Managing Enterprise Information Systems for Competitive Advantage

Enterprise Information Systems (EIS) provide a technology platform that enable organizations to integrate and coordinate their business processes. They provide a single system that is central to the organization and ensure that information can be shared across all functional levels and management hierarchies (Wikipedia).

As a business management system, EIS seek to combine all aspects of the organization. EIS facilitate enterprise-wide integrated Information Systems (ISs) covering all functional areas of the organization and perform core organizational activities. EIS differ from conventional IS packages known as legacy systems; legacy IS are highly resistant to modification and evolution, whereas EIS are auto-transactional and self-assisting.

In today’s business environment, EIS are critical to organizations. Business practices are constantly changing, and it is new Information Technologies that can provide competitive advantage. As systems are repeatedly modified over time, EIS evolution becomes more complicated. Businesses today must deal with new materials, growing competition, and increasing customer expectations. EIS must efficiently synchronize demand, supply, and productions, support quality, reduce costs in the supply chain network, provide reliable delivery and better service to customers, diminish inventory to a minimum, et cetera. EIS allow for integration of heterogeneous applications, protocols, and formats.

EIS form the backbone of an organization; therefore, organizational changes affect the enterprise system model when modifications have to be made. For this reason, business needs an infrastructure that supports change. Adaptive systems are necessary to enable the core business to cope with unforeseen circumstances. Adaptability enables EIS to follow changes that occur along the system’s lifetime.

The terminology on adaptability is inconsistent. Flexibility, agility, and adaptability are often used interchangeably in practice; although, what follows is one understanding of a distinction. Within flexibility, the range of possible alternatives
is considered fixed, that is, considered as being anticipated and pre-installed at the point of initial investment. The system can easily adapt within this range. In contrast, adaptable systems are not limited to a fixed problem set. Adaptable systems are highly self-organized, therefore, capable of creating a solution from within the system to adapt properly. Agility is considered dynamic context-specific, aggressive change; it is the ability to rapidly respond to an external and unexpected event. Agility is mainly seen in a business or process context emphasizing fast and efficient behavior.

Another distinction views flexibility as understood by three aspects: anticipation, agility, and adaptability. Combining these aspects for managing Information Technology (IT) in a changing and uncertain environment presumably would improve flexibility. Anticipation balances planning for expected change with preparing for unexpected change. An example of anticipation is aligning IT strategy with business strategy. The ability to anticipate provides the opportunity to plan and then prepare. Agility is the capability to respond quickly to environmental change. Agile managers plan for both the known and the unknown, acting versus reacting to respond quickly and effectively to both anticipated and unanticipated business changes. Adaptability is the capability of the organization to self-learn and self-organize based on previous experience. Adapting emphasizes the ability to maintain the status quo despite internal or external change. When combined, these three aspects form an IT flexibility framework that operates in a continuous cycle: anticipation occurs first; then, over time, situations change requiring agility, that is, the capability to respond quickly to the environmental changes; after responding to the changes, adaptability occurs; then, the cycle starts over beginning the anticipation stage again.

From a research point of view, adaptable systems represent the ideal final condition reflecting unlimited problem space. Therefore, understanding the constructs that underlie adaptable behavior and transferring these constructs to IS is essential. To measure the relation of IT adaptability and its impact on the organization, research suggests considering two important aspects: the organizational dimensions and the technical system that supports or hinders adaptability in these areas. Researchers propose that business system adaptability is quantifiable and recommend a measurement approach based on two dimensions: systems-based and business-use. The system-based dimension measures the inherent ability of a system’s technical architecture to respond to change, while the business-use dimension measures the circumstances of usage of each system within the business. Each dimension includes several patterns or characteristics for adaptability. This measurement approach for assessing and evaluating adaptability is one contribution to a growing need to manage change.

Managing adaptability in EIS is a challenging task. It requires identification of factors that affect adaptability and how these factors affect adaptability, as well as understanding of the opportunities for and threats hindering successful adaptability. It requires understanding of the interventions that lead to change as well as an
understanding of the role that people play in the change process. The next section highlights ongoing issues with implications for EIS and its management. We discuss the role of change management, conversion management, readiness management, knowledge management, e-business management, people management, and stakeholder management for competitive advantage in EIS.

