records. The need (often mandated by legislation) to manage these records has been the primary motivator for the implementation of enterprise-wide Electronic Document and Records Management Systems (EDRMS). However, EDRMS implementations have proved challenging in terms of end-user acceptance of the technology. Drawing on Structuration Theory, the Records Continuum Model and the Technology Acceptance Model, this research explored the factors that influence a user's intention to contribute documents to an EDRMS. The findings of a quantitative survey undertaken in the context of the New Zealand public sector and the subsequent structural equation modeling revealed a unique set of factors influencing use, including one not previously identified, namely the perceived value of records.

Keywords

Electronic recordkeeping systems, knowledge interpretation, perceived value of records, social influence, perceived power security, effort expectancy, performance expectancy

INTRODUCTION

A significant body of information systems research has been directed at studying user acceptance of technological systems. This paper argues for the need for contextual sensitivity when considering technology acceptance, by presenting the outcomes of research into digital recordkeeping systems and their unique set of use-influencing factors.

Trustworthy recordkeeping is essential for maintaining accountability and transparency in human society. The need to manage the primary characteristics of these records; namely, authenticity, reliability, integrity, and usability (Standards Australia 2002) within the digital environment is driving the development of new theory, the adoption of international standards, and the implementation of new technological recordkeeping solutions. Unfortunately, the implementation of digital recordkeeping systems has met with mixed end-user acceptance and project success (Jones 2012; McLeod and Childs 2013; Nguyen et al. 2009; Wilkins et al. 2009). The question arises: why are these recordkeeping systems experiencing different rates of acceptance and utilization by end users?

The research reported in this paper addressed that question by identifying and measuring the factors that influence a user's intention to contribute documents to a particular type of digital recordkeeping system, an Electronic Document and Records Management System (EDRMS). An EDRMS is defined by the State Records of South Australia as "an automated system used to manage the creation, use, management and disposal of physical and electronically created documents and records for the purpose of supporting the creating, revision and management of digital documents, improving an organisation's workflow and providing evidence of business activities" (Nguyen et al. 2008, p. 524).

The paper begins by outlining the theoretical background to digital recordkeeping and explains the conceptual research model developed to guide this project. This is followed by an account of the application of this model in the context of New Zealand government agencies where public servants are already required to use (but often choosing not to) a formal digital recordkeeping system. Findings are presented, and the paper concludes by discussing the importance of the constructs influential in the three conceptual areas of the research model: technology acceptance, organizational context and knowledge interpretation, and the implications of these for EDRMS acceptance.

THEORETICAL BACKGROUND

EDRMS are complex enterprise-class systems designed to provide and apply accepted recordkeeping principles to electronic documents held in a digital environment. A record is "information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business" (Standards Australia 2002, p. 3). In accordance with this definition, records must be managed in such a way that they can be accepted as being trustworthy to the level required by a jurisdiction. Records management is defined as the "field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records" (Standards Australia 2002, p. 3). An EDRMS can be regarded as the embodiment of records management requirements and processes in a digital context.

The level of management required to maintain records to a state of evidential reliability varies by society. To compound this challenge, societies interact and change over time. Structuration Theory is a general theory of social organization (Giddens 1984), and it provides a method to view and consider people's actions and the structures of society as they recursively evolve over time (Jones et al. 2004; Jones and Karsten 2008). Structuration theory argues that the three main types of structure in society (signification, domination, and legitimation) both influence and are acted upon (via 'modalities') by three primary interactions that occur between people within the society (communication, power, and sanction). Furthermore, these interactions result in changes that can take place over various timescales ranging from daily through to the eras associated with large long-lived social institutions (Giddens 1984).

Recognizing that the definition and requirements associated with trustworthy records in the context of a society share a similar change trajectory, Upward used Giddens' structurational concept of space-time distanciation as the foundation in the development of the Records Continuum Model (Upward 1997). This model is designed to help records practitioners move to a more unified approach to the records-archival relationship by allowing a record to both exist and be interpreted in many dimensions across time. The Records Continuum Model underpins the design philosophy behind today's EDRMS by requiring that the records be captured at the point of creation, that is, by the creator of the record. End-users therefore find that they are now personally responsible for the initial capture of records, and their acceptance and willingness to use these systems becomes a critical measure of the success of digital recordkeeping in general. The problem associated with the uptake of EDRMS has motivated research in the records management discipline (McLeod, et al., 2011), but has remained largely unexplored from an information systems (IS) perspective. This research aimed to address that gap.

