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The role of market growth strategy, formal controls, and training programs in building IT capabilities

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Abstract
This paper examines how market growth strategy affects knowledge management (KM) processes (namely formal controls versus employee-centered training programs) aimed at translating information into usable knowledge, thus driving the development of IT capabilities. SEM results from a sample of FDIC-registered banks reveal important relationships of interest to managers and researchers.

Introduction

Knowledge creation is essential for innovation and ultimately competitive advantage in firms (Nonaka, 1991, 1994; Nonaka & Takeuchi 1995; von Krogh et al. 2000). However, prior to creating knowledge, a firm must first acquire it which is driven by what new information it is exposed to, and also its innovative routines (Nelson & Winter, 1982). Therefore, an effective knowledge management system – an information technology (IT) capability – is indispensable for a firm to recognize, acquire, and integrate new information. This is crucial for future innovation and therefore sustained competitive advantage as ultimately, it is IT capability (as an output), rather than IT resources (as an input), that is the source of intangible value (Muhanna & Stoel, 2010).

Knowledge Management System (KMS) are all-inclusive information and communication technology platforms used for managing knowledge in organizations for supporting capture, creation, storage and dissemination of information (Aktharsha & Anisa, 2011). Effective KM relies upon the organizational routines and processes which are linked to this platform. In sum, sustained competitive advantage depends upon the kind of routines and processes that determine the organizational ability to develop IT capabilities.

So if the key for a firm's competitive advantage derives from its ability to develop IT capabilities, the key question then becomes what are the organizational routines and processes

that help establish these capabilities. These processes consist of formalized processes and/or local empowerment. For example, Hammer & Champy (1994) suggest that firms can drive decisions to locations of relevant knowledge and information through the use of IT (Batra, 2006; Child & McGrath, 2001; Hammer & Champy, 1993, 1994). Lucas (1997) argued that KM systems can lessen managerial hierarchy, leading to an environment where supervision is based on trust rather than more formal mechanisms of monitoring and control. On the other hand, IT can 'lock in' rules and processes. Thus, while IT may represent more rigid and codified processes, it also provides local managers greater empowerment via access to information, and consequent responsibility and power. Soft forms of control, such as culture, often become equally important to the formalized system of control frequently considered with IT systems. This critical contrast regarding KM processes is particularly important, because prior IT investments may lock in a firm to a particular trajectory and therefore drive inflexibility, or IT investments may increase the knowledge and power of local actors, thereby leading to increased responsiveness, creating dynamic capabilities (Reddy, 2006). So what factors then determine the nature of this new information that the firm likely may encounter?

In a consistent fashion, research has called for new studies to examine the governance of knowledge intensive firms (Foss, 2007; Starbuck, 1992) such as those in the financial services industry that use IT to acquire and diffuse knowledge. Child & McGrath (2001) argue that information-intensive industries mandate new ways of organizing, because of a shift from the physical economy to an information-intensive economy, and as a result, likely reveal a shift from bureaucracy to emerging organizational forms. However, rules and regulations still are also extremely important for knowledge-intensive financial services firms. Therefore, this study focuses on financial services, specifically the banking industry. Undeniably, the financial

services industry has been impacted by IT, as firms in this industry rely on IT as a way to introduce new products, reach new markets and customer bases, while improving operational efficiency (Pyun, et al., 2002; Sriram & Krishnan, 2003).

This paper investigates how market growth strategy affects what new information the organization likely encounters, what KM processes and routines (principally formal versus a more flexible methodology emphasizing local training) help the firm to translate this acquired information to usable knowledge, and correspondingly how effective the firm is at developing IT capabilities. First, current research on KM processes, control systems, and IT capabilities is described, and hypotheses are discussed. The proposed methodology and initial results sections are then described. And finally, a preliminary discussion section concludes the paper.

