Technology Frames, Accountants and ERP Systems Use

Completed Research

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Abstract

Drawing on technological frame of reference as the theoretical basis, this study investigated the limited use of ERP systems' functionality and analyzed the incongruence between senior managers and day-to-day users. While the senior management believed in the strategic significance of ERP systems and concerned about the high-level benefits such as single truth of information and standardization, users perceived it from the perspective of dynamic expertise requirements and delivery of outcomes. The perceptions of users were rooted in their professional identity as accountants, and 'excel' as a transferable skill rather than ERP skills. With management’s low priority for management accounting functionality, users perceived it as a resource for sourcing transactional data. The political processes that ensured priority to financial accounting processes because of the risk and compliance requirements, have also alienated the users working in the reporting and decision support space and played significant role in shaping their interpretations and knowledge.

Keywords

Technological framing, Accountants, ERP systems, Use

Introduction

Business organizations implement enterprise systems such as enterprise resource planning (ERP), supply chain management, customer relationship management and other functional systems to support and enable business processes and functions (Bala and Venkatesh 2013). They are expected to help improve productivity and management control through integration, process optimization and improved access to information (Seddon et al 2010). In addition to the traditional business processes such as procurement, order fulfilment, accounts payable, accounts receivable and financial reporting processes, enterprise resource planning (ERP) systems offer comprehensive solutions to support planning, costing and other management accounting activities (Grabski et al 2011, Seethamraju 2005). For example, SAP, a leading ERP software solution, features a very comprehensive and integrated cost and revenue accounting module and supports a large range of management accounting processes. It ranges from conventional absorption costing and basic budgeting to activity-based costing, inventory valuation, variance analysis, sensitivity analysis, and multidimensional, hierarchical profitability analysis, and assists managers in making decisions on pricing, profitability and investment. With enterprise resource planning systems firmly entrenched in most of the business organizations for more than two decades, and with increased focus on performance management and control, use of management accounting processes embedded in these solutions, is expected to be higher (Grabski et al 2011, Granlund and Malmi 2002, Booth et al 2000). Despite such widespread availability, and increasing importance, its use is limited in many organizations (Rom and Rohde 2007, Chenhall and Smith 2011 and Granlund 2011).

Unlike other systems, enterprise systems, designed to support the entire enterprise, are inherently complex, and pose significant challenges for learning. Often overwhelmed by the complexity of these systems, employees take time to assimilate and use the functionality for organizational benefits (Gattiker & Goodhue 2005). These packaged ERP solutions require firms to first configure the system from the available optional features and options to suite their business requirements, then engage in an implementation that involves
complex and precarious transition to new work systems and routines (Robey et al. 2002). Comparing with the configuration and implementation challenges, the third challenge of limited use or non-use of the functionality, has received little attention from researchers (Yamuchi and Swanson 2010), even though continued use has implications for employee and organizational performance (Bala and Bhagwatwar 2014).

Against this background, our study seeks to examine the reasons for limited or non-use of management accounting functionality in ERP systems. Drawing from the theoretical lens of technological frames (Orlikowski and Gash 1994, Davidson 2006 and Young et al. 2016), our study analyses the differences between senior managers and day-to-day users. The definition of technological frames adopted in our study includes the assumptions, expectations, knowledge and the consequences of perception and use of technology in specific contexts by various subsets of organizational members (Orlikowski and Gash 1994). It builds on the notion that organizational change and adoption is a process in which different groups of organizational members act on their own interest, experiences, assumptions and interpretations. Three frame categories - technology strategy, technology use and nature of technology, identified by Orlikowski and Gash (1994) are used as a basis while analyzing the incongruence between senior managers and day-to-day users of management accounting functionality in ERP systems.

Majority of prior studies used technology frames for investigating introduction of new technologies (Chang 2008, Hsu 2007, Mishra & Agarwal 2010, Wang et al. 2007), processes (Gallivan 2001), knowledge management attributes (Shaw et al. 1997) and requirements gathering (Davidson 2002). It has not been used in the ERP systems context to understand how actors interpret and act towards the ERP systems, especially after they are entrenched in business organizations for more than two decades. In ERP systems literature also, studies on the use of ERP systems long time after initial implementation are limited (Liang et al. 2007, Huber et al. 2016). This theory acknowledges that users are part of the technology and that any negative reactions to technology may have a wide range of complex underlying motivations. It argues that technologies once implemented, continuously interact with their environment and lead to generation of new forms of technology and/or new environments or both (Orlikowski and Gash 1994).