Accordingly, we developed a research model to investigate the willingness of end-users to engage with EDRMS. The model (Figure 1) was formed around constructs taken from the technology acceptance literature. Technology acceptance has been researched extensively in IS with Davis's (1986) Technology Acceptance Model (TAM) being one of the most influential theories in technology systems acceptance and use research (Venkatesh et al. 2003; Venkatesh and Davis 2000). To account for the collective use and the accompanying impact of social behaviours, the model introduced additional constructs from the literature to represent the organizational context in which EDRMS operate by design. Finally, not all users view recordkeeping as a worthwhile activity and these various views are captured in the final aspect of the model, knowledge interpretation.

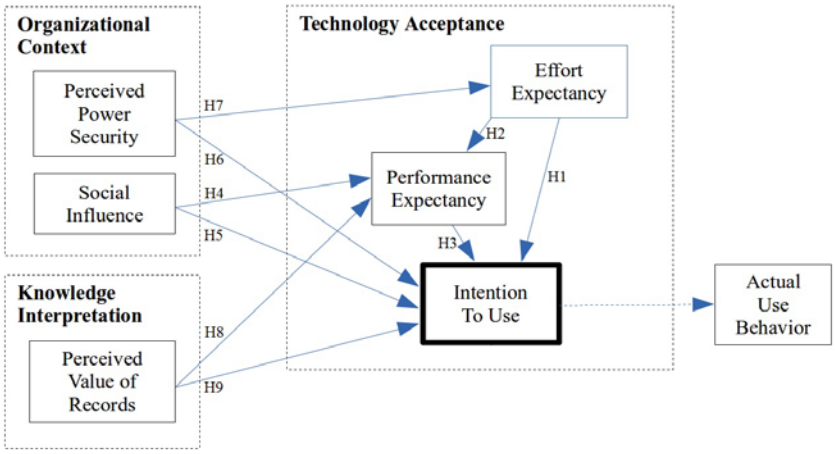

Figure 1: The conceptual research model focuses on the factors that contribute to the use of an electronic recordkeeping system (Lewellen et al. 2013)

RESEARCH MODEL AND HYPOTHESES

The research model (Figure 1) focuses on system use. System use is defined as "an individual user's employment of one or more features of a system to perform a task" (Burton-Jones and Straub 2006, p. 6). The dependent variable *intention to use* is a strong predictor of actual use (Bagozzi 1982); however in this case, use was re-defined as the willingness to contribute documents to an EDRMS, in order to separate it from other use functions such as Search. The research model comprised three conceptual areas – technology acceptance, organizational context, and knowledge interpretation. Suitable constructs were selected to represent each of these conceptual areas. The hypothesized effects of the selected constructs on the dependent variable and on each other were based on relationships supported by the literature. These are discussed below.

In 2003, Davis built on TAM's success by contributing to the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003). In developing the UTAUT, Venkatesh et al. took the opportunity to unify their constructs as well. *Perceived ease of us*e was recast as *effort expectancy* (EE), which incorporated aspects of *complexity* (Thompson et al. 1991) and *ease of use* (Moore and Benbasat 1991), and was defined as "the degree of ease associated with the use of the system" (Venkatesh et al. 2003, p. 450). In addition, *perceived usefulness* was recast as *performance expectancy* (PE), which incorporated elements of *perceived usefulness* (Davis 1989; Davis et al. 1989; Venkatesh and Davis 2000); *relative advantage* (Moore and Benbasat 1991); and *outcome expectation* (Compeau et al. 1999; Compeau and Higgins 1995); and it was similarly defined as "the degree to which an individual believes that using a system will help him or her attain gains in job performance" (Venkatesh et al. 2003, p. 447). In the research model, performance expectancy and effort expectancy were adopted to represent the original two TAM constructs, yet incorporate the slightly broader UTAUT theoretical definitions.

The UTAUT and TAM models both proposed direct impacts of PE and EE on behavioural intention (i.e., *intention to use* (ITC)). However, the original TAM model also proposed an impact of perceived ease of use on perceived usefulness. As many EDRMS interfaces are quite complex, TAM's original hypothesized effect of EE → PE was retained, resulting in the following three hypothesized path effects.