**CHANGE MANAGEMENT**

In order to be effective, an EIS needs to be flexible. In addition to the extent of flexibility, the type of flexibility that is built into an EIS impacts system performance, in particular regarding the degree to which the system can be changed after its implementation. Few researchers today, if any, would consider EIS flexibility explicitly as a factor of EIS design and development decisions; rather such decisions tend to be dominated by short-term political considerations. Several researchers have investigated factors influencing EIS flexibility. One proposed model provides a general way of thinking about flexibility of an EIS to support a given business process. The model relates business process characteristics (uncertainty, variability, and time-criticality) with two basic types of EIS flexibility: built-in flexibility to use the EIS and flexibility to change the EIS; the model serves as a guideline for the evaluation and management of EIS flexibility.

Another model provides an EIS planning model for building flexibility and success that considers a volatile environment and the possibilities for leveraging the user’s cognitive capabilities. The model specifies EIS success and organizational flexibility as dependent variables, and EIS flexibility as the means to achieve EIS success and organizational flexibility. User involvement in EIS planning is considered as an antecedent variable. The model designates EIS maturity, business strategies, user expectations, user perceived personal usefulness, and user internal flexibility as control variables. Study findings indicate that EIS success and organizational flexibility could be achieved through EIS flexibility, which could be generated by involving users in EIS planning.

Technology is a dynamic result of the interaction process between people and organizations. EIS adaptation can be viewed as the process by which staff members try to maximize an application’s fit, thus enhancing their satisfaction with EIS. But fit for the uses of the same application system is not stable, because many organizations face ever-changing environments. Therefore, a dynamic and continuous view of the EIS fit is more appropriate for EIS effectiveness today. An understanding of the relationship among cognitive factors, EIS flexibility, and adaptation activities considering the temporal dimensions of adoption, implementation, and post-implementation is essential. This points to the importance of managing different levels of cognitive factors of EIS staff members, and the need to understand how these cognitive factors will change in each EIS life-cycle stage.
CONVERSION MANAGEMENT

The EIS conversion is not just a technical change; it is an organizational change that involves technology and people. Traditionally, little attention is given to the human aspects of EIS conversion. There are generally two types of managers involved in an EIS conversion project, those representing the human side and those representing the technology side of the organization. The two sides need to be in constant communication with each other, like two parents. Parents at odds in a child-rearing decision need not involve the child. Parents must make decisions as ‘one parental unit,’ privately; the two managers would be wise to do the same. Both managers need to point out why there is a need for change; both parties must have a desire to support change; people must receive sufficient technical training from the IS side; and the people side needs to reinforce the need for change in order to keep the team ‘on board’ and make the conversion successful.

Business process re-engineering (BPR) is also often used to bring technological change to organizations. The EIS conversion with BPR requires a cultural shift. Employee empowerment, leadership, teamwork, and entrepreneurship are important ingredients of this strategy. Small to medium-sized companies with decent infrastructure and knowledgeable EIS staff are better positioned to re-engineer than many of their competitors because of the lack of bureaucratic nonsense and the presence of a team-based orientation. Combine lack of technical expertise with a poor infrastructure, and a disaster is eminent.

Good top-down communication, top-management commitment, and enthusiasm from the owner or managers are crucial for the success of BPR. A more flexible structure is able to better adapt to changing customer needs and BPR. Availability of financial resources, strong managerial skills, and long-term strategic planning can also contribute to successful BPR. A good EIS infrastructure can promote successful BPR; a bad EIS infrastructure can inhibit it. A cohesive EIS infrastructure eliminates time and distance for process integration. Usually in small and medium-sized companies the decision to re-engineer comes from a position of strength; whereas, it is implied that large companies may only re-engineer when they have to.