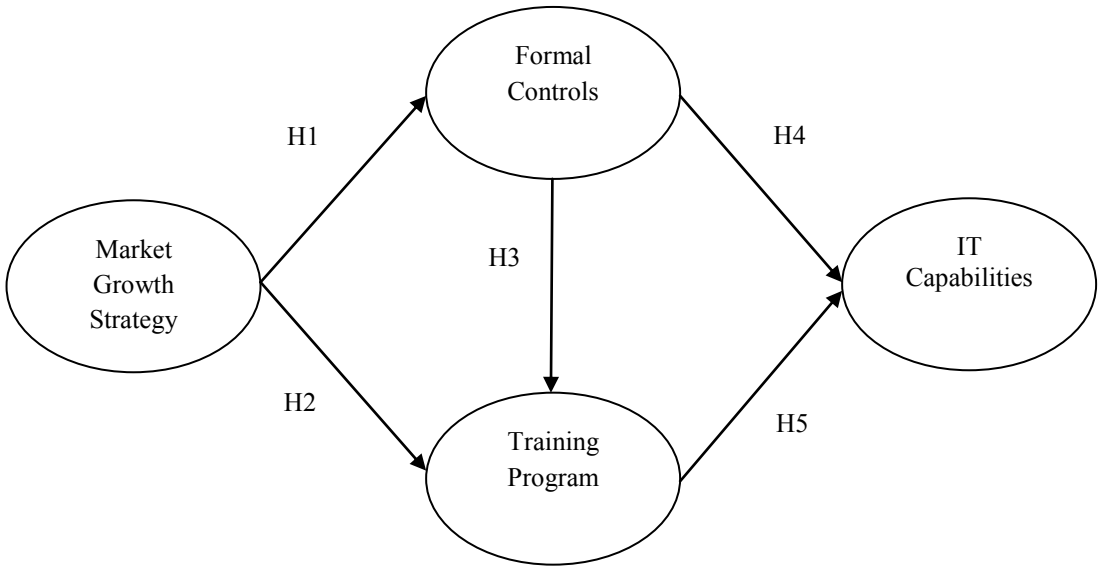
Theory and hypotheses

Many agree that new business approaches are needed as firms strive to develop and fully utilize their knowledge stocks aimed at growth strategies involving the development of new products, services, and markets (see Friedman, 2005; Miles and Snow, 2007). This makes knowledge management – specifically, the acquisition and transformation of information into exploitable knowledge – key to competitive advantage (Grant, 1996; Zahra et al., 2007). According to Zheng et al. (2010: p. 764), "knowledge management encompasses the managerial efforts in facilitating activities of acquiring, creating, storing, sharing, diffusing, developing, and deploying knowledge to individuals and groups (Demerest, 1997; Rowley, 2001; Soliman and spooner, 2000)." This requires KM infrastructure "…which encompasses the people, technology, and procedures the company dedicates to the management of knowledge (Gold, et al., 2001),"

(Cepeda and Vera, 2007: p. 429). In other words, effective KM, requires IT, as well as training and formal procedural controls. See figure 1.

Clearly, KM activities can be enhanced through the use of IT and as such, many firms are now linking IT to their growth strategies (Sabherwal and Chan, 2001; Piccoli and Ives, 2005). Such a growth strategy increases the variety and volume of information available to the firm – information which can be handled using KM processes such as structure (or controls) and training practices (Zheng et al., 2010; Chen and Huang, 2009). These KM process, working in tandem, are key in transforming information into useful knowledge as well as in helping the firm to translate its growth strategy into IT capabilities. See figure 1.

Figure 1. Research model.



An aggressive market growth strategy will be associated with greater discontinuity and diversity of information. With more and more information, relevant and irrelevant, the task of

creating knowledge from this abundance of information becomes paramount (Batra, 2006). That is, IT has the capability to generate knowledge, as a firm can acquire knowledge from customers, suppliers, employees and other stakeholders, and distribute and leverage this knowledge throughout the firm (Batra, 2006). Information is a commodity which can yield knowledge (Dretske, 1981). Knowledge means justified true belief (Nonaka, 1994). That is, information is a flow of messages which might add to, restructure or change knowledge (Machlup, 1983). "Knowledge is created and organized by the very flow of information, anchored on the commitment and beliefs of its holder." (Nonaka, 1994, p. 15).