> **H1:** Effort expectancy (perceived ease of use) will have a positive effect on a user's intention to contribute to an electronic recordkeeping system.
>
> **H2:** Effort expectancy (perceived ease of use) will have a positive effect on a user's performance expectancy (perceived usefulness) of an electronic recordkeeping system.
>
> **H3:** Performance expectancy (perceived usefulness) will have a positive effect on a user's intention to contribute to an electronic recordkeeping system.

TAM constructs focus on an individual user's acceptance of a technology, but they do not directly account for the organizational context of shared-use systems. To capture the organizational context in the research model, Structuration Theory informed the selection of two additional constructs. Social influence (SI), based primarily on subjective norm (Ajzen 1991; Fishbein and Ajzen 1975), was selected from UTAUT to correspond to Giddens' communication and sanction interactions, and is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al. 2003, p. 451). In UTAUT and TAM2, SI impacted ITC directly due to the compliance effect. However, in TAM2, SI was also hypothesized to affect perceived usefulness (PE), where users' beliefs are influenced by others (the internalization effect) (Venkatesh and Davis 2000), resulting in the following hypothesized path effects.

> **H4:** Social influence will have a positive effect on a user's performance expectancy (perceived usefulness) of an electronic recordkeeping system.
>
> **H5:** Social influence will have a positive effect on a user's intention to contribute to an electronic recordkeeping system.

Perceived power security (POW), which is defined as "the degree to which a person believes that using a particular system will be free from threats of insecurity regarding loss of power and influence" (Ong et al. 2005, p. 3), was selected to represent Giddens' power interaction. POW was hypothesized to impact ITC directly; however, as the perceived loss of power increases, users tend to transfer some of that anxiety and fear to the system, resulting in an impact on the perceived ease of use (EE) (Ong et al. 2005). The research model has adopted both of these proposed effects.

> **H6:** Perceived power security will have a positive effect on a user's intention to contribute to an electronic recordkeeping system.

H7: Perceived power security will have a positive effect on a user's effort expectancy (perceived ease of use) of an electronic recordkeeping system.

Context can also influence how people perceive and respond to information. One attempt to address this aspect has been formulated by Schultze and Stabell (2004) who modelled the Four Discourses of Knowledge Management Research. This model included a continuum of organization power-politics ranging from consensus to dissensus and highlighted the impact of political climate and culture on how people view information and knowledge. Thus the final conceptual area of the EDRMS research model, knowledge interpretation, focused on the importance and value that a user accords to the records and their content. In addition to the power-politics continuum, Schultze and Stabell (2004) utilized a second continuum (dualism versus duality) that introduced a knowledge interpretation dimension. Some users see stored knowledge as an asset that has value that can be utilized in future situations (dualism), whereas others believe that knowledge only has value while in use and can only exist while in one's memory as working knowledge (duality). Building on these ideas, the final construct in our model is the perceived value of records (PVR). Perceived value of records is defined by us as the perceived importance that a user places on a document's information content combined with the importance accorded to its evidential context through time. A high PVR is expected to impact ITC directly; however, those with a high PVR are also likely to experience a higher perceived usefulness of the EDRMS as a tool in managing their records, resulting in the final two hypothesized path effects in the research model.

H8: Perceived value of records will have a positive effect on a user's performance expectancy (perceived usefulness) of an electronic recordkeeping system.

H9: Perceived value of records will have a positive effect on a user's intention to contribute to an electronic recordkeeping system.

RESEARCH DESIGN AND METHODOLOGY

The research design comprised a mixed-methods approach (Creswell 2008) that consisted of a qualitative phase to capture and develop measurement items and the research model, followed by a quantitative phase to measure the model. The qualitative phase sought to identify a large pool of factors that users considered when choosing whether to contribute documents to their organization's EDRMS (Lewellen et al. 2013). Twelve semi-structured interviews were conducted among a sample of the target population (see below). The resulting interview transcripts were analysed for major themes (Byrne 2001), which were then converted into a pool of potential measurement items that could be incorporated into a survey instrument. These items were then combined with validated items from the literature's published constructs. Where there were significant overlaps between the emergent items and those from the literature, the validated items from the literature were preferred, given that many of the measurement items were new and untested, and the relationships between the constructs and their measurement items required further validation before including them in the survey instrument. Twenty-four participants, drawn from the target population, were then recruited to take part in a card sorting exercise (Faiks and Hyland 2000). Based on a cluster analysis of the card sorting data, poor performing measurement items (those with an agreement frequency < 0.50) were identified and either adjusted or discarded.

