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A Study of the Prerequisites for Successful Deployment and Governance of the Process of Technological Innovations

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Abstract: Critical success factors and how they influence successful implementation of technological innovations have received significant attention in extant literature. Comparatively fewer attempts have been made to define the yardstick for determining the outcome of enablers of the implementation process of technological innovations. The empirical aim is addressed through survey and case study of comparable number of IT projects. The knowledge acquired from the empirical and theoretical investigations is used to illuminate an Interactive framework aimed at creating understanding of the things an organisation does to enable innovation, the enablers and what an organisation achieves, the results. The prerequisites are defined to interact with the most profound disenablers from the findings (failure of senior management to lead; technology has outpaced the sophistication of the user community to properly utilise the tools, particularly in the sense of enterprise deployment; delivery of less functionality than originally planned; integrator cost out of control, etc.,) and thereby discover the need for leadership and involvement. Furthermore, the Interactive framework provides the tools required to get senior management properly engaged in the initiative and thereby significantly raise the potential for success.

Key words: Enterprise resource planning, implementation process, interactive framework, knowledge management, IT project, technological innovation, community of practice

INTRODUCTION

Strategy making is about changing perspectives and/or positions (Mintzberg, 1987). Technology, a consistently central force affecting all aspects of life, dominates the way we design strategies, develop tactics and implement operational decisions in every subsystem of society (Kocaoglu, 2006). The management literature is also full of valuable strategic panning methodologies for information technology (Kovacevic and Majluf, 1993; Zani, 1970; Gibson and Nolan, 1974; Henderson *et al*., 1987; Porter and Millar, 1985; Meuter *et al*., 2000 and 2005; Bitner *et al*., 2000; Lockamy and McCormack, 2004; Osarenkhoe and Bennani, 2006). As this dominance continues, we are witnessing the growth of the impact of technology in more and more areas not intuitively obvious.

According to Ahmed (1998) innovation and the importance of doing innovation is a popular topic for discussion in companies. However, many actually try to do it and only a few actually succeed in doing it. And that, in reality, the power and benefits of innovation are not given appropriate attention by many companies. Studies show that even though innovation is debated at strategic level meetings as being vital for the company and that although occasional resources are thrown at it, often the commitment ends there (Ahmed, 1998). Resources consist of various forms, for example, intellectual capital defined in terms of hiring knowledgeable and creative individuals (Brand, 1998) and financial support (Anderson *et al*., 1992; Jones and McFadzean, 1997). It is obvious that there is more to innovation than debate and resources. It requires in addition an organisational culture that constantly guides its members to work towards innovation and a climate conducive to creativity (Morgan, 1991; Bower, 1965; Feurer *et al*., 1996; Ahmed, 1998; Andriopoulos, 2001). This implies that senior management must provide adequate financial and non-financial resources and training and encouragement for developing new ideas. Amabile and Gryskiewicz (1989) note that these resources include an array of elements: adequate time for developing

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novel work, people with the necessary expertise, sufficient funds, material resources, systems and processes for work, relevant information and availability of training. Amabile (1998) argues, however, that time and money are the two major resources that affect innovation. Consequently, lack of time for proper experimentation negatively affects the innovation process. Financial resources for the project are of equal importance.

Against this background, leadership style is also recognised in literature (Croteau and Li, 2003; Gebert *et al*., 2003; Osarenkhoe, 2006) as enhancing creativity in the work environment. There is a consensus that a democratic, participative leadership style is conducive to creativity (Nyström, 1979), while autocratic styles are likely to hamper it. According to Bouwen and Fry (1988), effective management of innovation requires more than simply avoiding the practices and procedures that inhibit. Thus, there is a need to actively attend to the management of ideas. The leader's vision is therefore a key factor when managing creative individuals in particular and innovation in general (Locke and Kirkpatrick, 1995). In this regard, vision is regarded as a higher order goal that represents shared values, has moral overtones and provides meaning; it reflects what the organisation's future could and should be Cock (1998), Andriopoulos (2001) proposes that leaders must effectively communicate a vision conducive to creativity through appropriate formal and informal communication channels and constantly encourage employees to think and act beyond current wisdom.

According to Davenport, *et al.* (2004), Enterprise Resource Planning systems (ERPs) are packaged software applications (from vendors such as SAP, Oracle, PeopleSoft, IBM and J.D. Edwards) that connect and manage information flows within and across organisations, allowing managers to make decisions based on information that truly reflects the current state of their business. These systems, according to Davenport *et al.* (2004), also automate complex transaction processes and thus have the potential to reduce costs. Customer Relationship Management (CRM) software for example, acts as enablers, capturing information and delivering it to various touch points (Osarenkhoe and Bennani, 2006). From a customer perspective, well-implemented CRM systems can offer a unified customer interface, which means that at each transaction, the relevant account details, knowledge of customer preferences and past transactions, or history of service problems are at the fingertips of the person serving the customer (Phillips, 2003). This can result in vastly improved service (Zeithaml and Bitner, 2003; Lovelock and Wirtz, 2005). From a company perspective, CRM systems allow the company to better understand, segment and tier its customer base; better target promotions and cross-selling; and even implement churn alert systems that signal whether a customer is in danger of defecting (Quiring and Mullen, 2002). There is consensus in the knowledge management literature (for example, Yahya and Goh, 2002; Offsey, 1997; Bhatt, 2001; Skovvang and Bang, 2003) that, for many businesses, knowledge has become the main competitive tool (Rowley, 1999). For organisations, … learning is an issue of sustaining the interconnected communities of practice through which an organisation knows what it knows and thus becomes effective and valuable as an organisation (Wenger, 1998). For Wenger, learning is central to human identity. Thus, a primary focus of Wenger's work is on learning as social participation-the individual as an active participant in the practices of social communities and constructing his/her identity through these communities. From this understanding develops the concept of the community of practice: a group of individuals participating in communal activity and experiencing/continuously creating their shared identity through engaging in and contributing to the practices of their communities (Wenger, 1998; Wenger, McDermott and Snyder, 2002). For Wenger, organisational learning of the deep conceptual type is best facilitated if the realities of communities of practice are recognised when the change process is designed.

Problem setting and objectives: A study conducted by Gartner Group in 2005 shows that the implementation failure rate of IT systems is 55% and Accenture claims it to be around 60% (Lovelock and Wirtz, 2005). The Standish Group's report shows that approximately 70% of IT projects fail, considerably missing expectations, drastically overrunning budgets, significantly missing their deadlines and having to be abandoned entirely. The failure rate of IT projects gives organisations an overall impression of the risk involved with IT projects. Since a large percentage of IT projects involve applications or external services, with the odds stacked against success, many IT executives are committed to finding a better approach to IT project implementation and governance. With reference to the results from the pilot study conducted at the early stage of this research, a mention of ERP or CRM, one of ERP′s software modules, to a sample of respondents revealed that costly and complex IT systems and infrastructure and ERP vendors such as SAP, Siebel Systems, PeopleSoft and Oracle, were frequently mentioned by all. The pilot study also shows that it was convenient for the companies to put the blame on the system itself. In many

researches, the blame is instead placed on the Germans who designed SAP R/3, using the line: The Americans and the Germans don't know how we do or want things. Implementation of new IT applications requires more than mere consideration of the IT environment's technical dimensions (Osarenkhoe, 2006). This implies that the cognitive, organisational and strategic elements must be considered as well. However, CRM in fact signifies the whole process by which relationships with the customers are built (Lovelock and Wirtz, 2005). Nevertheless, organisations tend to focus on the technological aspects and see the installation of IT systems as mainly data-processing projects. Morley (2000) supports this reasoning that the majority of failures of IT projects are not due to causes related to the technical difficulties.