As a result, information technology (IT) is an essential part of enabling firms to expand and diversify its product offerings and / or its customer segments. A firm may face redundancy and familiarity by its product offerings, while generating newness and discontinuity from new markets served, or vice versa. Or, a firm may aggressively grow both by product and market development, creating substantially more discontinuities. For example, IT offers an inexpensive way to expand its markets served without building new branches, and can be used to expand globally quickly, or can be used to create new financial products and services (Callaway, 2008; Gopalakrishnan, Wischnevsky & Damanpour, 2003; Pyun, Scruggs, & Nam, 2002). IT can also be used for managing customer information and database management. In fact, the Banking, Insurance and Financial Services Sectors is very aligned to CRM (Customer Relationship Management) applications (Batra, 2006). So a more aggressive growth strategy may lead to information overload and discontinuities, requiring stronger knowledge management processes such as formal controls (Kirsch, 1996; Snell, 1992) and training (Chen & Huang, 2009) to manage this flow of information. In additional, formal provide the framework for training, both of which are aimed at transforming information into usable knowledge. Thus,

H1: Firm market growth strategy will be positively associated with formal controls.

H2: Firm market growth strategy will be positively associated with training program.

H3: Formal controls will be positively associated with training program.

Scholars have examined the potential impact of IT on firm level sustained competitive advantage (Barney, 1991; Feeny & Ives, 1990; Powell and Dent-Micallef, 1997; Bharadwaj, 2000; Santhanam and Hartono, 2003; Ravichandran and Lertwongsatien, 2005; and Ray et al., 2005). However, simply investing more in IT resources may not necessarily lead to sustained competitive advantage (Bharadway, 2000; Fuller, 1996; Santhanam and Hartono, 2003). Rather, according to Mata et al. (1995), value creation derives from the firm's ability to utilize IT than in the resource itself. Eventually, it is IT capability (output), rather than IT resources (such as spending) (input), that is the source of intangible value (Muhanna & Stoel, 2010). In sum, sustained competitive advantage depends upon the kind of routines and processes that determine the organizational ability to develop IT capabilities. Those processes likely constitute formal rules as well as employee-centered training programs, in order to manage the flow of the newly acquired information, to create relevant and usable knowledge leading to IT capability development.

Thus, it is in our information-intensive society (Child & McGrath, 2001) that both formal rules and training programs are a critical part of effective knowledge management. That is, they help the firm to creatively combine their knowledge resources and harness their potential, by managing the interaction of all their resources, in order to develop unique IT capabilities. Thus,

H4: Formal controls will be positively associated with development of IT capabilities.

H5: Training program will be positively associated with development of IT capabilities.

Methods

This paper proposes a data collection exercise involving two sources: primary data collected from a questionnaire and secondary demographic data were collected from the FDIC. FDIC data is publicly available and can be downloaded from www2.fdic.gov. This secondary data will be used for response bias testing from respondents to a psychometric survey use to collect primary data. Data collection has commenced.

Questionnaire

The questionnaire included three questions on the bank's market growth strategy (including both market development and product development). Respondents were asked to rate the degree to which internet activities account for overall business activities, virtually no internet activity (1) … to … tremendous internet activity (7); for MG1 finding / acquiring new customers; and MG2 finding / acquiring different types of customers (expand into new and different customer segments). Next, respondents were asked to describe their product development strategy. Select 1 through 7 if statement not true at all (1) … to … very strongly true (7). MG3 we offer e-commerce services to help us develop new financial products/services. Next, respondents were also asked to rate the overall importance of their IT department and e-commerce. IT1 rate the quality of your organization's IT capabilities: very poor (1) … to … one of the best in the industry (7). IT2 rate the quality of your company website (content/

functionality/ attractiveness): very poor (1) … to … one of the best in the industry (7). IT3 describe the importance of your firm's existing IT-capabilities for developing the e-commerce site: Existing IT-capabilities were not very relevant for developing our e-commerce site (1) … to … Well-established IT-capabilities of our financial firm were instrumental in developing our e-commerce site (7).