Having identified a pool of measurement items to represent the model's latent constructs, the next phase was quantitative with a focus on the creation of the survey instrument, the collection of the data, and the measurement of the research model. This paper focuses on the quantitative phase.

Sample and Data-Collection Procedure

The targeted population were public sector employees responsible for the creation of knowledge artefacts such as policy recommendations, written reports, and other documentation. These knowledge workers are required to carry out recordkeeping responsibilities for their creations.

The sample was gathered from a New Zealand public sector organization consisting of geographically dispersed individuals representing multiple business units and who had been provided with access to and training in the use of their EDRMS. Working with management, individuals meeting the desired target population characteristics were nominated to take part in the online survey. Of 254 invitations issued, 208 surveys were opened and viewed, and these produced 193 usable responses; a 92.8% response rate from the opened invitations, and a 76.0% response rate from all invitations issued, thus minimising the risk associated with non-response bias (Sivo et al. 2006).

Measurement of the Constructs

The survey instrument consisted of 56 measurement items that were selected to reflect the research model constructs. These had been validated in the card sorting activities, but to further refine the suitability of the

measurement items post data collection, each construct's item pool was evaluated using the circle of correlations as a convenient visualization of their correlations across their first and second principle components (Abdi and Williams 2010; Sanchez 2013a). In each case, there was a group of items that visibly clustered well and that were similarly explained by their principle components (Lewellen et al. 2014). Those that did not cluster well, or that had multiple clusters, were semantically reviewed for unintended meanings that may have caused inconsistent interpretations of the items. Thirty of the highest performing measurement items (those with a calculated loading >0.7) were retained for use in the final research model analysis.

Analysis of the Research Model

A form of structural equation modelling (SEM), partial least squares path modelling (PLS-PM), was selected as the analysis method for the research model (Sanchez 2013a; Vinzi et al. 2010) and was implemented using the *plspm* analysis package (Sanchez 2013b). PLS-PM is "a statistical approach for modelling complex multivariable relationships among observed and latent variables" (Vinzi et al. 2010, p. 2). SEM techniques can be separated into two categories: covariance structural analysis (CSA) and partial least squares (PLS) structural analysis. PLS-PM was selected because, unlike the covariance-based approach, it "does not aim at reproducing the sample covariance matrix. PLS-PM is considered as a soft modelling approach where no strong assumptions (with respect to the distributions, the sample size and the measurement scale) are required" (Vinzi et al. 2010, p. 48). PLS-PM is also more data-driven and provides more emphasis on its measurement items than on the structural model, thereby improving its predictive capability (Sanchez 2013c).

RESULTS

A PLS-PM model is generally approached as two separate models. The outer (measurement) model consists of the items, or manifest variables (MVs), which directly measure the constructs; and the inner (structural) model, which consists of the constructs, or latent variables (LVs), and the hypothesized effects of the constructs on the dependent variable and/or on each other. The latent variables are measured indirectly using an approach similar to principle component analysis. The measurement items should reflect their construct with the minimum amount of error, and the loadings of the items onto their respective construct should ideally exceed 0.7, where $(0.7)^2 \approx 50\%$ of the observed variance. The loadings of the items met this requirement (and also loaded substantially less against non-targeted constructs).

Table 1 summarizes the statistical checks for unidimensionality of the item pools against their target constructs. Cronbach's Alpha (C.alpha) is a classical coefficient to measure internal consistency (Vinzi et al. 2010, p. 50). However, Dillon-Goldstein's rho (DG.rho) is considered a better indicator for PLS-PM because it bases its estimates directly on the PLS-PM loadings rather than a correlation matrix (Vinzi et al. 2010, p. 50). The 1st and 2nd eigenvalue (eig.1st and eig.2nd) reference the 1st and 2nd principle components. If the 1st eigenvalue is large, then it represents the majority of the correlation matrix of the measurement items. A correspondingly small 2nd eigenvalue is a double-check of the power of the 1st eigenvalue and indicates that the remainder of the correlation matrix is unimportant and that the measures are therefore unidimensional (Vinzi et al. 2010, p. 50).