Most of the past studies supported the frame categories identified by Orlikowski & Gash (1994) and explained how incongruence between groups frames has affected IS implementation. Our research extends this stream of research by applying the frames and the domains to the use of ERP systems and explains the adjustments made by various stakeholder groups. Our findings identify the reasons for its limited use and demonstrate the ways in which two groups of stakeholders perceive and emphasize different aspects of the three technology frame domains – strategy, use and nature. With business organizations now in a mature stage of ERP use, understanding the reasons to the limited use or non-use of management accounting (MA) capabilities embedded in ERP systems will contribute to better return on huge investments already made. Further, the knowledge will create opportunities for further improvement of the ERP suite of applications and increased adoption of modern management accounting processes. This paper will first present a brief review of the past literature and theoretical framework. This is followed by the explanation of the qualitative methodology adopted in the study. It will then present findings and conclusions.

Theoretical Framework and Literature Review

A theoretical lens called ‘technology frames’ developed by Orlikowski and Gash (1994) was used in this study to explore the reasons for limited or non-use of management accounting functionality in ERP systems. They refer to the assumptions, expectations and knowledge people use to understand the nature and role of technology and its specific conditions and consequences in specific contexts (Orlikowski and Gash 1994). While characterizing the interpretation of technology, Orlikowski and Gash (1994) have derived three frame domains – nature of technology, technology strategy (why and how it was adopted) and technology in use. These frames are interpretive, flexible, time and context-dependent (Lin and Silva 2005) and are more valid when examined in situ rather than assumed ahead of time (Orlikowski and Gash 1994).

The nature of technology domain refers to people’s understanding of its capabilities and functionality. Key characteristics of the nature of technology domain identified in previous studies include the value organizations place on technology (Shaw et al. 1997) and perceived usefulness of its capability (Sandford & Bhattacharjee 1999). Technology strategy includes their understanding of the motivation and objectives behind the adoption decision and its likely value to the firm (Orlikowski and Gash 1994). The technology use domain refers to user interaction (Orlikowski & Gash 1994), day to day actual conditions and
consequences associated with such interactions (Shaw et al. 1997), perceptions of users on how technology is used (Barret 1999), process improvements overcoming socio-cultural, legal, political implementation barriers (Sandford & Bhattacharjee 2008), mandatory use with carrot and stick policies (Liang et al. 2013) and knowledge and skills individual users possess (Mishra and Agarwal 2010). Usually acquired by education and training, technology use is influenced by organizational priorities and resources, users' interest in training and development, ease of use of the technology, and the adequacy of existing policies and procedures around security, confidentiality and quality (Orlikowski and Gash 1994).

Different groups of organizational members may have different incongruent technological frames largely influenced by the socialization at the workplace and professionalization through education and training. Referred as ‘frame congruence’, such conceptualization is used to understand the interpretive process and outcomes related to information technology within organizations by comparing technological frames across one or more groups (Lin and Silva 2005). Though they are not identical for everyone, they are sufficiently similar in content and structure and reasonably homogenous within each group (Olesen 2012). When these different ways of knowing and making sense of technology are not articulated clearly, they may result in misaligned expectations, contradictory actions and unanticipated organizational consequences and difficulties in technology use (Orlikowski and Gash 1994). Understanding how key groups of organizational members interpret information systems and its influence on their actions are helpful to improve theory and practice of IS development and use (Davidson 2006).

In ERP systems context, the adoption decision, implementation approach, and use practices were determined, articulated, mandated and resourced by senior management. The resources invested and prioritized for customization of various components of functionality available in the ERP system influence the degree of objectives achieved (technology strategy), the nature of its use (technology use) and the technology itself by its constant modifications and upgrades carried out over a period (nature of technology). We therefore apply technological frames to the use of ERP system with a focus on two main actor groups of accounting professionals – senior executives and day-to-day users. Our goal is to analyze whether and how these two stakeholder groups perceive the use of the decision support functionality in ERP systems in different ways, given the differences in the knowledge, experience, expectations and interests associated with these groups respectively.

