INTRODUCTION

Growth and competitiveness of organizations can only be sustained through the pursuance of knowledge and innovation. The latter has historically been driven by rapid developments in ICT where ICT-based innovations have important implications on business and socioeconomic development. This is mainly due to their role in introducing and diffusing the concepts of high quality at low cost, knowledge sharing, community development, and promotion of equality. Organizations have invested heavily in ICT over the past two decades. Figures have shown investments in ICT may exceed 50% of annual capital investment and the average ICT expenditure could amount to 5% of organizational revenue.

The key element of success is accepting change and a new way of working. Organizations need to adapt and explore concurrent changes in today’s borderless economy, or risk losing out; while taking into account the importance of understanding technology adoption and diffusion issues. Whilst a ‘technology push’ approach may bring about ‘first comer’ advantages to the organization, implementing advanced IT applications to create sustainable competitive advantage can only be leveraged by improving business processes in line with management objectives using IT as an enabler. Data and information are shared and distributed digitally, formulating a cheaper and more effective way of communication. Electronic processes can generate huge new wealth and can transform the way businesses are conducted in unprecedented ways.

There is no doubt that there has been heavy investment in ICT. However, many case studies have shown that investments are made in an isolated fashion and are not delivering strategic advantage for organizations. Despite large spending, the failure rate of not achieving the intended business objectives is also increasing. Work by Lientz and Larson in 2004 found that 40% of ICT projects failed to deliver tangible benefits, and that less than 50% are completed on-time and within budget. Another study by Alrashid et al (2009) reported that 178% of systems run over cost and 230% run over time. Furthermore, some projects were abandoned, significantly
redirected, or kept alive despite business integration failures. In some cases, projects were kept alive for the sake of keeping the project alive.

This led to a perceived dissolution of IT’s strategic benefits, which seriously affected future IT investment. At the same time, the development and delivery of innovative IT-based services, and the ability to respond to the rapid evolution of markets, places a considerable premium on leadership and management skills (BERR, 2008). Here lies the challenge: on one hand, executives realize the importance of business-based IT solutions (which are normally expensive and difficult to implement) and are in a position to finance this, while on the other, they have witnessed significant failures and missed opportunities in previous investments.

In this respect, there is a need to understand the environment within which IT-based business improvement can be successfully achieved and then identify the gaps that need to be addressed. This will place executives in a much better position to predict the level of change and resources needed to develop the capability of their organizations, specifically:

• The creation of an innovative working environment which is focused on developing and sustaining a highly skilled and flexible workforce with the skills to continuously introduce improvements through better and more streamlined business processes enabled by advanced IT;
• The achievement of effective business processes and improvement focused on improving the organization’s efficiency by directly integrating IT with the corporate, strategic, and operational goals to ensure IT resources are ‘in line’ with business imperatives.

**STRATEGIC POSITIONING OF IT SURVEY**

The University of Salford and Construct IT (Alshawi et al, 2008) have undertaken a survey which was specifically designed to assess the awareness and understanding of Construction Industry Executives on a) the strategic benefits that IT can bring about to their organizations and b) on the critical elements that lead to the realization of these benefits; IT skills, business process management/reengineering, and IT strategies and c) the drivers behind the decisions on IT investment; the impact of new technologies, e-readiness of organizations, and financial returns on investment. Each question had five options describing evolution through maturity levels referring to three scenarios; 1995 thinking, 2007 practice, and 2007 thinking. The survey received 109 responses from 80 different Contractor and Consultant organizations in the UK, where both Chief Executives and IT (or Innovation) Directors were targeted.
The results clearly show that construction organizations today are acknowledging the strategic nature and significant contribution of IT whereby IT systems are now considered at an organizational-wide scope, rather than an individual application. IT strategies are now slowly being integrated into organizational business strategies and the impact of IT technologies are recognized for delivering competitive advantage for the future. This is a significantly positive sign that the Construction Industry is moving forward towards utilization of IT; most importantly, with a similar set of thinking (contractors and consultants). On the other hand, construction organizations today have their IT investments influenced by the state of readiness of the organization to successfully receive new and future IT investments. The main findings are summarized as follows:

1. Although the industry is aware of the strategic benefits of IT, it has not yet been attained
2. Financial return on IT investment is still being practiced in spite of the industry executives thinking otherwise
3. Although the industry realizes the importance of IT strategies to achieve innovations, this has not yet been achieved
4. The importance of aligning IT investment to business process management/re-engineering is highly recognized but is not yet being practiced
5. Industry recognizes the need for IT skills and competences within organizations, but has not yet utilized it for innovation
6. IT investments are driven by “value” but are inhibited by the state of readiness of organizations
7. Industry strongly believes in investigating new technologies for competitive advantage but has not yet taken advantage

Finally, the study clearly demonstrated that there is a big gap between “what the industry think needs to be done” to achieve IT-based innovation and competitive advantage and “how best to achieve it.” However, today’s ‘thinking’ of Chief Executives and IT/Innovation Directors has the potential to lay the foundation for the establishment of an industry at a high level of IT maturity.

So, How Can This Issue be Addressed?

The main attributes of the high percentage of systems failure are rarely technical in origin. They are mainly related to the organization – which focuses more on the delivery of technology. They believe that when the technology is in place, it will work its magic. Organizations simply neglect organizational elements, which directly contribute to the success or failure of the new ICT project such as people and process.
The most difficult issues are those dealing with changing people’s attitude and business processes, also known as soft issues. The inability to assess organizational readiness to successfully embrace new systems into their work environment will result in wasting time and resources, or even worse, may lead to ICT failure. Lack of attention is another important factor contributing to organizational readiness, and understanding the degree to which an organization may be ready or prepared to obtain benefits from ICT. The Alshawi et al (2008) report revealed that an overwhelming majority of executives and IT directors recognized the importance of e-readiness.

The term “e-readiness” is coined to measure how “ready” organizations are to adopt and use ICT to improve their work practices and performance so that they can achieve sustainable competitive advantage. It reflects the organizational soft issues such as business processes, management structure, change management, people, and culture.

The question is “How could organizations best adopt e-readiness to obtain optimal benefits from existing ICT infrastructure and future ICT investment?” To begin with, organizations need to be process-led and not technology-led. Organizations must not implement new technology directly into current processes but allow technology to be absorbed into “adapted” processes, and to allow an organization to assess itself, if it is ready to accept the technology, or not. Organizational change is needed to create an environment that fosters innovation, clarifies communication, and truly integrates processes.

The above suggests the need to plan organizational change in a proactive manner. In other words, managers should take the initiative to oversee what and how much change is needed prior to ICT implementation. The process of organizational change is always problematic for the organization, particularly when changes are related to the introduction of new ICT (Appelbaum, et al, 1998). Karake (1994) identifies that major changes in IT/IS profoundly affect the organizational aspects (people, processes, structures, and strategies). Katzenbach (1996) and Smith (2005) suggest the hardest things when dealing with organizational change lies in changing the “people system” that includes the organization’s structures, planning and control systems, job specialization, training and education programs, degree of centralization, delegation, and participation (Volberda, 1992).

To reduce the resistance to change, by creating a sense of urgency to change and improve communication, it is essential that prior to the introduction of new ICT, the organization needs to determine levels of readiness for change by measuring internal capabilities (Beckard & Harris, 1987; Schein, 1990; Appelbaum, et al., 1998; Smith, 2005). By knowing the level of readiness, an organization can plan ahead to successfully implement the new system (Appelbaum, et al., 1998). Failure to assess organizational readiness prior to the ICT implementation may result in managers spending more time dealing with the resistance to change, or even worse, may result in ICT failure (Smith, 2005).
The E-Readiness Model

The model developed is of a normative type, and has been created specifically to address a readiness issue, which would increase the likelihood of the success of ICT at organizational level. The model can provide managers with guidelines to prepare the work environment and make it ready to successfully implement new ICT systems. (The full model is presented in Chapter 2).