Table 1: Measures of Unidimensionality: statistical tests of the appropriateness of the outer model measurement item pools.

	No. of Items	C.alpha [> 0.7]	DG.rho [>0.7]	eig.1st [>1.0]	eig.2nd [<1.0]
SI	3	0.733	0.852	1.99	0.764
POW	5	0.891	0.921	3.50	0.634
PVR	5	0.776	0.848	2.65	0.785
EE	6	0.926	0.942	4.38	0.472
PE	6	0.898	0.923	4.00	0.705
ITC	5	0.930	0.947	3.91	0.395

Table 1 provides assurance that the measurement items exceed their threshold values and provides a statistically reliable measure for each of the outer model's constructs.

The inner model was comprised of exogenous constructs (independent variables that impact on other constructs) and endogenous constructs (variables that both impact and are impacted on). Table 2 provides measures of the quality of fit for the inner model. The inner (structural) model (Figure 2) can be treated as a simple linear regression model and can thus use the traditional coefficient of determination, R-squared, as a measure of the

model's fit. Although R-squared was calculated for all endogenous variables, the dependent variable (intention to contribute – ITC) resulted in an R-squared of 0.516, suggesting that the research model explained 51.6% of the observed variance. Unfortunately, the coefficient of determination does not include the error associated with the outer model.

Table 2: Measures of Model Fit

LV	Type	R^2	Mean Communality	Mean Redundancy
SI	Exogenous		0.649	
POW	Exogenous		0.663	
PVR	Exogenous		0.519	
EE	Endogenous	0.012	0.736	0.009
PE	Endogenous	0.586	0.666	0.390
ITC	Endogenous	**0.516**	**0.783**	**0.404**
Goodness-of-Fit (GoF): 0.4994				

The outer model fit can be measured by looking at its mean communality. Communality is calculated as the square of the loading for each item and it measures the percent of variance in the item explained by its latent variable (Sanchez 2013a). In this case, the mean communality for ITC is 0.783, meaning that the latent variable ITC represents 78.3% of the observed variance of its measurement items. Another measure of the outer model is its redundancy. Redundancy is a measure of the "amount of variance in an endogenous construct explained by its independent variables" (Sanchez 2013a, p. 65). A higher value means a higher ability of the model to be used for prediction.

By not including the error associated with the outer PLS-PM model, the coefficient of determination tends to overstate the measure of a model's fit. Another measure of model fit, Goodness-of-Fit (GoF), is preferred for PLS-PM models. The GoF consists of the geometric mean of the average communality and the R-squared, and it is interpreted similarly to R-squared (Tenenhaus et al. 2005; Vinzi et al. 2010). The Goodness-of-Fit index for the research model was 0.4994, meaning that the model satisfactorily explained ~50% of the observed variance – a moderate to high explanatory power.