Most of the past studies supported the frame categories identified by Orlikowski & Gash (1994) and explained how incongruence or lack of congruence between groups frames has affected IS implementation. Our research extends this stream of research by applying the frames to the use of management accounting functionality of ERP systems and explains the adjustments made by various organizational groups with the aim of making technological frame research more useful. Our study is different in that the contextual information relating to how frames are formed and change over a time is reflected upon by the respondents. With all the case study organizations having the ERP system in place for more than 10 years in use, respondents could reflect upon the adjustments made while using the technology. By considering the issues beyond frames incongruence, this study contributes to the literature on technological frames.

Technological frames are a result of what has happened in the past and its evolution during the continued use of the system. With its individual focus, temporal nature and contextual focus (Gal and Berente 2008), technology frames are considered a suitable theoretical framework for our study. Our study will identify and interpret the frames that already exist and predict what is likely to happen in the future, with due consideration to the processes that influence the production and evolution of frames. Our study also offers insights into whether the notion of incongruence varies by context and time and to elaborate different organizational consequences usually associated with varying degree of frame incongruence.

### Research Methodology

The focus of this study is on the technological frames of two groups of organizational members - senior management and day-to-day users. We therefore chose an interpretive approach based on qualitative data (Klein and Myers 1999). A cross-sectional field study that involves interviewing of respondents from both the groups helps us explore the knowledge, perceptions and assumptions, and their incongruence in business organizations. Interviews enable researches to examine different views, interpretations and perceptions of individuals and groups (Walsham 2006). Our study attempts to understand the reasons for
the use or non-use of management accounting functionality in ERP systems by accessing the meanings attributed (to the ERP systems) by senior managers and day-to-day users.).

As the focus of this study was on ERP systems use several years after implementation, we have approached several organizations that have an ERP systems environment. Further, we have selected the organizations that have ERP systems in use for at least 10 years. Organizations that have satisfied the criteria and those agreed to participate in the study were selected for data collection. In each of the organizations, two to four key respondents that are actively involved in the finance/accounts function and have extensive experience in an ERP-enabled environment were selected. In every organization, at least one senior manager and one day-to-day accounting user were interviewed. As the focus is on these two social groups – senior management and accounting users, the unit of analysis was not the organization. Selecting respondents from multiple organizations not only allowed us to focus on the general differences between the groups, but also helped us increase the validity of data. Accordingly, 9 senior managers and 11 day-to-day users (of management accounting functionality in an ERP system) from 6 different organizations in Australia participated in this study. All the firms studied were engaged in manufacturing and/or distribution and all had significant presence in their respective industries. Table below displays the details of participants and organizations.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Respondent &amp; Role (Senior management)</th>
<th>Respondent &amp; Role (day-to-day user in accounting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining equipment manufacturing, SAP ERP</td>
<td>R1–Finance Director R2–Finance Controller</td>
<td>R3–Accountant</td>
</tr>
<tr>
<td>Package delivery firm SAP and others</td>
<td>R4–Financial Controller R5–Senior Finance manager</td>
<td>R6–Reporting manager R7–Accountant (performance) R8 – Accountant/Analyst R9 – Analysts (tax &amp; costs)</td>
</tr>
<tr>
<td>Manufacturing &amp; distribution Oracle and JD Edwards</td>
<td>R10–Financial Controller</td>
<td>R11–Finance officer</td>
</tr>
<tr>
<td>Oil &amp; Petroleum firm SAP</td>
<td>R12–Manager Finance</td>
<td>R13–Analyst</td>
</tr>
<tr>
<td>Marketing and service firm SAP</td>
<td>R14–Sr. Manager Financial planning &amp; analysis</td>
<td>R15–Analyst (finance)</td>
</tr>
<tr>
<td>Fertilizer &amp; explosive manufacturing SAP</td>
<td>R16–Sr. Manager – Finance R17–Manager Finance</td>
<td>R18–Accountant R19–Accountant – reports &amp; consolidations R20–Analyst (reports &amp; intelligence)</td>
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**Table 1. Details of Respondents**