Critical success factors and how they influence successful integration of IT to enhance business efficiency and drivers of knowledge management have received significant attention in extant literature (Karlsen, *et al*., 2005; Nonaka, 1994; Davenport, Harris and Cantrell, 2004; Osarenkhoe and Bennani, 2006; Osarenkhoe, 2006; Croteau and Li, 2003; Andriopoulos, 2001; Nah, *et al*., Rowley, 1999). Comparatively fewer attempts have been made to define a yardstick for breaking down the key success factors into constituent measurable parts, thus explaining the high level of meaning of each of the prerequisites for successful implementation of performance-enhancing IT projects. This study aims to fill this void by drawing on extant knowledge and findings from the empirical studies to illuminate an Interactive framework that links the enablers (what a firm does) with the results (what a firm achieves). The dynamic nature of the interactive framework is emphasised by showing how innovation and learning help to improve enablers, which in turn help to improve results. Thus, the results are caused by the enablers.

This study has two primary objectives: i) to outline the yardstick for determining the outcome of the factors that facilitate/inhibit the implementation process of IT systems and thus ii) to explain the level of meaning of each of the prerequisites for successful deployment and governance of the implementation process of technological innovations. The basic questions to be addressed, therefore, are: i) what is the yardstick that determine the outcome and the magnitude of the factors which inhibit the implementation process of IT systems? ii) What information was not available for project managers that, in retrospect, could have made the implementation process of IT system easier? Answers to this question provided the basis for the Interactive model.

The rest of this study will proceed as follows. In the next section the concepts of community of practice, knowledge management, organisational learning, leadership in the context of project management are theorised. This is done by simultaneously anchoring the concepts reviewed in the body of literature. Thereafter, issues pertaining to how the various concepts discussed in the introduction and conceptual framework are operationalised and the research setting are outlined in the methodology section. This is followed by a presentation of the empirical findings from the survey and the case study and the Interactive framework developed as a result of lessons learned from the empirical and theoretical findings and the preceding analysis. This study ends with a discussion of implications of this study for practitioners and academics.

Theoretical framework: The theoretical objective in this study is achieved by theorising and reviewing extant literature on community of practice, knowledge management, learning, creativity and project leadership in the process of technological innovations. The knowledge to be acquired from the empirical and theoretical objectives is used to develop an interactive framework aimed at creating an understanding of the things an organisation does, the enablers and what an organisation achieves, the results. Consequently, the prerequisites in the framework are defined in an assessment context to interact with the most profound enablers or disenablers from the findings (e.g., failure of senior management to lead, delivery of less functionality that originally planned, integrator cost out of control and thereby discover the need for leadership and involvement.

Community of practice: The concept of a community of practice refers to the process of social learning that occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions and build innovations (Lave and Wenger, 1991). Wenger (1998) extended the concept and applied it to other contexts, including organisational settings. More recently, Communities of Practice have become associated with knowledge management as people have begun to see them as ways of developing social capital, nurturing new knowledge, stimulating innovation, or sharing existing tacit knowledge within an organisation. Thus one approach being commonly used in extant literature to analyse the implementation of IT-based innovations is to look at it through a communities of practice lens (Hislop, 2003). Fox (2000), Contu and Willmott (2000) define a community of practice as a group of people involved in a shared practice and a community which reproduces its knowledgeability through common, collective practice. Thus, activity is embedded in the particular social-occupational-functional groups within which people work (Hislop, 2003). The

implementation process is influenced by the communities of practice that exist within organisations. The socio-technical perspective conceptualises the implementation of technological innovations as involving the blending and synthesis of new knowledge and artefacts with existing organisational practices, artefacts and knowledge (McLoughlin, 1999; Hislop, 2003). Thus, this conceptualisation views the implementation of technological innovations as encompassing the mutual adaptation of the technological system being implemented and the organisational milieu within which they are being introduced (Badham *et al*., 1997; Bryman, 2000; Fleck, 1997; Scarbrough and Corbett, 1992; Leonard-Barton, 1995; Orlikowski, 1992). A vital component of these processes is the learning of new knowledge and beliefs, norms and values and their integration with existing organisational structures, practices and knowledge (Barley, 1986; McCabe, 1996; Harris, 1997). The sum total of the communities of practice perspective is that if they both shape the distribution of knowledge in organisation and are important sources of knowledge, the specific character of an organisation's communities of practice may significantly influence the dynamics of technological implementation processes (Hislop, 2003).

Knowledge management: In the emerging economy, knowledge is now recognised as an important basis for competitive advantage and many firms are beginning to establish knowledge management systems. Knowledge Management (KM) refers to a range of practices used by organisations to identify, create, represent and distribute knowledge for reuse, awareness and learning across the organisation. This implies that Knowledge Management programs are typically tied to organisational objectives and are intended to lead to the achievement of specific business outcomes such as shared business intelligence, improved performance, competitive advantage, or higher levels of innovation. Knowledge management embodies organisational processes that seek synergistic combination of data and the information processing capacity of information technologies that can be enhanced through creative strategies. Core themes for knowledge management relate to the creation of knowledge repositories, the improvement of knowledge acquisition, the enhancement of the knowledge environment and the management of knowledge as an asset (Rowley, 1999). Knowledge management strategies have received considerable attention in extant literature, relating to: competitive advantage (Danskin *et al*., 2005), quasi-explicit or formative knowledge as the aftermath of information society (Takahashi and Vandenbrink, 2004), critical success factors for implementation of knowledge management strategies (Yahya and Goh, 2002; Offsey, 1997; Bhatt, 2001; Skovvang and Bang); knowledge management performance framework (de Gooijer, 2003), the conversion of tacit knowledge to explicit knowledge (Herschel *et al*., 2001), systems methodology for knowledge management (Gao *et al*., 2002), dynamic relationships among knowledge creation, diffusion and utilisation occurring in collaborative knowledge networks (Beesley, 2004); the role of HRM in strategies for implementing knowledge management; establishing the link between learning and knowledge (Rowley, 2000), knowledge conversion with information technology interaction between technologies, techniques and people (Lee and Suh, 2003) and customer knowledge management in e-business (Rowley, 2002). Knowing the customer is crucial, so managers should use any opportunity to analyse, define, profile and update repositories of customer information. If the management team is able to develop and implement techniques that could measure true customer acquisition costs, focus on most profitable customers, extend customer lifecycles and identify and respond to behavioural changes, this would enhance shareholder value (Phillips, 2003).