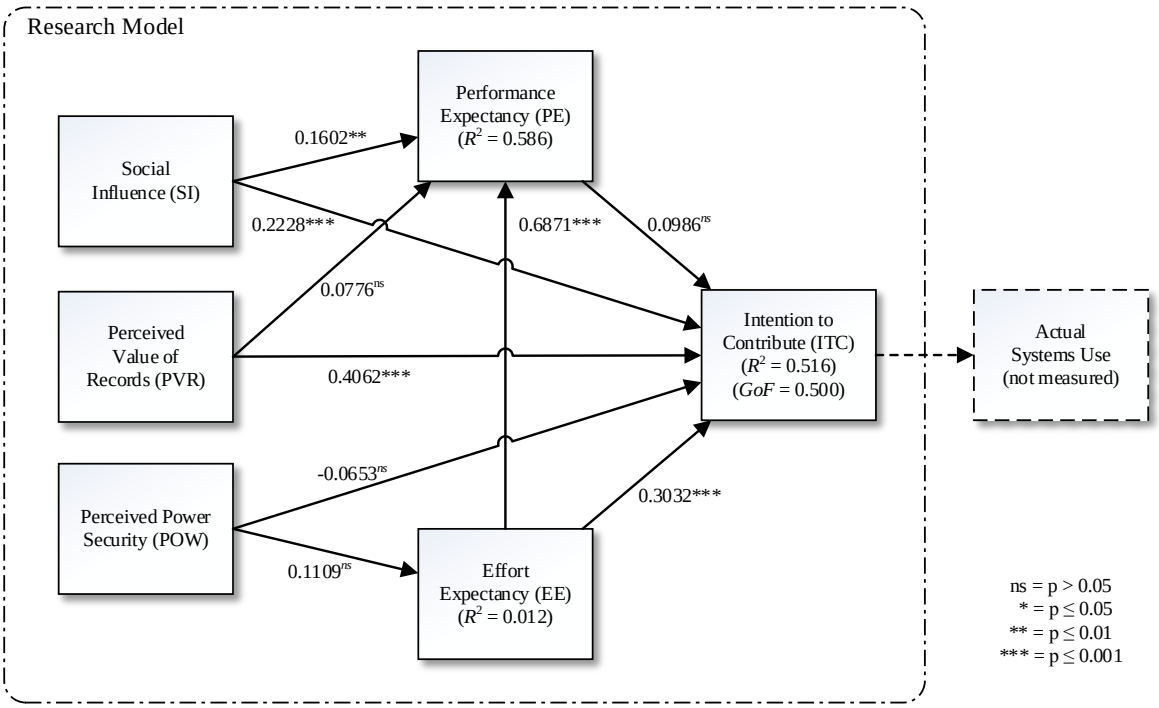

Figure 2: The Measured Research Model

The final step was to determine the significance of the findings through a process called bootstrapping. Bootstrapping is a "non-parametric approach for estimating the precision of the PLS parameter estimates" (Sanchez 2013a, p. 67). By comparing the two datasets, it is possible to calculate an estimate of the standard error

and thus determine the level of significance for each item and their effect paths (Vinzi et al. 2010). Figure 2 and Table 3 summarize the hypothesized path effects in the research model and their support by the survey data.

Table 3: Research Hypotheses Results Summary

Hypotheses	Impact	Result
H1	$EE \rightarrow ITC$	Supported
H2	$EE \rightarrow PE$	Supported
H3	$PE \rightarrow ITC$	Not Supported
H4	$SI \rightarrow PE$	Supported
H5	$SI \rightarrow ITC$	Supported
H6	$POW \rightarrow ITC$	Not Supported
H7	$POW \rightarrow EE$	Not Supported
H8	$PVR \rightarrow PE$	Not Supported
H9	$PVR \rightarrow ITC$	Supported

DISCUSSION

The research model comprised three conceptual areas: technology acceptance, organizational context and knowledge interpretation. The findings for each of these are discussed in turn, with consideration given to both theoretical and practical implications.

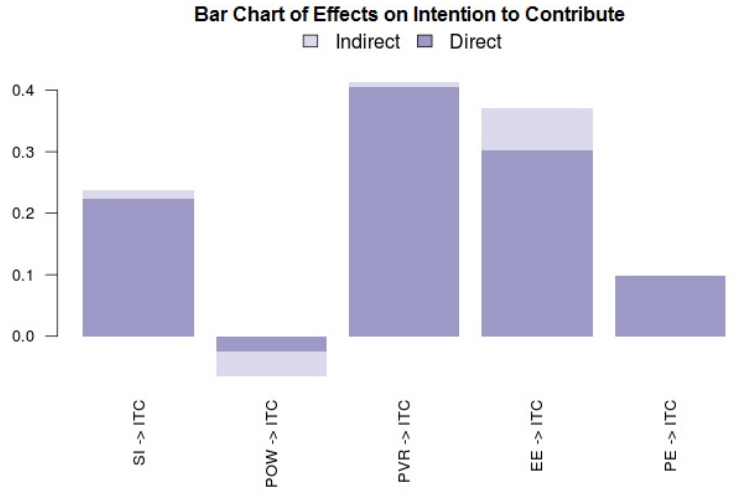

Figure 3: Effect size on the dependent variable intention to contribute

Technology Acceptance Measures

At its heart, the research model targeting digital recordkeeping systems contains the two primary technology acceptance model constructs: effort expectancy (which uses a similar definition and measurement items to the original perceived ease of use) and performance expectancy (which uses a similar definition and measurement items to perceived usefulness).