Each interview was of 60 to 120 minutes duration and was recorded with prior permission from the organizations and the key respondents. These recorded interviews were transcribed verbatim for further analysis and sent to individual respondents for validation and corrections. We thus collected data from 20 interviews resulting in over 30 hours of recordings and 420 pages of transcriptions. In addition, research notes were created to capture the reflections during and after interviews. Interview questions were loosely structured, allowing managers flexibility in responding. The objective was to collect information about two key aspects: i) reasons, reflections and assumptions in the limited use or non-use of management accounting functionality, and the ii) challenges faced due to the nature of technology, its capabilities and limitations, changes it underwent over time and the adjustments users made. Three technology frame of reference domains, identified by Orlikowski and Gash (1994) – technology strategy, technology in use and nature of technology, were used as a basis for coding data. Despite variation in precise definitions and category names that various researchers have used, these three general categories are considered useful for
technology frames analysis (Davidson 2006). The initial coding scheme included the three technology frame domains. Inter-coder reliability was established by having the first and second author code the transcripts independently and resolving any differences. The final coding was done by the first author. The evidence with reference to each of the three domains was organized and summarized by distinguishing between the two key stakeholder groups – senior managers and users.

Analysis and Findings

Although all the case study organizations are long-term users of ERP systems, our analysis revealed significant incongruencies and inconsistencies amongst the two stakeholder groups – senior managers and users. Findings are presented considering the three domain categories discussed in the previous sections – technology strategy, technology in use and nature of technology.

Technology strategy:

Even though senior managers expected the technology to produce business changes and performance improvement, adoption success was predominantly assessed through technical measures without an assessment of business performance, work practices and customer service. It is assumed that business performance improvement would logically follow through. As noted by one user, “

There is also a clear contrast between the senior managers and users in terms of the strategic purpose of the ERP system. To users, ERP system is a productivity tool aimed at improving the transaction efficiencies and accuracy of reporting, whereas for senior managers it is a tool that could enable profound changes in work processes and management control in addition to efficiencies. This apparent incongruence between the users and senior management have also resulted in unanticipated outcomes such as perception that the ERP system had not delivered anticipated benefits, and frustration that users must devise and adopt temporary and unreliable ‘work-arounds’ to complete the task with or without the official sanctioning by the senior management.

Our study observed low priority for customization of management accounting functionality when compared with the financial accounting processes and confirmed past research by Chenhall and Smith (2011) and Wagner et al (2011). In addition to the regulatory and compliance requirements and the resultant standardization of financial accounting tasks that demand higher priority and resources, unique management accounting and reporting needs of the firms is observed to be a major factor. In the absence of generally accepted standards and the unique characteristics of internal performance management, it is difficult for the software vendor to offer a standardized management processes and therefore require expensive customization to make the functionality suitable to the firm.

Inadequate knowledge and skills to explore, interrogate and work with the system due to limited investments on training and education soon after the adoption is another factor, our study observed. To appropriate and use the technology effectively, it is necessary to know about it enough. Such knowledge and skills are usually acquired by education and training soon after adoption and is part of the implementation approach adopted by the senior management. The extent of the training and support the management would provide to users is influenced by organizational priorities and resources, user’s interest in training, ease of use of technology and the adequacy of existing policies and procedures around security and confidentiality (Orlikowski and Gash 1994).

In every technology adoption, main concern for senior management is to get the system up and running across the firm. Considering the finite resources, senior management must weigh the trade-off between spending resources on education/training or on rolling out the technology and in most of the ERP implementation, firms have focused and given priority to the implementation of technology. Senior management believed that users appreciate the technology’s potential better through use and experimentation rather than from formal training and/or support. Further, don’t want to spare time for training as they are busy with their work routines. Thus, on one hand, users are portrayed as ‘smart’ self-learners, but are also patronized by advising them towards limited support services available. Further, senior management are concerned that the users would start creating their own variations and application work-arounds using excel and other tools and cause problems in the quality and consistency of such application.
Firms also focused on technical success of adoption, measured by the ‘going-live’ and centralization of data sometimes at the expense of business benefits. As noted by a manager, “we often have used SAP to accumulate data and not implemented in a way that we could have maximized the benefits” (R5). As noted by another respondent, “our problem is we don’t know what SAP can do and if so how cost effective it would be.” It really means deciding what to customize, what not to customize, what extent to customize, how to take advantage of SAP, to what extent give value to what you want and try to get something out of SAP – it is a struggle; as you work through system, you are constantly balancing these two things.” (R1).