Creativity: Over the years, the topic of creativity has received tremendous attention in extant literature. The research efforts focus on explaining why certain individuals, teams or organisations are more likely than others to formulate novel and useful ideas, processes, services or products (Amabile, 1997; MacKinnon, 1962; Woodman *et al*., 1993; Andriopoulos, 2001). Therefore, in a nutshell, innovation is by nature holistic. It encompasses a wide variety of activities needed to deliver value to the demand and supply sides of the commercial exchange process. According to Buckler (1997), the phases of innovation may be viewed to be sequential but in reality are iterative and often run concurrently. The first is the idea-generation phase, which is typically the indistinctive front end. The majority of ideas generated from this stage do not make it to the next phase because a number of problems, comprising among others feasibility and compatibility with strategic direction, are confronted. The second phase, which typically comprises some kind of stage-gate system, is the structured methodology phase. Some variation of structured methodology is deployed by large firms. The process that new ideas must go through in order to demonstrate their feasibility and compatibility with the organisation's objectives comprises the stage-gate system. The phase that encompasses the actual rendering of the idea an operational feasibility is the third or commercialisation phase. Thus, the product is produced so as to facilitate the reaping of the benefits accrued from

all that has been created in the previous stages. The sum total of the preceding discussion is that, even though innovation is intangible, it can be regarded as a comprehensive attitude that allows firms to see beyond the present and create the future (Ahmed, 1998). Thus, innovation is the engine of change. Resisting change is detrimental for firms in today's fiercely competitive environment.

Project management leadership: A lack of consensus regarding the definition of criteria of project success is inherent in extant literature (Karlsen *et al.* 2005) for detailed review of studies on critical success factors for IT projects: (Migh and Fisher, 1985; Kerzner, 1987; Morris and Hough, 1987; Pinto and Slevin, 1988; Turner, 1993; Wateridge, 1998; Johnson, 1999; Lim and Mohammed, 1999; Baccarini, 1999; Atkinson, 1999; Karlsen and Gottschalk, 2002). Prior to the 1980s, for example, it was common to focus exclusively on project performance, which was defined narrowly as meeting cost and time objectives and adhering to a product specification. However, research during the 1980s and 1990s incorporated the multi-dimensional character of project success, thereby broadening extending the focus of performance to encompass Project Management (PM) performance as well as project performance. Furthermore, there is a consensus that the measurement of project success is subjectively inclined (Morris and Hough, 1987; Larson and Gobeli, 1989; Deutsch, 1991; Pinto and Pinto, 1991; Neumann *et al*., 1993). Against this background, the debate on what constitutes effective performance/project success culminated to the inclusion of quality, in the broadest sense of the word (Bryde, 2003).

In Wateridge´s (1995) study of the impact of success criteria on a number of Information Technology (IT) projects, he concludes that the customers and other stakeholders, such as users, will define what they mean by quality. It is, however, pertinent to mention that this focus on meeting customer and other stakeholder requirements corresponds with the management literature (BSI, 1995; Evans and Lindsay, 1996; BSI, 2000; Oakland, 2000) and makes a link between quality, project performance and PM performance. According to Bryde (2003), the customer's (and other stakeholders`)definition of what is quality in a project environment will be based upon attributes linked to the quality of the management process (i.e., PM performance) as well as attributes linked to the quality of the end product delivered by the project (i.e., project performance).

Owing to the fact that IT projects turn a company's strategic business and technology vision into reality (Nah *et al.*, 2001), knowing how to align projects with that vision is key. Bigelow (2005) outlines particular attributes that appear to be common threads woven into the personalities of successful project managers. They need to love their work and embrace the challenges. They should have a clear vision and the ability to communicate this vision. Also helpful are strong team-building skills, interpersonal communication skills and the discipline to complete each phase of a project properly. IT leaders should build in their project managers the same skills they themselves need: strong financial management, industry knowledge and the ability to think critically about business strategy, process analysis and design. According to Karlsen *et al.* (2005), project success has traditionally been represented in the form of a triangle, showing cost, time and quality targets. And that most project managers see their job as successfully completed when they finish the project on time, within budget and according to specifications. However, owing to the fact that the many stakeholders (the owner, developer, users, the general public, etc.,) involved differ in their expectations, their yardstick for success differ as well.

The research context: To find out the yardstick for determining the outcome and the magnitude of the factors which inhibit the implementation process of IT systems and the non-available information that, in retrospect, project managers consider could have made their implementation efforts easier, we conducted a quantitative analysis of information obtained from a survey conducted in Sweden in 2005 to investigate the prerequisites for successful deployment and governance of the process of technological innovations or IT-projects by 615 organisations and utilisation of case study evidence from a comparable number of IT projects. Because of the nature of the basic question and the theoretical framework in this study, a priori qualitative research was required (Varadarajan, 1996; Hydek, 2000; Summers, 2001). A focus group interview (Malhotra, 1999) was conducted in a non-structural and natural manner with a group of respondents at the group of companies at a Swedish multinational company that implemented ERP systems. The purpose was to gain insights by listening to a group of people which consist of all the interest groups involved in the implementation of the IT-systems in the various business units talk about their experiences with the basic premise for this study: the yardstick for determining the outcome and the magnitude of the factors which inhibit the implementation process of Itsystems and

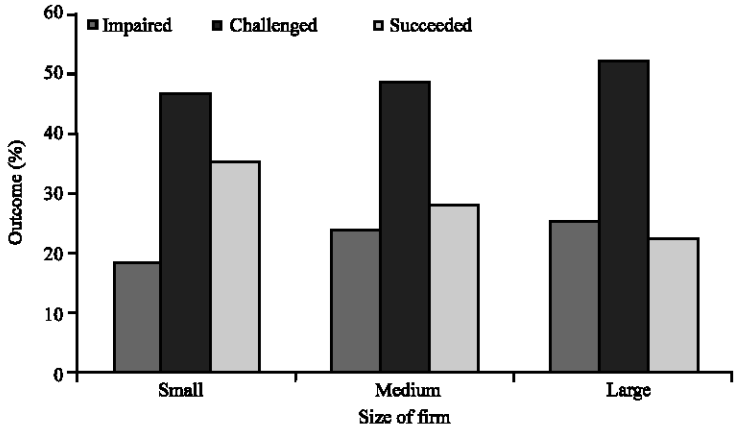
the non-available information that, in retrospect, project managers consider could have made their implementation efforts easier. The focus group interviews which were 2 h in duration, were audio-taped and then transcribed for analysis. Several constructs which underpin this study emerged from the focus groups. The information gathered was, therefore, used to build a case study (Yin, 1981, 1994; Bryman, 1989; Ghauri and Gronhaug, 2002; Gummesson, 2003) of four IT projects implemented in a Swedish multinational company.

While the sample of 615 organisations investigated in the survey were from a range of sectors and activities, the focal innovation in each organisation was similar because all the companies investigated have implemented IT-based, cross-functional, performance-enhancing IT systems. In this study, technological innovation is enhanced through the use of Information Technology (IT) systems such as Enterprise Resource Planning (ERP) systems. Consequently, IT-systems, ERP systems technological innovation tools are used interchangeably in this study. A desk research and a pilot study conducted in conjunction with this study shows that ERP systems delivers a single database that contains all data for the software modules, which would include, for example, Customer Relationship Management (Sales and Marketing, Service, Customer Contact and Call Center support).