On the surface, effort expectancy (EE) appears to be one of the least complex of the constructs in the research model. It simply seeks to determine if a technology is easy to use. However, that apparent lack of complexity is itself a challenge for measurement. Many of the measurement items found in the literature are self-referential, with one common measurement item for perceived ease of use being: “I would find the system easy to use" (Davis 1989; Davis et al. 1989; Venkatesh et al. 2003). To partially address this situation, the pool of EE measurement items was increased to include other aspects of ease of use that emerged from the interview thematic analysis. The final pool of EE measurement items was then refined to include only those that shared a similar principle component orientation, passed the statistical tests of unidimensionality, and exhibited logical semantic similarities.

As seen in Figure 3, the EE → ITC total effect was measured at 0.37 (consisting of a direct effect [H1, Table 3] of 0.30 and an indirect effect via PE [H2, Table] of an additional 0.07). Furthermore, both the H1 and H2 hypothesized path effects were supported and were highly significant. Effort expectancy represents the second most important construct in the research model. The strength of effort expectancy's effect in the model would

suggest that any strategy that reduces the effort required of end users to contribute to the system would dramatically increase use. For example, many of the comments captured by the survey targeted the level of effort associated with the need to enter metadata (as compared to using a shared-drive with no metadata requirements). The overhead associated with manually entering metadata is a known barrier to the use of recordkeeping systems (Kettunen and Henttonen 2010). Therefore, any new approaches that can reduce or automate the metadata entry requirements are likely to have the greatest impact to system use.

Performance expectancy (or perceived usefulness) is the second technology acceptance construct, and it has typically been the stronger of the two (Venkatesh and Bala 2008; Venkatesh and Davis 2000). In their research, Venkatesh and Davis (2000) found that "the performance expectancy construct within each model […] is the strongest predictor of intention and remains significant at all points in the measurement" (Venkatesh and Davis 2000, p. 447). However, in the context of digital recordkeeping systems, the research findings appear to reflect an exception to the rule. The impact of PE → ITC [H3, Table 3] was measured as having a small positive path coefficient of 0.098 as compared with Venkatesh & Davis (2000)'s impressive 0.6. In addition, it was statistically insignificant, meaning that the small observed effect may represent no effect at all insofar as technology solutions used in a recordkeeping context are concerned. Generally, one would expect that the usefulness of a recordkeeping system would not be disputed; however, the usefulness measures associated with both performance expectancy and perceived usefulness approach the concept of usefulness via a job performance lens. Unfortunately, the performance emphasis misses the contextual mark in two ways.

Firstly, digital recordkeeping systems are not focused directly on job performance improvements. Competent use of an EDRMS may indeed have a positive effect on job outcomes by facilitating access to historical data for improved decision-making; however, the primary use of electronic recordkeeping is for storage, reference and compliance purposes. The link back to improved job performance is weak. Secondly, the target population appeared to share a unique cultural trait. Many of the interviewees, supported by numerous comments volunteered with the survey instrument, displayed a trait we refer to as a public sector ethos. Participants commonly claimed no expectation of receiving personal recognition for their work, much less personal gain. Their altruistic public servant philosophy appears to seek motivation from sources other than from personal gain. This public sector ethos could further weaken the role of performance expectancy among the factors that are considered when choosing to contribute to an EDRMS.

Organizational Context

Organizational context was measured using social influence (representing the communication and sanction interactions) and perceived power security (representing the power interaction).

The measurement items associated with social influence were expanded to include other measurement items that emerged from the analysis of interview data and that reflected other aspects of social influence in an organizational setting, resulting in a pool of ten measurement items. These items performed extremely well during the card sorting analysis; however, when analysing the items against the larger survey dataset using the circle of correlations, three distinct clusters appeared (Lewellen et al. 2014). A semantic analysis of the groupings within the SI measurement item pool revealed sub-themes within the measurement items that aligned with Giddens' communication, power, and sanction interactions. Based on this analysis, the communication grouping was retained to reflect the SI construct in the model. This grouping also encompassed the majority of the original SI measurement items used by Venkatesh and Davis, however the emergent sanction grouping was only loosely associated with sanction, and was subsequently dropped from the analysis. As seen in Figure 3, the SI → ITC total effect was measured at 0.24 (consisting of a direct effect [H5, Table 3] of 0.22 and an indirect effect via PE [H4, Table 3] of an additional 0.016). Furthermore, both the H4 and H5 hypothesized path effects were supported and were highly significant. Social influence represents the third most important construct in the research model.