To users, ERP systems are a productivity tool aimed at improving the transaction efficiencies and accuracy of reporting, whereas for senior managers it is a tool that could enable profound changes in work process and management control. This apparent incongruence between the users and senior management has resulted in unanticipated outcomes such as frustration, work-arounds, extensive use of excel spreadsheets without formal approval and control mechanisms, and perception that the ERP system had not delivered the benefits that were anticipated at the time of adoption.

**Technology use**

Decision to use or not use a range of functionality available and implemented in an ERP system is not only influenced by the senior management’s decisions in terms of resources, implementation approach and governance mechanisms, but also by the users’ preferences and skills. While senior management’s perceptions reflect balancing of priorities for resourcing as well as skills availability in terms of regulatory compliance vs performance reporting requirements, for users it is a simple adjustment to the technology that they are mandated to use on a day-to-day basis. With technology that is in use for a long time, initial cognitive habits are important and early interpretations of technology tend to congeal over time. Inadequate resources for training, lack of knowledge about the technology capabilities, primary focus on financial accounting and compliance requirements, users’ preference to use other standard tools such as excel, and existing policies and governance mechanisms have all limited the use of technology as explained below.

The nature of procedural constraints and IT governance mechanisms imposed on the day to day use of the technology is another factor limiting the use. As noted by one respondent, “every time we want a report, we have to go through IT to get all that specific reports setup” (R2). Further, it is also difficult to adopt the process or technique embedded in the standard ERP system for a specific business purpose, considering the unique characteristics of performance reporting. As noted by a senior manager, “adopting a technique embedded in ERP is sometimes a lot of work and would impact our resources. So, the question is always what is the benefit compared to the cost” (R3). If it is a priority, management will have to invest resources in setting these reports or processes up. Implications of not investing resources mean managers are indirectly sanctioning the non-use of the system functionality and workarounds. Irrespective of the availability of functionality or features in the technology adopted, senior management indirectly leaves the process to the discretion of individual user. It leaves an impression in the user’s mind that the senior management is just interested in the ‘desired outcome’ (for e.g. a report or a particular work process), though there is no explicit indication. As noted by one user, “management just wants the report, they don’t want to know how it is generated.” (R18).

As an example of inadequate resourcing, one respondent observed, “earlier, we had a different account number for every product, we go into SAP, set-up a different account number for every product and don’t bother having CO-PA. Because we have not investigated the potential within SAP... because SAP is so complicated, and the implementation consulting cost is so expensive, managers try to bypass it... you can get the raw data and do it yourself using Excel – which is a lot cheaper. So, even if I say it can be done in SAP, I know that it is difficult to train people, it will be complicated in some areas and in some areas, we have not researched the potential in SAP and therefore did not try to use it” (R18).

There is no knowledge of the technology capabilities. As noted by one of the users: “many times, we did not know that it can be done in SAP, so we went off and did it our own customized way, we often re-invented the wheel” (R5). Another user noted, “we’ve got a Ferrari under the bonnet, but we’re still treating it as it it’s a Holden Gemini,” (R14).

Skills gap is another factor. gap, to a certain extent is overcome with time and employee turnover. With employee turnover, some of the existing skills are lost and new skills are identified. As noted by a manager,
“when new people are coming into the organization with sufficient SAP skills and knowledge, we are discovering new capabilities” (R5).