An ongoing goal for most organizations is to grow. This is especially true for small and medium sized enterprises. As the target market for a business grows, more comprehensive EIS is needed. A number of exciting opportunities exist for business owners and managers in this position. Where there is a threat, there is an opportunity. Managers must continuously learn, seeking consultants, if necessary, to learn about what EIS solutions exist for them. Learning more about technology is the first step to achieving a competitive advantage. Because of today’s economic climate, smaller companies need to make more innovative use of EIS. Business owners usually compete on price, differentiation, or both. No matter what, innovative
thinking is the key to a successful change. It is surprising how the same companies that employ this strategic thinking for their marketing and business relationships often fall short when it comes to EIS innovative thinking.

In managing conversion, it is important to consider all feasible and available technical options. If there are more than one feasible option, then cost, time, and risk analysis could be used to determine the best fit. In addition, it is imperative that the conversion itself is carried out with both managers representing the human side and the technology side of the organization.

**READINESS MANAGEMENT**

As EIS become more deeply integrated with business and play a vital role in modern organizations, a critical question emerges: is the organization ready for EIS? This leads to an EIS implementation problem in need of address – how to prepare an enterprise with organizational and social infrastructure for technical innovations. Researchers have proposed methods to overcome this problem. Qualitative methods to analyze enterprise preparedness have been suggested. One such approach considers a rational approach consisting of two parts: preparing the people and preparing the technical system. Preparing the people involves gaining support from future users of the system, training them on the technical aspects of the system, and educating them about job and process changes after implementation. Preparing the technical system involves converting data from the legacy systems into required formats the EIS software. Quantitative methods to obtain evidence of an organization’s readiness have been developed. One proposed approach includes the concepts of organizational culture, user empowerment, and change management to develop an organizational readiness benchmark for EIS readiness. Yet other researchers provide methodological frameworks for examining and improving organizational readiness for EIS implementation. A proposed architectural framework extends organizational readiness analysis from a technical project towards organizational awareness. The focus onto organizational and cultural dimensions allows for an examination of structure, stakeholders, responsibilities, activities, and norms for EIS implementation; different levels of readiness requirements from perspectives of technical systems, business processes, and organizational culture in terms of norms can be classified.

The ongoing research in this area of organizational readiness highlights the need for organization proper predisposition before adopting an EIS. Clearly, there is a need to assess preparedness for change of business environment when designing enterprise systems.
KNOWLEDGE MANAGEMENT

In a highly dynamic environment, enterprises increasingly recognize that knowledge management is one of the most important factors contributing to business success. There are two types of important assets in an enterprise: physical assets and knowledge assets; the integration of the two is required for competitive advantage. It is essential for enterprises to refresh their EIS and integrate knowledge management function. EIS with knowledge management capacity can be more responsive to changes in the global environment.

Knowledge is a mix of experience, values, contextual information, and insight that provides a framework for evaluating and incorporating new experiences and information. Knowledge management is the organizational process for acquiring, organizing, and communicating both explicit and tacit knowledge, allowing users to employ knowledge to be more effective and productive. Knowledge management systems are Information Systems designed to collect, code, integrate, disseminate, and facilitate organizational knowledge. One of the challenges of knowledge management is that of getting people to share their knowledge. Knowledge-sharing is the process of exchanging knowledge among organizational members. An enhanced understanding of knowledge-sharing behavior and its influences would aid knowledge management leadership in their management efforts.

It is conceivable that any model of knowledge-sharing include a complex adaptive system perspective. A complex adaptive system is a system that emerges over time into a coherent form, and adapts and organizes itself without any singular entity deliberately managing or controlling it. Complex adaptive systems are composed of interacting agents which respond to stimuli and stimulus-response behavior that can be defined in terms of rules. Agents adapt by changing their rules as experience accumulates and can be aggregated into meta-agents whose behavior may be emergent. Viewing business systems from a complex adaptive system perspective, the organization can better assess their flexibility and adaptability and evaluate their architecture. Enhanced flexibility, adaptability, and reusability of these systems can strengthen the ability of an enterprise to evolve and survive in the marketplace.