The research instrument contained forced-answer questions with a five-point Likert scale ranging from a high 5 to a low of 1. Requiring the respondents to indicate a degree of agreement or disappointment with each of a series of statements about the stimulus object.Thus the respondents were asked to rate the importance of different criteria as they relate to IT projects. The survey instrument was developed in order to be easily understood. It included 10. Items and had descriptive character. It included both questions about the respondents and his/her organisation and criteria for IT project success. A measurement of project success included questions about project performance (e.g., budget, time horizon and technical and functional quality) the project result (e.g., functionality/system performance, salient features, reliability and compatibility), benefits for the client's organisation (e.g., enhanced performance, policy and strategic fitness and level of competitiveness) and for the collaborators and partners in the supply chain (e.g., satisfied users, acceptance level of the technology, improved relations and societal effects), people aspects (integrator staff skills, internal staff skills, knowledge issues including business knowledge, leadership and project management issues). The survey was sent electronically to the Project Manager at Projectplace in Sweden whose core competence is, among others, IT projects. Projectplace plays a dominant role in web-based on-demand applications for project management and team collaboration and a leading facilitator for success in customer-driven projects within the IT segment. This implies that these organisations have personnel with sufficient IT projects skills to provide answers to the research instrument. A total sample of 615 respondents completed and returned our questionnaires. The responses were free from non-response biasness. The respondents work with IT issues: IT project managers, managers at strategic and operative levels, system developers/vendors, consultants, users of the tools, etc., The size of the organisations that returned complete questionnaires consist of 250 small organisations with less than 100 employees, 210 organisations have between 100 and 1000 employees and 155 of the organisations have more than 1000 employees.

Yardstick for determining success of IT projects: According to Lim and Mohammed (1999), a criterion can be defined as: A principle or standard by which anything is or can be judged (Karlsen *et al*., 2005). As mentioned earlier in this study, definitions of success criteria, defined by Cooke-Davis (2002) as the measures by which success or failure of a project will be judged, are fragmented and diffused in extant literature. The yardstick for determining the classification of the outcome of implemented IT projects studied in this study are in line with the three resolution types recommended by the Standish Group: Succeeded-IT project completed on time and on budget, with all features and functions as initially specified; Challenged: IT project completed and operational but over budget, late and with fewer features and functions than originally specified; Impaired: Project cancelled at some point during the development cycle. These criteria were operationalised by Karlsen *et al.* (2005) as time, cost and quality. Of the various components of Projectplace's model , four priorities consist of: the right leadership with clear customer management objectives; performance measures that link customer behaviour with financial objectives; sensible customer management practices; clear vision and strategy and infrastructure and processes that support these priorities.

Findings: Below is a presentation of the findings from the survey of various types of IT projects, as defined in the previous section, implemented by 250 small, 210 medium and 155 large organisations in Sweden in 2005. A case study of a multinational company is also presented after Fig. 1 and 2 presented below:



Size	Small	Medium	Large
Impaired	18.2	23.4	25.2
Challenged	46.6	48.5	52.2
Succeeded	35.2	28.1	22.6

Fig. 1: IT projects implemented by 250 small, 210 medium and 155 large organisations in Sweden 2005

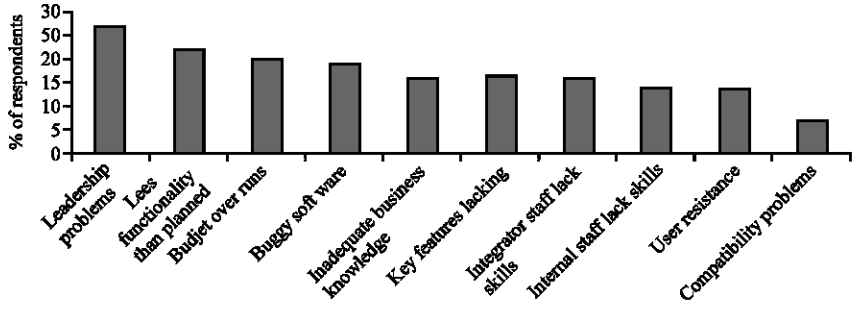


Fig. 2: Reasons for failure of IT projects implemented by 250 small, 210 medium and 155 large organisations in Sweden 2005

Below is a brief presentation of four IT projects implemented in a Swedish-based multinational company. The company is a global leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. It operates in more than 100 countries and has offices in 87 of those countries to give its global and local customers the support that they need to develop and conduct their business successfully.

Project A: Was an implementation of a minor standard system in a smaller business unit in one of the group of companies in the multinational company. The project was to last 3 months and had a limited budget, 700.000 SEK excluding the buyer's wage costs. The project proceeded smoothly; the time frame and budget were well balanced, even though there were bugs and other defects in the system for a long time to come. The system is now working as expected. On the other hand, the company only got a standard system and no adjustments at all were needed.

Project B: Was of medium size, where a standard system served as the base and a lot of further development was needed within the limits of that system. It was an administrative system that would automate the company's construction work and the order in which it was carried out. The buyer was a large business unit in one of the group of companies in the multinational company. The project would take 9 months and cost 2.5 million SEK. It was completed late and over budget, but the system was very functional.

Project C: Consisted of an entirely new system; the buyer was a large business unit in one of the group of companies in the multinational company. The entire

project failed and was a disaster. It was a classical failure: the budget was exceeded by 100% and, when the project ended, there was no functional system. The project came under pressure immediately, since the system was implemented before an appropriate plan was made and there was no time to test the system. The project took 10 months, with the cost landing at 4.5 million SEK.

Project D: Was a multi-million project and included the implementation of one of the more well-known business systems. The project was managed by an experienced project leader and was supposed to run for 27 months. Concerning time and budget, the project could, beforehand, be described as a nightmare. However, in the end, the buyer did get good value for its money.

Analysis: The findings reported in Fig. 1 show that a staggering 35.1% of projects are abandoned before completion. Moreover, the results indicate that 53.7% of the projects cost 190% of their original estimates. The cost of these failures and overruns are just the tip of the proverbial iceberg. The lost opportunity costs are not measurable. For successful projects, the proportion of projects completed on time and on budget is only 11.2%. And, even when these projects are completed, many are a far cry from their original specified requirements. Furthermore, some of the completed projects by the largest Swedish companies have only about 42% of the originally proposed features and functions. The success rate is better for smaller organisation: a total of 78.4% of their IT projects get deployed with 74.2% of their original features and functions. Figure 1 shows that being over budget is the rule, not the exception. Delivering projects late is also common. Neither is delivering less functionality than originally planned out of the ordinary. In short, project failure is virtually standard operating procedure.