Next, respondents were asked to describe their strategic control systems. Select 1 through 7 if statement not true at all (1) … to … very strongly true (7) for each of the following statements. Regarding the *training program* (TP) construct (measures from Snell, 1992); We have gone to great lengths to establish the best staffing procedures possible; We take pride in the fact that we hire the very best people for a job; We have a strong commitment to training and developing skilled managers; Managers receive substantial training before they assume responsibility. Regarding the *formal controls (rules)* (FC) construct (measures from Draft & Macintosh, 1981; Kirsch, 1996); There is an understandable, written sequence of steps to be followed; Established materials (manuals, standards, directives, technical and professional books, etc.) exist; We are required to know a lot of existing, written procedures and standard practices. All these measures have been tested and verified in prior literature.

Results

The data should be analyzed in time for presentation at the April POMS conference. The dataset will be tested using PLS owning to the expectations of the researchers of a small sample size (Henesler et al., 2009). Results from the measurement model are anticipated to produce evidence of convergent and discriminant validity as well as sufficient reliability for the variable under study.

Finally, testing will be conducted examine the presence if common method bias (CMB). Two statistical controls will be employed to test for the presence of CMB following data collection. Harman's single-factor test (Harman, 1967) is often used to assess CMB in survey research (Rosenzweig, 2009; McFadden et al., 2009). In addition, a second test for CMB, the single-method-factor approach advocated by Podsakoff et al. (2003) will also be employed. An unmeasured latent factor will be linked to each item in the measurement model. After controlling for the effects of the latent method factor, the average item variance explained by the substantive constructs is expected to be considerably greater than those linked to the latent method factor. If these results are produced, the presence of CMB is unlikely (Rosenzweig, 2009) and the analysis of this data set, collected using a single method will be considered to be an acceptable risk (Podsakoff et al., 2003; McFadden et al., 2009).

Structural Model Analysis

Two control variables will be included in the structural model to control for the number of full time employees as well as total assets. The five hypothesized relationships are expected to be statistically significant at the $p < 0.05$ level or higher, while neither control variable is expected to be statistically significant on the endogenous dependent variable, IT Capability. Finally, PLS offers researchers the advantage of providing R^2 values for all endogenous variables in the structural model as a means estimating the degree to which the endogenous variable is explained by its predictor(s). Therefore, the R^2 values will be reported and are expected to be robust.

Anticipated findings and discussion

At this point, we can provide our anticipated findings. Obviously, we expect that all hypotheses will be supported. This study should find that that market growth strategy is associated with greater usage of formal controls, and also with training programs. Additionally, formal control systems should be also associated with training programs, and formal controls and training programs should be related to IT capabilities. These results are expected to infer that as a firm is exposed to more information, as well as greater diversity in that information, how to manage and direct the flow of this information, and convert it to usable knowledge, increases in importance. As such, both formal rules and training programs to equip managers and employees for dealing with this possible 'information overload', should appear to be necessary. In the end, these formal controls and training programs are expected to emerge as important knowledge management mechanisms used to translate the information captured by the firm into usable knowledge. Thus, we expect to show that formal controls and training program are directly related to a firm's ability to develop IT capabilities.

While this study stands to make substantial contributions to the extant understanding of knowledge management, particularly in the financial services sector (banks), we do acknowledge that there are potential limitations. First, this study intentionally looked only at banking institutions, as the financial industry has been at the forefront of IT-based innovations (Gopalakrishnan, Wischnevsky & Damanpour, 2003; Pyun, Scruggs, & Nam, 2002), emphasizing local manager responsibility and creativity, while at the same time being a rather regulated industry with important standardized rules. Because of this limited sample, however, interpretations regarding the generalizability of the study should be made cautiously. This study

also did not consider long term financial performance implications, thus leading to future research opportunities.

References

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