E-BUSINESS MANAGEMENT

Today’s EIS managers face tremendous challenges given the increasing complexity of Internet and Web technologies and their rapid evolution. Within their enterprise information and technology architecture, they seek optimal utilization of their existing IS for business performance while ensuring integration of the latest Internet and Web technologies. At the same time, they must meet the expectations of busi-
ness managers who must keep up with the changing competitive environment and customer needs by creating and sustaining innovative business value propositions. Customer-oriented e-business solutions provide a means to deal with the complexity of the latest technologies while ensuring their rapid adoption and adaptation. There is an increasing greater need to integrate across extended value chains. Realigning product and service platforms into e-business solution architectures can better address the needs of improved integration and interoperability.

In addition to enabling the technology, a better understanding of organizational cultural issues and their strategic implications is critical to the implementation of e-business technology architectures. E-business technologies cannot be effective if implemented without regard to vital aspects related to organization, culture, strategy and management of the enterprise – aspects critical for enterprise agility and adaptability. Researchers describe seven challenges related to organizational cultural aspects of the enterprise with strategic implications that e-business implementations encounter: strategic, control, organizational cultural, knowledge, economic, structural, and management challenges. Technology managers are encouraged to take a holistic approach to designing inter-and intra-organizational systems with consideration not only for the technological design but also for the design of non-technical enablers of these systems in order to successfully manage these challenges.

**PEOPLE MANAGEMENT**

EIS and people are inextricable. EIS are the outcome of human design and implementation and their benefit arises due to their efficacy through their application by humans. Therefore, EIS require both efficacious design and implementation by people and use by people. This relationship is foremost in the implementation and application of EIS. EIS are a source of competitive advantage at the functional level as firms may compete due to a lower cost of production or through innovative products or both. This is relevant to all firms. It is especially relevant for service firms, especially firms that provide information on complex products to consumers and also use information and communication technologies to provide services.

Information and communications systems and technologies have increased in importance for organizations at a functional and business level, that is support and operational level respectively, and also at a strategic corporate level. Many of these focused on task automation and transaction processing to obtain economies and reduce costs. Of course, the motivation for implementing EIS varies widely between them depending on the aim and the level in the organization, that is at an operational, support, or strategic level. The type of system may also be to support management, assist in knowledge management, or improve performance and may be
based on internal or external information. They may also be associated with Internet technologies such as in business-to-business and business-to-customer marketing and customer relationship management.

The main reasons for introducing EIS are to improve the quality of products and customer service, as well as differentiating from competitors at the product factor and service factor levels, to improve business processes, to increase productivity, and to reduce costs. They are also implemented to increase knowledge flows, improve internal and external communication, and in formulating strategy in terms of markets, industries, and countries.

Essentially, EIS aim to obtain and store proprietary information on internal processes, on the external market, and on customers. They allow people to retrieve and disseminate this information and convert it into knowledge so as to increase organization learning through knowledge sharing or assist in the planning processes and resource management.

In the engineering language of business processes people are considered as merely service providers, and their role is not considered as central as the processes themselves. However, people interact and cooperate in EIS and are central to an organization’s processes. The origins of this perspective may be traced to EIS. This evolved into process-oriented approach consisting of user tasks, that require a people input, and automatic procedures, that do not require people input.

When people are part of the process, they are service providers according to the orchestration-oriented approach. This considers people as generators of a process, such that, an instruction from one person to another consists of different though sequential processes. This assumes that the processes are distinct and most people interactions are cooperative. This cooperation may be considered as conversations.

One approach to this integration is the People-Oriented Business Process Notation (POBN) and when conversations and processes are integrated it is referred to as a conversation-oriented perspective. This differs from the orchestration-oriented perspective that follows a centralized approach whereby individual interactions are not explicit in the process.

There are three elements to a conversation. These are the type of interaction, the direction of the interaction, and the process initiated. In a conversation there is interaction between people. That is one person communicates with another and it is the content of the content that elicits a response. The object of the intended communication is the business content. It is important that the communication clearly specifies its purpose. Assuming there is a request initiated by one person the responder may accept, not accept, or request clarification. This is the interaction between people to initiate a business process. Therefore, the conversation-oriented perspective places great emphasis on the participation and cooperation of users in intra-organization business process.
STAKEHOLDER MANAGEMENT

Managing and designing EIS requires the management and inclusion of stakeholders in the process. People are central to the efficient and efficacious design, implementation, and functioning of systems, and thereby, users play an important role in ensuring the quality and user satisfaction and ultimately user acceptance of a system. However, with the increase in external system design, such as standard packages and outsourcing, it is difficult to incorporate users into the design. That means that stakeholders in system design may be from within the organization, and more often from different departments in the same organization leading to different perspectives of users, and also from outside the organization. This diverse group of stakeholder, may include external stakeholders such as suppliers, customers, and sometimes regulatory authorities and government. Especially in virtual firms, outsourced activities must be included in the systems design. The exclusion of some or all stakeholders in the design and implementation of a system may lead to resistance on the part of some or all.