Employee turnover is another issue. The following quote demonstrates the dilemma firms face. “We’ve had an evolution of people that have retired or moved on... so the skill base has been lost... the new accountants coming have a general knowledge of a standard called excel. So, they always want to carry their excel skills wherever they go rather than enhancing the existing system. The problem associated with that is there is a loss of reliance on the existing – there is offsite or downloaded information manipulated outside the system using Excel – bad combination for control of data and for accuracy.” (R12).

Though excel is a preferred tool of choice for accountants because of its transferability across the firms, senior management’s emphasis on the outcome has also encouraged users to continue to use such workarounds. From compliance perspective, management would want everything come from an integrated ERP system. “While our staff may use Excel or other tools to translate and manipulate the output from ERP system, we still would like to get the source data come from it. It is important to ensure data integrity and reliability – whenever you run that report with same parameters, you will get the same report, and this is critical to assure the quality and integrity of our data,” (R5) a senior manager commented. Another manager noted: “we are an excel organization, we love to get everything into excel, manipulate it, run macros, and drive the system to give us what we want rather than use the system (R8).

Senior management, in contrast, expressed concerns with the continued use of excel and other unsanctioned tools due to the risks of data integrity and errors. Even though the focus is to get as much as possible from the system either with excel or without, “human tendency in our company is always to get to excel...but we are trying to curb that as much as possible” (R3) noted one senior manager. As noted by one respondent, “when you write macro, you change your master data in the system, and you forget to change the macro; you are gone or when the employee moves to another organization, we are gone ...” (R4). Users, on the other hand, use excel as an adjustment in dealing with the technology to meet business or senior management’s requirement. Despite the convenience it offers, continued uncontrolled use of excel for management accounting purposes is a problem for all case study organizations. Though senior management are fully aware of the risks (of excel), no concerted efforts in terms of policies to control the use of spreadsheets are observed in case study organizations.

**Nature of technology:**

Inherent complexity of the ERP system enhanced by the changes made through customization over time and the technical focus of subsequent upgrades have limited the use of technology capabilities. While senior managers would like to adopt other technologies such as business intelligence tools as an adjustment, users adjust their interaction with technology by resorting to tools such as excel outside the mandated ERP technology environment. The following quotes demonstrate this challenge.

As noted by one respondent, “we could get a lot of these management accounting applications and reports from SAP, things like overhead cost allocation, but we just can’t get to that because we have changed SAP so much that it can’t be done now (efficiently)” (R4). Another manager attributed this to the professionalization. “We have too many engineers, they were saying we should try that, we should do this, we should do that if we use this field for this etc. etc., therefore it went out of control.” (R1). Consequently, “we were getting a muddled through report which was not accurate... there was never a perfect fit between the data we are reporting for management, for sales analysis and what was coming out of the general ledger for financial accounting” (R2). While senior management is contemplating adoption of other technologies such as business intelligence tools to overcome the challenges, day-to-day users are forced to use other means of obtaining accurate and reliable information and processes (such as excel and other tools). As noted by one respondent, “we could use these BI tools to download SAP data straight into BW, which we can then use to have these fancy reports” (R1). Another suggested dashboard technologies: “we certainly don’t have dashboard reporting, that tells us what was the sales compared to budget. etc.; we don’t have that yet.” (R3).

Upgrades, although considered essential, are viewed as technical upgrades in all the case study organizations by both the senior managers and users (R1, R5, R7, R10 and R11). Upgrades released by ERP software vendors generally promise to deliver new, expanded and/or improved functionality and processes. Business organizations tend to upgrade their solutions only when it is essential, and only when forced by
the withdrawal of technical support from the software vendors. Entire upgrade, however, becomes a routine technical upgrade with no benefits on business side. As pointed out by one senior manager, “ES upgrade is viewed as an IT-sponsored change, with the threat of losing support from the vendor if not carried out in time” (respondent 10).

Another quote demonstrates this: “when there is an upgrade, our experience has been, purely technical upgrade. It’s an IT-sponsored system change. They have to do it because we get out of support. So, they put in the pure technical side of the changes. Unfortunately, the area that is often neglected,. is we have never promoted the change in functionality and educated our people in how to use it better” (R12).