In contrast, the power construct did not perform nearly as well. The published measurement items associated with the perceived power security construct did not cluster well within a circle of correlations. However, when the POW items were combined with the original ten SI items, the added POW items clustered tightly with the grouping that had been associated with Giddens' power interaction, meaning that they shared a similar principle component alignment. An additional analysis of the power grouping of items in the absence of the other SI items revealed that the SI_{power} items were more unidimensional than the published POW items. After reviewing the logic and semantic alignment (in addition to the principle component alignment) of the SI_{power} measurement items, we made the decision to retain these items and use them in place of the more scattered POW items.

In spite of these efforts, the impact of POW → ITC appeared to be small and negative; both its direct effect [H6, Table 3] and its indirect effect via EE [H7, Table 3] were also statistically insignificant. It was thus concluded that this construct had no impact at all in the model. This observation is further supported by comments that emerged during the interviews. When pressed, participants acknowledged that someone could conceivably feel a

loss of power associated with storing records in a common system; however, the majority of participants remained unconvinced as to the importance of power, power-security, or power-loss in explaining system use. The measurement model supports this sentiment. Nonetheless, there remains the potential for records to be implicated in situations where power is significant. Two kinds of power could conceivably be manifested: authoritative, extending over people; and allocative, extending over objects or materials (Orlikowski 1992, p. 405). Authoritative power could be expressed through using records as measurement (for example, linking pay to records of one's work), which could result in recordkeeping systems being used politically or even maliciously (by placing records in a misleading context or entering metadata in such a way that the measures would load positively onto oneself or perhaps load negatively onto others). Allocative power could be expressed through the intentional manipulation of access rights. Although the evidence from our research suggests that recordkeeping systems are not being used in these ways, future researchers could consider revisiting this construct, especially in organizations that display aspects of dissensus in their organizational culture.

Knowledge Interpretation

The final conceptual area featured a new construct: perceived value of records. In Figure 3, the total PVR → ITC effect was measured with a path coefficient of 0.41 (consisting of a direct and highly significant effect [H9, Table 3] of 0.406 and a small indirect and insignificant effect via PE [H8, Table 3] of an additional 0.007. Perceived value of records represents the most important construct in the research model. In considering the lack of support for H8, the failure of the perceived value of records to impact PE can be attributed to the performance lens of the PE construct's definition of usefulness. The research finding suggests that survey participants saw little or no impact of using a recordkeeping technology on their job performance. With this perception in mind, further attempts to create a logical connection between their perceived value of records and job performance would appear unlikely. The results are in alignment with this interpretation.

However, H9, which posited a direct effect of perceived value of records on the intention to use a recordkeeping system, was strongly supported with a high level of statistical significance. It is perhaps unsurprising that individuals who generally value records are likely to use a digital recordkeeping system. The strength of the direct PVR → ITC effect also has an important implication in identifying the epistemological perspective of the survey participants. In other words, the sample participants have an affinity toward dualism and share a belief that information is an asset that has value and is worth storing for the future.

CONCLUSION

Digital recordkeeping is a critical concern for governments worldwide. Effective recordkeeping cannot simply be regarded as a relic from a bureaucratic past but underpins societal needs for open government: "Trustworthy and accessible government records are the means of demonstrating transparency and accountability; they are the legal foundation upon which openness is built" (IRMT 2013). The predominate technology system currently used in organizations in the developed world to address digital recordkeeping needs is the EDRMS, but the particular challenge of getting end-users to engage with these systems has been largely unaddressed by the information systems community.

The three most important constructs influencing use that emerged from our research were, in order of significance, the perceived value of records, effort expectancy and social influence. The perceived value of records is a new construct, not previously reported in IS literature, but was shown to be very influential in determining system usage in the population studied, namely New Zealand public sector employees. Our research findings indicate that contextual sensitivity, in particular to values and attitudes with regard to information, will enhance understanding of technology acceptance in organizations.

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