The project manager must determine the relevant stakeholders and categorize and rank these in order of importance. Their management is central to the management of the project. These stakeholders have a role in the decision of system functionality and output. Of course, consensus is not always possible, and that means that despite inclusion, some stakeholders may oppose it. However, in the instance where stakeholders are not included in the design of an IS, the users react differently. Designers and users may have different a priori expectations. The a posteriori reaction may be acceptance, adaption, or not acceptance. Therefore, the probability of acceptance is higher when stakeholders are included in the design and implementation. Stakeholders also have the opportunity to influence the design, and designers must accept this intrusion. An argument could be made then that ISs are not merely technical systems. They are socio-technical systems involving social factors, power through hierarchy, and politics through alliances that are part of the dynamics of any group.

Stakeholders in EIS project are individuals and groups within departments in a firm, as well as entire departments, or indeed the firm at the business, functional, and corporate levels, who have the capacity to influence or be influenced by the proposed system. These stakeholders may have a common understanding or diverse reaction of the efficacy of an IS. It is unusual to have such common understanding, so it more likely to be influenced conflicting arguments.

Of course, influence may be a perception that is realized or not, depending on power and politics. Furthermore, the stakeholders opinions may be merely perceptions and may also be subjective, and when objective may be biased based on personal, group, or organizational objectives. This depends on the management of the consultative process.
The stages of stakeholder management are to determine the stakeholders, determine the stages of their involvement and their roles and objectives and their degree of involvement, classify their relevant importance and proceed with a design and implementation plan. The order of these varies depending on complexity of the project, requirements of the project and the power of the individuals and groups who are considered the stakeholders.

To determine stakeholders, the project managers must decide as to who could affect the design and implementation of an EIS and who could be affected by such a system. In effect, this is subjective. The methods used to determine the relevant stakeholders. It could be based on generic groups such as managers, administrators, or suppliers, among others. This could be adapted to include more specific relevant sub-groups within the various generic stakeholder groups depending on the industry. Another approach is to ascertain the most relevant groups based on specific questions, such as, who the users of the system, the users of the output, the managers that make decisions based on the output, or those that are would affected by the system. The questions are different for each project and industry and firm. The stakeholders may be different using this approach although there should be a significant overlap. Another alternative approach is based on the network of relations within and between organizations. This network based model allows the entire stakeholders to be considered as a complex interacting group and that this is evolving. That is unlike the other approaches that are static there is a dynamic and temporal aspect to this approach.

An EIS project has stages, such as design, implementation, use, and disuse. Some of these stages are sequential, parallel, and may be repeated through the temporal continuation of the system. And it this temporal aspect that suggests that the stakeholders may be different as the project continues and the when the system is implemented and evolves. As the project evolves, the influence and importance of stakeholders may also evolve. And, of course, the actions of stakeholders may evolve in terms of their involvement depending on the significance to them at the various stages of the project.

It is also important to establish boundaries for stakeholders. Otherwise their inclusion could be interpreted as intrusion. This is where the stakeholders have a representative role or an influencing role. Furthermore, the role of the stakeholder may evolve as the stages of the project evolve. A stakeholder may be a designer and a user simultaneously during the project or at different stages. The possible roles of a stakeholder range from owner, project manager, user, developer, decision maker, or passive involver.