From the findings reported in Fig. 2, it can be deduced that the implementation of IT projects is riddled with incompatibilities, disappointments, failures, delays and budget overruns and that crashes are common when new systems are implemented in companies. Implementation of a new system often leads to disappointment-even though a firm believes it has bought the best system on the market. The findings in Fig. 2 show that the number one reason for obstacles to success is senior executives' failure to lead. Although the commitment role of senior management and the organisation in the implementation process features regularly in extant literature (Amabile, 1998; Kimberly and Evanisko, 1981; Allen and Meyer, 1990), its magnitude is not usually quantified as demonstrated in Fig. 2, above. However, the second through seventh reasons all focus on shortcomings on the part of the software or services vendor. This quote comes from one respondent in the case company, though many others drew a similar conclusion: although the number one reported cause of failure may be senior executives failing to lead, this is rarely stated within the firms with failed or challenged projects. Call it denial or politics; we expect the number one reason is usually left unstated. In a situation like this, the result is that the blame falls on issues two through seven, where the blame is clearly placed outside of the organisation on the software vendor or service provider. The dominant obstacle to success reported above manifests itself in different ways in this study and is thus attributed to factors such as a lack of clarity-about roles, responsibilities and requirements-and an inability to track what goes on in the different steps of the application lifecycle. This situation is exacerbated by the dynamic nature of business and ongoing requests for change.

In shorter, smaller projects, for instance in Project A, strict control can work. But in a project of longer duration, it is difficult to decide from the start what should be done and how. The company must consider both control and freedom (Karlsen and Gottschalk, 2002; Pinto and Pinto, 1991). In Project B, it becomes evident that the project was driven by control and an inappropriate time frame. In compliance with ideas conveyed by Barley (1986), Hislop *et al.* (1997), McCabe (1996) and Harris (1997) Hislop (2003), maybe the project could have been successful if it had focused on learning, trust and knowledge. This process started too late, i.e. once the project had already crashed. In Project C, control was the issue and yet the project was out of control; the plans were unrealistic and everyone involved defended the project until it inevitably crashed. It is recognised in extant knowledge that leadership style plays a dominant role in inhibiting or enhancing the implementation process of innovative business practices (Croteau and Li, Gebert *et al.*, 2003, cited in Osarenkhoe, 2006) and that participative leadership style is conducive to creativity (Nyström, 1979).

In Project D, the members of the project team worked without a plan. The project was a disaster: the product was undefined, the goal was vague and the schedule instantly changed as the work progressed. But the investment paid off, the system is already considered to be profitable and it runs without problems. It seems Buckler's notion (1997), that the phases of innovation may be viewed to be sequential but in reality are iterative and often run concurrently, is a contributing factor to the nature of outcome of Project D. Members of this project team were handpicked by the project leader from the existing organisation and the project leader justified his

action by saying that they were skilful. However, they were all considered hard working and trustworthy. These findings are reinforced by issues raised by Brand (1998), Rowley (1999) Anderson *et al.* (1992), Jones and McFadzean (1997), Gebert *et al.* (2003), Osarenkhoe, (2006) that resources such as intellectual capital defined in terms of hiring knowledgeable and creative individuals are critical success factors. Krol (1999) also comes to a similar conclusion, that the problems may be attributed to a piece-meal implementation or incomplete understanding of the way commercial relationships are developed and maintained.

Findings from this study reinforce viewpoints conveyed in IBM Business Consulting Services. IBM's study identified five key drivers of CRM success: CRM strategy and value proposition development; budget process management; change management; governance; and process change. The IBM team's (2004) claim is that focusing on these five factors can boost the success rate from 15 to 80%. My findings are also in line with that of the researchers at CRMGuru.com, who conducted a similar study in which they identified correlations between user organisation approach and financial results. In that study, the key drivers (in order of impact) included: pursuit of a customer-centric strategy; line level training and support; managing organisational change; and the statistical measurement of goals. The study also emphasised four items that did not predict success: brand of software; technology related steps; intensive process reengineering and culture change. The reference to culture change involves the need for the organisation to start moving toward a customer focus before it starts to implement CRM. In other words, the direction precedes the deployment of technology. In this context, the technology is viewed as an enabler and not the focus. Similar views are expressed in Croteau and Li (2003), Osarenkhoe (2006), Osarenkhoe and Bennani (2006).

The low level of commitment from senior management, as demonstrated in the findings from this study, is attributed to the fact that CRM has been positioned and sold as a technology (Morley, 2000) and that many times senior management views the initiative as simply a deployment of a group of applications (Lovelock and Wirtz, 2005). Project managers are given the instruction to implement. The problem is that senior management does not recognise its role relative to success and project management and people feel ill-equipped to seek the level of leadership and engagement required for success.

An interactive framework: In this study, lessons learned from the empirical and theoretical findings and the preceding analysis as well as the Best Practice and Assessment Model developed by European Foundation for Management are used as a point of departure to present an interactive framework (Fig. 3) in an assessment context to interact with senior management and thereby discover the need for their leadership and involvement. The framework describes how to assess the position of the organisation regardless of its position relative to the deployment of IT systems to foster CRM, thus providing the tools required to get senior management properly engaged in the initiative and

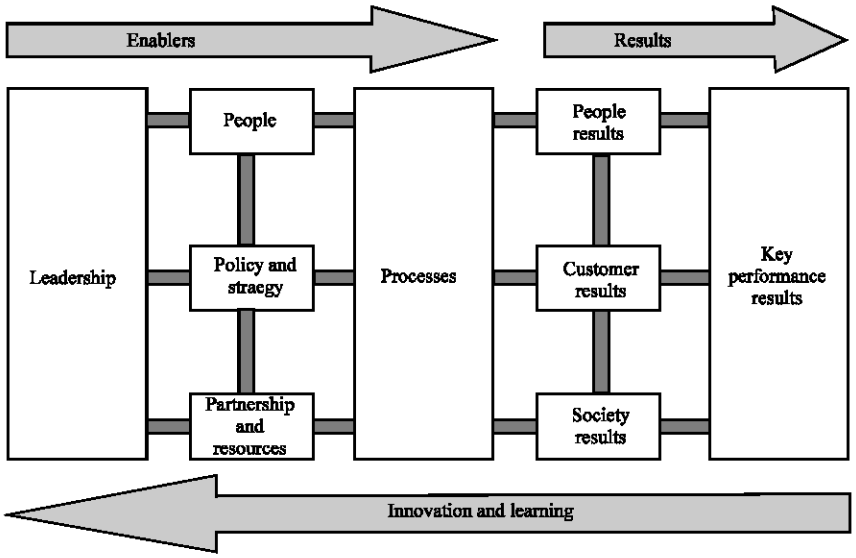


Fig. 3: The interactive framework for deploying and governing the process of technological innovations

thereby significantly raising the potential for success. The interactive framework is based on nine prerequisites. Five of these are enablers (leadership, policy and strategy, people, partnerships and resources and processes) and four are results (customer results, people results, society results and key performance results). The enabler prerequisites deal with what an organisation does. The results prerequisites cover what an organisation achieves. In other words, results are caused by enablers. The basic premise of the interactive framework is that there are many approaches to achieving sustainable innovative business practice in all aspects of performance and furthermore, that innovative results with respect to performance, customers, people and society are achieved through leadership driving policy and strategy, people, partnerships and resources and processes. As demonstrated in the findings reported schematically in Fig. 2 and in the interactive framework, the role of leadership, as the most important change agent required to facilitate implementation of innovative business strategy, cannot be overemphasised. The interactive framework is presented schematically in Fig. 3, above. It is then followed by a description and rationale for each of the nine prerequisites. The arrows emphasise the dynamic nature of the framework. They show how innovation and learning help to improve enablers that in turn lead to improved results. The framework's nine boxes represent the criteria against which an organisation's progress towards innovation can be assessed. Each of the nine criteria has a definition, which explains the high level meaning of that prerequisite.