The e-readiness model is based on the maturity concept. Table 1 lists those models and authors that were referenced and used to create the various elements of

Table 1. The resources used to create the e-readiness model

<table>
<thead>
<tr>
<th>Concepts/Element/Attributes/Description/Factors</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model concept</td>
<td>• Capability Maturity Model (CMM) (Paulk et al, 1993)</td>
</tr>
<tr>
<td>• Comprises six levels of maturity</td>
<td>• General Practitioner Information System (GPIS) Model (AlSalah, 2002)</td>
</tr>
<tr>
<td>• Contains description of each level</td>
<td></td>
</tr>
<tr>
<td>Model elements</td>
<td>• General Practitioner Information System (GPIS) Model (AlSalah, 2002)</td>
</tr>
<tr>
<td>• Comprises four elements; IT Infrastructure, Process, People, Work Environment</td>
<td></td>
</tr>
<tr>
<td>Model Attributes</td>
<td>• Expert views</td>
</tr>
<tr>
<td>• Top Management Perception</td>
<td></td>
</tr>
<tr>
<td>Model Attributes</td>
<td>• General Practitioner Information System (GPIS) Model (AlSalah, 2002)</td>
</tr>
<tr>
<td>• Systems and Communication, Skill, Roles &amp; Responsibility of IT Staff, User Involvement, Organizational Behaviour, IT Policy, Leadership</td>
<td>• Nolan (1979)</td>
</tr>
<tr>
<td>• A Stages of IT Growth Model (Sutherland &amp; Galliers, 1989)</td>
<td></td>
</tr>
<tr>
<td>Model Attributes</td>
<td>• General Practitioner Information System (GPIS) Model (Saleh &amp; Alshawi, 2005)</td>
</tr>
<tr>
<td>• Process</td>
<td>• Capability Maturity Model (CMM) (Paulk et al, 1993)</td>
</tr>
<tr>
<td>Model Factors</td>
<td>• IT/IS expertise</td>
</tr>
<tr>
<td>• Drivers</td>
<td>• Currie &amp; Wilcocks (1998)</td>
</tr>
<tr>
<td>• System requirements definition</td>
<td>• Tallon et al. (2000)</td>
</tr>
<tr>
<td>• Cline and Guynes (2001)</td>
<td></td>
</tr>
<tr>
<td>Model Factors</td>
<td>• Tallon et al. (2000)</td>
</tr>
<tr>
<td>• Focus</td>
<td>• Cline and Guynes (2001)</td>
</tr>
<tr>
<td>• Network Communication</td>
<td></td>
</tr>
<tr>
<td>Model Factors</td>
<td>• Peppard and Rowland (1995)</td>
</tr>
<tr>
<td>• Capability building</td>
<td>• Capability Maturity Model (CMM) (Paulk et al, 1993)</td>
</tr>
<tr>
<td>Model Factors</td>
<td>• Nelson (1991)</td>
</tr>
<tr>
<td>• Skills</td>
<td></td>
</tr>
<tr>
<td>Model Factors</td>
<td>• Crossan et al. (1999)</td>
</tr>
<tr>
<td>• Capability building</td>
<td></td>
</tr>
</tbody>
</table>
e-readiness, i.e. the readiness models are extracted, adopted, combined, and modified from these models (Saleh, 2007).

**Overview of this Book**

This book is a compilation of IT/IS readiness models, cases, and associated issues. The rest of the book is divided into two sections; Section 1 presents the e-readiness model and is a compilation of case studies associated with IT/IS readiness models, and Section 2 is a compilation of papers related to different associated issues in IT/IS readiness. Section 1 consists of four case studies. The first case study presents the implementation of the readiness model in higher education sector, the second case study presents an IT/IS readiness assessment for a construction organization, the third case study is about the assessment of e-readiness of a banking organization, and the fourth is an e-readiness assessment of a government service organization.

Section 2 of the book consists of five chapters. The first chapter, by Rehak and Grasseova, is focused on assessing the factors of the external environment in the area of security of information systems in the organization through SWOT analysis. The chapter presents a semi-quantitative assessment of threats in the area of information systems of the organization, evaluates the risks and the assessment of opportunities, and evaluates the overall benefits. The second chapter, by Effah and Light, helps improve our understanding of a small e-support firm’s response to the local e-readiness and the global e-business environment in a developing country’s context. The third chapter, by Ahmed and Abuelmaatti, presents the findings of a
case study that assess the readiness of small and medium enterprises for the implementation of collaborative environments. The fourth chapter of the book presents a benchmarking analysis of the implementation of e-readiness of 100 case studies. The final chapter of the book, by Mohammadian and Jentzsch, presents a fuzzy cognitive mapping approach to provide the capability to capture and represent complex relationships in an IT management process model.

Mustafa Alshawi
University of Salford, UK

Mohammed Arif
University of Salford, UK

REFERENCES