Improvements available in the newer version are also not exploited by the firms due to inadequate resourcing. As noted by another manager, management does not “invest sufficient time and resources in training the users on the improvements in the functionality and new features available in the new version” (R5). The improvement that could have contributed to the enhanced adoption of a particular management accounting process is not known to the business users. As observed by a user, “our firm hasn’t talked about the change in functionality in newer versions, never educated or trained us” (R7).

In many enterprises, customization is gradual and is offered as a piece-meal solution for individual problems. As pointed out by one respondent, “people then might not have resources or intention to actually review all our processes and work out whether their existing processes were to be improved by following vanilla processes” (R7) and therefore must have decided to customize from time to time. But when the company decides to go for an upgrade, organizations tend to realize the implications of early customization in terms of costs and loss of functionality. "What we have done customization wise as opposed to what SAP could do if we hadn’t customized it” (R5), is an important consideration, as noted by one manager.

In one case study organization, an enterprise system tool was originally intended to coordinate and run the annual budgeting process. It was “meant to be used as a more of a workload visibility tool to track how that budget process was done so that you could track to a timetable. At the end of a month, everyone would go in and do their first draft; it can then be reviewed and signed off and/or escalate out through a workflow. But I don’t think we ever actually achieved, though it has full potential in that space, that is how its evolved. There wasn’t an appetite to develop additional models or the expertise in-house to really develop additional models to get great benefit out of it, that is how it is limited to just overhead budgeting” (Respondent 14). As illustrated here, many of the system implementations evolve over time and end up doing much less than what was originally intended because of the inherent complexity of the system itself and the general lack of motivation for senior management to facilitate system use to its full designed capacity.

**Conclusion**

Focusing on two stakeholder groups – senior managers and users, this study examined the use of management accounting functionality in ERP systems and compared the assumptions, perceptions, knowledge and expectations of senior managers and users through a series of interviews. Analysis revealed the incongruences and inconsistencies between these two groups’ technological frames with reference to the three technology domains identified by Orlikowski and Gash (1994) and how adjustments are made by the organizations. While the senior management believed in the strategic significance of ERP systems and concerned about the high-level benefits such as single truth of information and standardization, users perceived it from the perspective of dynamic expertise requirements and delivery of outcomes. The perceptions of users were rooted in their professional identity as accountants, and ‘excel’ as a transferable skill rather than ERP software skills that could be different from one firm to another. Users perceived the rigidity of the ERP software, and management’s limited priority and resourcing for the customization of the software as challenging and that it cannot help them achieve their goals. The political processes that ensured priority to financial accounting processes because of the risk and compliance requirements, have also alienated the users working in the reporting and decision support space and played significant role in shaping their interpretations and knowledge.

Adaptation of technologies takes time and their use is expected to improve with time. But, as discovered in this study, it often does not happen on a gradual and continuous basis as desired by management. Once an ERP software solution implemented with certain capabilities, the focus on technology fades, and the technology, as well as the way it is used, is taken for granted with no apparent attempt to exploit its full and
hidden potential. While the senior management emphasizes high-level outcomes ignoring the processes adopted in delivering those, users continue to find 'work-arounds' (sanctioned or non-sanctioned) to meet the business requirements. Though there is an opportunity to re-examine these issues and bring them back into the ES environment when periodic technology upgrades are carried out, it largely remains a technology upgrade with no concern for business improvements. Concerned about the quality and consistency of such applications, senior management do not want users to create their own variations and 'work-arounds', but at the same time they are not prepared to invest in education and training. Senior managers framed the technology (ERP system) as a resource that would standardize the processes and routines in producing reports and analysis to support decision making. Users, however, framed the same technology as a resource for sourcing the transactional data and viewed it as constraint limiting their ability and productivity in producing the information required for reports and decision making. Even though the potential benefits of ERP system use are immense, its realization could be affected by several contextual factors including the differences in the perception of different stakeholder groups in terms of the purpose and use of technology adoption, this study found. This research suggests elements to be considered while designing interventions aimed at addressing frame incongruence and emphasizes the need to conduct frame analysis at different stages of ERP system adoption and upgrades and not just at the time of implementation. With its contextual focus, this study addresses one of the most important limitations of prior research on technology frames and contributed to further understanding of technological frames and their impact on technology use.

References