DEFINITION OF THE NINE PREREQUISITES

Prerequisite 1

Leadership: Implies how leaders develop and facilitate the achievement of the mission and vision develop values required for long-term success and implement them via appropriate actions and behaviours and is personally involved in ensuring that the organisation's management system is developed and implemented (Turner, 1993). The following aspects of this prerequisite should be addressed:

Leaders develop the mission, vision and values and developing the role modelling ethics and values that support the creation of the organisation's culture; reviewing and improving the effectiveness of their own leadership and acting upon future leadership requirements; being personally and actively involved in improvement activities; stimulating and encouraging empowerment, creativity and innovation (Amabile, 1997; Woodman *et al*., 1993; Andriopoulos, 2001), e.g., by changing the organisation's structure, funding learning and improvement activities; and stimulating and encouraging collaboration within organisation.

Leaders are personally involved in ensuring the organisation's management system is developed, implemented and continuously improved. Thus aligning the organisation's structure to support delivery of its policy and strategy; ensuring development and implementation of a process for managing processes; ensuring development and implementation of a process for the measurement, review and improvement of key results, deployment and updating of policy and strategy; and ensuring development and implementation of a process, or processes, for stimulating, identifying, planning and implementing improvements to enabling approaches, e.g., through creativity, innovation and learning activities (Buckler, 1997; Zailani, *et al*., 2006).

Leaders are involved with customers, partners and representatives of society. This may include: meeting, understanding and responding to needs and expectations; establishing and participating in partnerships and joint improvement activity; recognising individuals and teams of stakeholders for their contribution to the business, for loyalty etc., and supporting and engaging in activities that aim to improve the environment and the organisation's contribution to society.

Leaders motivate, support and recognise the organisation's people and personally communicating the organisation's mission, vision, values, policy and strategy, plans, objectives and targets to people; being accessible, actively listening and responding to people; helping and supporting people to achieve their plans, objectives and targets; and recognising both team and individual efforts, at all levels within the organisation, in a timely and appropriate manner.

Prerequisite 2

Policy and strategy: Entails how the organisation implements its mission and vision via a clear stakeholder-focused strategy, supported by relevant policies, plans, objectives, targets and processes. These elements reflect how the organisation intends to implement its mission and vision. It is supported by relevant policies, plans, objectives and processes. These materials provide the framework for initiatives and impact both top and bottom line results.

Policy and strategy are based on the present and future needs and expectations of stakeholders. This may include: gathering and understanding information to understand the market segment the organisation will operate in both now and in the future; and understanding

and anticipating developments in the market place, including competitor activity, as well as the needs and expectations of customers, employees, partners, society and stakeholders, as appropriate;

Policy and strategy are based on information from performance measurement, research, learning and creativity related activities. This may include: collecting and understanding output from internal performance indicators and output from learning activities; and identifying and understanding environmental forces (social, economic, legal, political, technological, demographic issues and indicators) and their impact on business practices.

Policy and strategy are developed, reviewed and updated in order to be consistent with the organisation's mission, vision and values and based on the needs and expectations of stakeholders; aligning the organisation's policy and strategy with partner's policy and strategy; identifying critical success factors (Karlsen *et al*., 2005; Migh and Fisher, 1985; Wateridge, 1995), as well as reviewing and updating policy and strategy.

Policy and strategy are communicated and deployed through a framework of key processes. This may include: identifying and designing the framework of key processes needed to deliver the organisation's policy and strategy; and establishing clear ownership and reviewing the effectiveness of the key processes to deliver policy and strategy.

Prerequisite 3

People results: Encompasses how a company hires, manages, develops and trusts and releases the knowledge and full potential of its people at an individual, team-based and organisation-wide level and plans these activities in order to support its policy and strategy and the effective operation of its processes (Nonaka and Takeuchi, 1995; March and Olson, 1975). People Results covers the following sub-criteria that should be addressed:

People resources are planned managed and improved (Rowley, 1999; Amabile, 1997; Danskin *et al*., 2005). This may include: involving employees and their representatives, in developing human resources policies, strategies and plans; aligning the human resources plans with policy and strategy, the organisational structure and the framework of key processes; using people surveys and other forms of employee feedback to improve human resources policies, strategies and plans; and using innovative organisation methodologies to improve the way of working, e.g., restructuring the supply chain, matrix working, flexible teamwork and high-performance work teams.

People's knowledge and competencies are identified, developed and sustained-identifying, classifying and matching people's knowledge and competencies with the organisation's needs; developing and using training and development plans to ensure people match the present and future capability needs of the organisation and aligning individuals and team objectives with the organisation's targets.

People are involved and empowered thereby encouraging and supporting individual and team participation in improvement activities and providing opportunities that stimulate involvement through in-house conferences and ceremonies and support innovative and creative behaviour and encourage people to work together in teams (Polanyi, 1967).

People and the organisation have a dialogue (Pinto and Pinto, 1991). This may include: developing communication policies, strategies and plans based on communication needs, as well as using top-down, bottom-up and horizontal communication channels and sharing best practice and knowledge. People are rewarded, recognised and cared for (Bryde, 2003).

Prerequisite 4

Partnerships and resources: A fundamental tenet of innovative business strategy such as customer relationship management is to provide a consistent, seamless and transparent interface with customers across channels using IT systems (Lovelock and Wirtz, 2005; Osarenkhoe, 2006). Partners must be considered an extension of the organisation, which means that they need to be an integral part of the interactive framework. This prerequisite involves how organisation plans and manages its external partnerships and internal resources in order to support its policy and strategy and the effective operation of its processes. Partnership and Resources covers the following aspects that should be addressed:

Management of external partners: This may include: identifying key partners and strategic partnership opportunities in line with policy and strategy; structuring partnership relationships to create and maximise value; ensuring cultural compatibility and sharing of knowledge with partner organisations; generating and supporting innovative and creative thinking through the use of partnerships; and creating synergy in working together to improve processes and add value to the customer/supplier chain;

Management of finances: This may include: using financial resources in support of policy and strategy; developing and implementing financial strategies and processes and using financial mechanisms and

parameters to ensure an efficient and effective resourcing structure (Ahmed, 1998; Anderson *et al*., 1992; Jones and McFazean, 1997).

Management of technology: This may include: identifying and evaluating alternative and emerging technologies in the light of policy and strategy and their impact on business and society harnessing technology to support improvement and identifying and replacing old technologies.

Management of information and knowledge: This may include: collecting, structuring and managing information and knowledge in support of policy and strategy; providing appropriate access, for both internal and external users, to relevant information and knowledge; cultivating, developing and protecting unique intellectual property in order to maximise customer value; and generating innovative and creative thinking within the organisation through the use of relevant information and knowledge resources (Polanyi, 1967; Rowley, 1999; Danskin *et al*., 2005).