In terms of interest, it is essential that the stakeholders be determined based on their interests in the project. When the stakeholders, their roles and their interests of stakeholders are determined they should be associated with objects and interests.
The objects and issues within an EIS project are scope of the system, that is, the aim and advantages of a system, business model or business processes, functioning enterprise, the inputs and outputs of the system, system model or human interaction, technology, configuration or compatibility, and the project performance and cost. These issues have different importance or interest depending on the stakeholders and their specific roles. This also determines the level of motivation at the various stages, the priorities, and reaction to the issues. Of course, some stakeholders’ interests may not be realistic or realizable within the scope of the project.

It is possible to outline the interest of stakeholders and include those that the system allows for the realization of objectives, has a positive return on investment, improves business processes, provides quality information, has easy functionality, performs, as well as that the project is completed on schedule. Assessing the relative importance of stakeholders is a more dynamic process than a static process as their importance may evolve with the project and their interest and power.

There are obviously conflicting roles and levels of stakeholders in terms of interests and motivation, power, and stage of the project. These stakeholders must be managed to ensure the progress of the project. This may include informing the stakeholder without further influence on their part, consulting with the stakeholders, involving stakeholders and allowing them influence, collaborating and allowing co responsibility for the project, and empowering the stakeholders such that they are responsible for one or more objects of the project.

The final stage having determined the status of stakeholders is to develop a stakeholder management plan specifying the appropriate type and level of communication and interaction with stakeholders based on their roles, interests, and salience. This should be continuously reviewed to incorporate the dynamics of the project, due to internal and external factors, and also to calibrate the demands of the project and the inclusion of other stakeholders that may not have been considered in previous stages of the project. There are inter-stakeholder dynamics also, and a review could equilibrate their interventions, where necessary.

In developing and implementing ISs and technologies it is obvious that people are central to their design, implementation, and use. The design process is most important and therefore, involving stakeholders in the process leads to a more efficacious system provided that the roles and the power of the stakeholders are balanced and managed to ensure that conflicts between individuals and groups, and between various functions and operations. It is also important to determine in the design the aim of an IS either as a process support, as a source of information and data or as a strategic and resource management. At the implementation stage it is important to avoid resistance to implementers from managers and end-users of systems and technologies. This is only partly accomplished at the stakeholder involvement stage. Finally, it is important to have integrated enterprise-wide systems
that allow a firm to harness the proprietary information and knowledge within an organization and to have communications and data flows both within and between departments at the functional level, or business units at the business, and finally, with the corporate level.

**CONCLUSION**

Companies today are immersed in highly competitive world-wide markets that are continuously changing. As a consequence, companies must evolve introducing strategic and structural changes as a response to the external forces of the environment. Ongoing research on EIS is vital to provide insights into the challenges, issues, and solutions related to management of various aspects of EIS. A recurring theme threads through the EIS issues highlighted above: business/IT fusion. The message – business and IT “working as one” is essential to achieve business breakthrough performance and competitive edge in EIS.

**IN THIS BOOK**

Ruey-Shun Chen, Chia-Ming Sun, Marilyn Helms, and Wen-Jang Jih in Chapter 1, *Factors Influencing Information System Flexibility: An Interpretive Flexibility Perspective*, provide a model of IS flexibility that encompasses all stages of the IS life cycle. The model posits that cognitive factors from both IS staff and users are important for leveraging IS flexibility with adaptation activities. The study uses an interpretative flexibility perspective and distinguishes between flexibility to use and flexibility to change. The authors present propositions hypothesizing the relationship among cognitive factors, IS flexibility and adaptation activities considering the temporal dimensions of adoption, implementation and post-implementation.

Lorraine Warren and Ted Fuller, in Chapter 2, *Contrasting Approaches to Preparedness: A Reflection on Two Case Studies*, present two contrasting approaches to the issues of preparedness for enterprise-wide change in small organizations. These contrasting approaches point to the need for different enterprise design. In the step change scenario, a robust platform that integrates and supports the needs of the company over the years in what is expected to be a relatively stable environment is required; in the more just in time scenario, the design must accommodate a constant state of preparedness that results in the partial construction of new systems aging the potential existence of developing project that may or may not be realized.