Prerequisite 5

Processes: Shows that how a company designs, manages and improves its processes in support of its customer value generation strategy will ultimately define the return generated for shareholders. Success relates to how the processes align with each other and the overall motivation and spirit of the organisation (Turner, 1993; Bryde, 2003). The following aspects regarding processes should be addressed:

Systematic design and management of processes: This may include: designing the organisation's processes, including those key processes needed to deliver policy and strategy; establishing the process management system to be used; implementing process measures and setting performance targets and resolving interface issues inside the organisation and with external partners for the effective management of end-to-end processes (Osarenkhoe and Bennani, 2006); Improvement of processes, as needed, using innovation, in order to fully satisfy and generate increasing value for customers and other stakeholders (Morgan, 1991). Using performance and perception results and information from learning activities to set priorities and targets for improvements, as well as using new process designs, operating philosophies and enabling technology and establishing appropriate methods for implementing change; identifying and prioritising opportunities for improvement and other changes, as well as stimulating and bringing to bear the creative and innovative talents of employees, customers and partners in incremental and breakthrough improvements; communicating process change to all appropriate stakeholders and ensuring people are trained to operate changed processes prior to implementation; and ensuring process changes achieve the predicted results;

Management and enhancement of customer relationships: This may include: determining and meeting customers day-to-day contact requirements; handling feedback received from day-to-day contacts, including complaints; proactive involvement with customers in order to discuss and address their needs, expectations and concerns; following up sales, servicing and other contacts in order to determine levels of satisfaction with products, services and other customer sales and servicing processes; seeking to maintain creativity and innovation in the customer sales and servicing relationship; and using regular surveys, other forms of structured data gathering and data gathered in day-to-day customer contacts in order to determine and enhance customer relationship satisfaction levels.

Prerequisite 6

Customer results: The heart of CRM is of course the customer. However, saying that the organisation is customer-centric, versus its behaviour, can be two radically different things (Osarenkhoe, 2006). This study emphasises the elements that would be broadly interpreted as being consistent with the best practices of CRM as an operational strategy. Customer Results covers the following:

Perception measures: These measures entail the customer's perception of the organisation (obtained, for example, from customer surveys, focus groups, vendor ratings, compliments and complaints) concerning aspects such as overall image (accessibility, communication, flexibility, proactive behaviour and responsiveness), product and services (quality, value, reliability, design innovation, delivery and environmental profile), sales and after sales support capabilities and behaviour of employees, advice and support, customer literature and technical documentation, handling complaints, product training, response time, technical support, warranty and guarantee provisions and loyalty (intention to repurchase, willingness to purchase other products and services from the organisation and willingness to recommend the organisation).

Performance indicators: These measures are internal ones used by the organisation in order to monitor, understand, predict and improve the performance of the organisation and to predict external customer perceptions. These indicators may include: overall image (numbers of customer accolades, nominations for awards and press coverage); products and services (competitiveness, defect, error and rejection rates, guarantee and warranty provisions, complaints, logistic indicators, product lifecycle, innovation in design and time to market); sales and after sales support (demand for training, handling of complaints and response rate) and loyalty (duration of relationship, effective recommendations, frequency and value of orders, lifetime value, numbers of complaints and complements, new and/or lost business and customer retention).

Prerequisite 7

People results: Consists of what the organisation is achieving in relation to its people. People results covers the following components:

Perception measures: are of the people's perception of the organisation. People perception measures may include: motivation (career development, communication, empowerment, involvement, leadership, opportunity to learn and achieve, recognition, training and development, the organisation's values, mission, vision and policy and strategy) and satisfaction (employment conditions, the organisation's administration, facilities and services, health and safety conditions, pay and benefits, peer relationships, the management of change, working environment and the organisation's role in the community and society).

Performance indicators: are internal measures to be used to monitor, understand, predict and improve the performance of the organisation's people and to predict their perceptions. For example: achievements (competency requirements versus competencies available, productivity and success rate of training and development to meet objectives); motivation and involvement (involvement in improvement teams, involvement in suggestion schemes, levels of training and development, measurable benefits of team work, recognition of individuals and teams and response rate to people surveys; satisfaction (absenteeism and sick-leave levels, grievances, accident levels, recruitment trends, staff turnover and use of organisation-provided facilities such as recreational, crèche; and services provided to the organisation's people (communication effectiveness, speed of response to enquiries, training evaluation and accuracy of personnel administration).

Prerequisite 8

Society results: Is what the organisation is achieving in relation to local, national and international society, as appropriate. Society Results cover the following:

Perception measures: Society's perception entails performance as a responsible citizen (disclosures of information relevant to the community, equal opportunity practices, impact on local and national economies, relationships with relevant authorities and ethical behaviour); involvement in the community where it operates (involvement in education and training and support for sports and recreational pursuits); activities to reduce and prevent nuisance and harm from its operations and/or throughout the lifecycle of its products (pollution and toxic emissions, hazards/safety, noise and odours); reporting on activities to assist in the preservation and sustainability of resources (choice of transport, ecological impact, reduction and elimination of waste and packaging, substitution of raw materials or other input and usage of utilities, e.g., water, electricity and gases and new and recycled materials.

Performance indicators: These are internal measures to be used by the organisation in order to monitor, understand, predict and improve society's perception of the organisation, as well handling of changes in employment levels; press coverage; dealings with authorities on issues such as certification, clearances, import/export and product releases; and accolades and awards received.

Prerequisite 9

Key performance results: Involves what the organisation is achieving in relation to its planned performance. Key performance results covers the following:

Key performance outcomes: These may include: financial outcomes (share price, dividends, gross margins, net profit, sales, meeting of budgets); and non-financial outcomes (market share, time to market, volumes, success rates, share of customers' mind and share of wallet).

Key performance indicators: These are the operational indicators used to monitor, understand, predict and improve the organisation's likely key performance outcomes. Depending on the purpose and objectives of the organisation and its processes, they may include those relating to: processes (performance, deployment, assessments, innovations, improvements, cycle times, defect rate, maturity, productivity and time to market); external resources including partnerships (supplier performance, supplier price, number and added value of

partnerships, number and added value of innovative, products and service solutions generated by partners, number and added value of joint improvements with partners and recognition of partner's contribution); financial and non-financial issues (cash flow items, balance sheet items, depreciation, maintenance costs, return on equity, return on net assets, credit ratings, lifetime value of customers, customer retention rate and customer loyalty level); buildings, equipment and materials (defect rates, inventory turnover and utility consumption); technology (innovation rate, value of intellectual property, patents and royalties) and information and knowledge (accessibility, integrity, relevance, sharing and using knowledge and value of intellectual capital).

RESULT AND DISCUSSION

The findings reported in Fig. 1, 2 and 3, above indicate the need for: senior management leadership in terms of a commitment to embracing the implementation effort and communicate the benefits of the performance enhancing tool or ERP systems (Croteau and Li, 2003; Osarenkhoe and Bennani, 2006; Osarenkhoe, 2006); the creation of a compelling message to the organisation that addresses the necessity for change and the consequences of not acting on these issues; the establishment of a change process for moving from internally focused performance metrics (Oakland, 2000; Bryde *et al*., 2003; Evans and Lindsay, 1996) to customer behaviour based metrics; and the dedication of staffing and funding commensurate with initiative needs and importance to the organisation. This is in line with a strategic marketing planning-performance study conducted by Phillips, Davies and Mautinho (2001), who concluded that the important issue was not whether strategic marketing planning affects performance, but rather whether innovative marketing capabilities are required to enhance performance. Therefore, in the digital age, a key activity is to identify the essential e-marketing capabilities by evaluating and enhancing skills and competences at the individual-, group-and organisational levels.

The following implications for practitioners and academics are hereby set forth:

- Although success in the deployment and governance of the performance enhancing IT-system is certainly dependent on senior management actions Morgan, 1991; Karlsen *et al*., 2005), for it to be effective as a vehicle to launch and anchor, for example, CRM as an operational strategy (Kovacevic and Majluf, 1993) requires also a receptive culture (Ahmed, 1998) that subscribes to key operating principles, such as the five enablers of the framework (Fig. 3). In addition, the four results (customer results, people results, society results and key performance results) are prerequisites that must work in unison to create the necessary combination of decisions and actions to facilitate successful implementation of the performance-enhancing tool that aims to generate a successful CRM initiative. There is an ongoing interaction with various prerequisites and aspects of the enterprise to achieve this purpose. Each of the five enablers is necessary for success. Individually, however, they are not sufficient. This helps to explain the relatively low success rates within the industry. When CRM is approached from the perspective of only technology, or as a stand-alone project, it is destined to fail (Lovelock and Wirtz, 2005). Morley's (2000) argument mentioned in the introduction and literature review and the findings reported in Fig. 1 and 2 serve to support this observation.
- As noted in the theoretical framework of this study, research during the 1980s and 1990s incorporated the multi-dimensional character of project success, thereby broadening the focus of performance to encompass Project Management (PM) performance as well as project performance (Bryde, 2003). Furthermore, there is a consensus that the xmeasurement of project success is subjectively inclined (Morris and Hough, 1987; Larson and Gobeli, 1989; Deutsch, 1991; Pinto and Pinto, 1991; Neumann *et al*., 1993). Against this background, the debate on what constitutes effective performance/project success culminated to the inclusion of quality, in the broadest sense of the word (Bryde, 2003).
- It can be deduced from both the theoretical concepts and literature review presented earlier in this study that a key distinction made by the majority of Knowledge Management (KM) practitioners is Nonaka's reformulation of Polanyi's (1967) distinction between tacit and explicit knowledge. The former is often subconscious, internalised and the individual may or may not be aware of what he or she knows and how he or she accomplishes particular results. At the opposite end of the spectrum is conscious or explicit knowledge-knowledge that the individual holds explicitly and consciously in mental focus and may communicate to others. In the popular form of the distinction tacit knowledge is what is in our heads and explicit knowledge is what we have codified. Nonaka and Takeuchi (1995) argued that a successful

KM program needs to, on the one hand, convert internalised tacit knowledge into explicit codified knowledge in order to share it, but also on the other hand for individuals and groups to internalise and make personally meaningful codified knowledge once it is retrieved from the KM system. The focus upon codification and management of explicit knowledge has allowed knowledge management practitioners to appropriate prior work in information management, leading to the frequent accusation that knowledge management is simply a repackaged form of information management.

- Not all projects will be successful. The perception among enterprises is that this is all too common. IT professionals and suppliers must recognise this commonly held perception and deal with it proactively. IT professionals must accept this perception and work with senior management to eliminate both risk and the perception of risk. Suppliers should provide proof of success and proactively communicate risk abatement techniques.
- One of the key reasons for the high failure rate is that firms often equate installing CRM systems with having a customer relationship strategy (Lovelock and Wirtz, 2005). They forget that the system is merely a tool to enable the firm's customer servicing capabilities (Osarenkhoe, 2006) and is not the strategy itself. McKinsey consultants believe that even ERP systems that have been implemented and have not yet been showing results can be well positioned for future success. They recommend taking a step back and focusing on how to build customer loyalty rather than focusing on technology itself (Ebner *et al*., 2005).
- The interactive framework presented in this study offers an organisation the opportunity to learn about strengths and weaknesses and about how the organisation is progressing to, for example, CRM excellence. This task may better be with a scoring system, because numeric results are useful from the standpoint of assessing progress. Future study may have to operationalise the framework on the basis of, among others, this final implication. This study is a contribution to the observation made in the introduction in the collected essays by Sapsed *et al*. (2005) in which he outlines future directions of research in the management of innovation: In the management of innovation, we still need a more precise and practical understanding of both the firm-specific routines associated with innovation and the factors determining what might be called the knowledge boundaries of the firm, given that products and firms are incorporating an increasing range of technologies. Similarly the important notion of the co-evolution of technology and organisation needs a firmer conceptual and empirical basis, especially in the definition and measurement of organisational change. Future research should respond to this plea accordingly.

CONCLUSION

Adopting an interactive framework can help management catch up to the fast pace of CRM technology. It can define the implementation objective and guide management in understanding CRM implementation as a business strategy. Regardless of implementation stage, making observations and addressing sensitive issues will help firms see their ROI. Therefore, in conclusion, on the basis of the investigations carried out in conjunction with this study and the findings thereupon, is it worthwhile for future studies to explore what the purpose of deploying these performance-enhancing tools is? It is rather obvious from most parts of this study (the introduction, literature review, the findings from the empirical studies the presentation of the interactive framework and the ongoing discussion of the implications of this study) that the objectives have revolved around notions of being customer centric, being closer to the customer, or making the customer more satisfied. From the outset of the industry, the CRM vendor community has been challenged to justify the large investments required to deploy its technology (Galbraith, 2005; Osarenkhoe and Bennani, 2006). The vendor response has been to identify case studies that demonstrate success. Although vendor credibility has been attacked in terms of user satisfaction with their respective system, an equally fundamental issue can be raised regarding what constitutes success. According to various vendor websites, success can be construed as any of the following: the application works according to specification; the application was deployed on-time and on-budget; the application was deployed in a short time period; the end user has reduced operational costs; the end user claims success; the end user organisation claims an ROI. It is pertinent to mention that a vendor can only describe what the user organisation is willing to share. Within the user's organisation, the perception of success (Karlsen *et al*., 2005) can vary according to an individual's level and role in the ERP

initiative: The IT perspective could focus on application functionality and reliability; the emphasis of project management could be on budget and schedule; the user's focus is on the friendliness of the interface and the ability to meet personal goals and functional management is oriented to meeting goals and staying within budget; while senior management tends to focus on profit and budget levels and may or may not view CRM as a business strategy.

Thus, success can be claimed in numerous ways (Karlsen and Gottschalk, 2001; Karlsen *et al*., 2005) but if the objective of the organisation is to increase shareholder wealth, then an investment in a CRM system must be linked to expectations of leveraging financial performance (Fig. 1 and 2, above, for the yardstick used in this study to describe success). This implies that the CRM initiative should generate an acceptable ROI that can be objectively assessed by the organisation. Though many organisations are motivated to pursue CRM with such an economic objective (Nordek, 2003), few take the time to assess what they will do differently that will create this desired change in performance. On the other extreme, a well-documented ROI analysis provides an organisational roadmap that identifies cause and effect relationships forcing the organisation to think through the operational aspects of CRM and set meaningful goals that lead to performance improvement.

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