Cynthia Small and Andrew Sage, in Chapter 3, *A Complex Systems-Based Enterprise Knowledge Sharing Model*, describe a complex adaptive systems (CAS)-based
enterprise knowledge sharing (KnS) model. The authors show that the CAS-based enterprise KnS model and methodology provides knowledge management (KM) leadership with an enhanced understanding of KnS behavior and KnS influences. The KnS behaviors incorporated in the enterprise KnS model are defined by types of knowledge (tacit and explicit) and ontological dimension (individual, group, and organization). KnS influences included are the enterprise KnS environment, KnS behavior of other knowledge workers, and attributes of the knowledge workers.

Kari Smolander and Matti Rossi, in Chapter 4, Conflicts, Compromises, and Political Decisions Methodological Challenges of Enterprise-wide E-Business Architecture Creation, focus on the creation of e-business architecture and observes that the architecture emerges through somewhat unintentional actions obliged by the situation and its constraints, conflicts, compromises, and political decisions. Based on observations at an international Information Communications Technology (ICT) company, the authors argue that organizational problems as the major problems to be solved when creating an e-business or enterprise architecture.

Efrem Mallach, in Chapter 5, Information System Conversion Strategies: A Unified View, propose a step-by-step method for IS conversion. Mallach points out the importance of paying equal attention to both the technical and human sides of ISs. The author categorizes five components of ISs as hardware, software, data, procedures, and people. Mallach also discusses several conversion methods including: direct cutover (i.e. plunge) conversion, pilot conversion, phased (i.e. modular) conversion, and parallel conversion.

Sajda Qureshil, Mehruz Kamal, and Peter Wolcott, in Chapter 6, In Information Technology Interventions for Growth and Competitiveness in Micro-Enterprises, identify the following challenges facing micro-enterprises: affordability, awareness of IT, infrastructure, private versus government sectors, and management’s capacity. They show how micro-enterprises can adopt IT to achieve competitiveness. They propose IT Therapy for helping micro-enterprises develop tailored IT solutions for their needs. They study seven micro-enterprises and argue that without IT Therapy, the owners of these businesses might not have figured out how to best use their newly awarded gifts. They proposed a model of micro-enterprise growth based on the resource-based perspective and the focus-dominance model, both of which were employed in this study. All micro-enterprises studied were actively seeking to adopt new IT to help achieve a competitive advantage. In most or all cases this involved launching, or improving upon, a website.

Jeffrey Chang, Margi Levy, and Philip Powell in Chapter 7, Small Firm Process Re-Engineering Success, discuss IS conversion with BPR in small to medium sized enterprises (SMEs) versus BPR in large corporations. They study eight Taiwanese case studies and explore issues contributing to the successful process re-engineering in small firms. They propose a framework that is comprised of four components:
culture, structure, resources, and technology. They outline factors for success or failure, depending on how the four components are understood. Some of the major factors affecting a successful BPR are innovation, employee empowerment, top management commitment, and strategic perspective. Usually the re-engineering decision in SMEs comes from a position of strength; whereas, it is implied that large companies may only re-engineer when they ‘have to.’

Albert Boonstra, in Chapter 8, Aligning Systems, Structures, and People: Managing stakeholders in Enterprise Information Systems Projects, focuses on managing stakeholders in EIS. He argues that stakeholder management should go beyond the conventional user participation and management involvement since all stakeholders have a genuine interest in the successful implementation of the system. Boonstra proposes to use several methods from the organizational management field for the successful implementation of EIS.

Giorgio Bruno, in Chapter 9, People-Oriented Business Processes, considers the role of user participation in business processes. He argues that current approaches do not put emphasis on user participation in business processes and lack the capability to represent user interactions. Bruno shows that human work is a cooperative process and the cooperation between coworkers generally takes place through structured interactions called conversation. He proposes conversation-oriented perspective to effectively integrate business processes with conversations.

João Varajão, Antonio Trigo, and João Barroso, in Chapter 10, Enterprise Information Systems Adoption in Iberian Large Companies: Motivations and Trends, discuss the importance of IS and technologies in organizations and the motives for their adoption. They carry out a study with the participation of several chief information officers to identify and characterize the motivations behind the adoption of Information Technologies in large Iberian companies. Their study reveals that while some technologies such as Enterprise Resource Planning systems are now consolidated, other technologies such as Business Intelligence systems should increase significantly in the near future.

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