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Toward a New Model in Information Systems Planning: Contributions from Organizational Learning and Decision Process

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Abstract

Computer technology and information technology in general have developed rapidly. The borderline between information technology and business process have become distinctly vague. Given this fast and important technological evolution, information systems planning has become increasingly important, this has always been a highly critical management matter in the information systems area. In this context, new concepts about decison making and organizational learning have been demanding a new vision about the information systems planning process. The objective of this study is to analyses this impact, heading towards a new model of IS strategic planing. The method is qualitative research, mainly case study.

Keywords: information systems planning; information systems strategy; organizational learning; qualitative research

Introduction

Organizations have been facing an extremely competitive environment inserted in a society deeply affected by new paradigms introduced by the information society. The information technology (IT) role becomes relevant and information systems management is simultaneously growing more challenging and more important (McNurlin and Sprague, 1998). Baets (1998) suggests that the application of information technology is at the threshold of a new era, opening up new opportunities by using the technology strategically for the benefit of organizations and businesses. Nowadays, we are still facing the problem of how to exploit new business opportunities using technology.

The objective of this paper is to present a preliminay IS planning model as a first result from a qualitative research evolving a large medical center in the United States and two brazilian organizations. The theoretical background to the research appears in the next section. The objectives, research model and research methodology follows. The preliminary information systems planning model conclude the paper.

Literature Review

Organizational Learning

Organizational learning is the process by which the organization's knowledge and value base change, leading to an improved problem-solving ability and capacity for action (Probst and Buchel, 1997). It has been identified as an important element in the resolution of problems in the organization, mainly those related to the strong competitive pressures of the market and to changes in technology. The organizational learning process is modeled as a continuous development, centered on five subjects: personal mastery, mental models, shared vision, team learning, and systemic thinking (Senge, 1990).

Decision Making

Decision process theory has evolved over time, passing from an idealized and restricted vision of rationality to an approach with strong political and subjective components. Logical Incrementalism (Lindblom, 1959) analyzes the decision process under a political perspective, viewing its limitations and fragmentation. It considers the rational models of decision analysis, of formal systems of planning and political models. It reintroduces the manager as an integrator and administrator of the conflict between rational and political forces, recognizing his value.

Information Systems Planning

Information systems planning is the process of identifying a portfolio of computer-based applications to support an organization's business plan and to help it realize its business goals (Lederer and Sethi, 1988). Much research has focused on the improvement of this process. Studies have thus investigated the alignment of information systems strategy with business strategy (King, 1988); the identification of opportunities to gain competitive advantage using information technology (Porter and Millar, 1995); the analysis of internal processes and data dispersion throughout the organization (Brancheau and Watherbe, 1986; Goodhue *et al.*, 1992); the impact of the environment (Salmela and Lederer, 1996); plan implementation (Gottschalk, 1997; Lederer and Salmela, 1996; Reponen, 1998); and the role of organizational learning (Ang *et al.*, 1997; Baets, 1998; Reponen, 1998).

Objectives and Research Model

The objective of this research is to explore the contributions from organizational learning theory and decision making theory in information system planning. By doing so, it seeks to confirm the relevance of organizational learning to such planning, and thus stimulate further research on the effectiveness of organizational learning techniques in the area.

The proposed challenge as a final result of this research is in conceiving, developing and validating an IS strategic planning model in order to facilitate the decision process, incorporating organizational learning aspects, as a way to develop the implementability of the generated plan. Figure 1 shows the research model for the current study. This model defines the relations among the components of IS strategic planning, organizational learning and decision process.
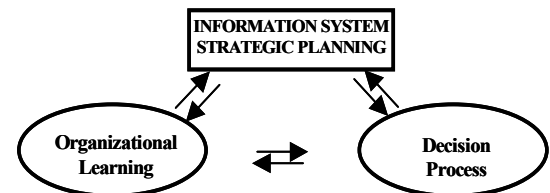

Figure 1. Research Model

Methodology

This research is characterized as a predominantly exploratory study. Case study is the main research method. It was chosen because it allows the in-depth analysis of an organization. It also permits in-depth analysis of different internal areas and activities associated with a particular process. This facilitates the creation of in-depth knowledge of the impacts and consequences of the process (Babbie, 1989).

Multiple case studies and multiple sources are planned as a way to improve the reliability of the data. These sources include interviews with technical people and managers, internal (structured interviews, email surveys and reports) and external (web sites, press articles and consultant organizations) documents.

Preliminary IS Planning Model

In this section, we will present a preliminary IS strategic planning model that will lead us into a discussion of the evolving role of organizational learning and the decision process. It is important to state that planning is a dynamic and not a static process. Our model shares the same vision as the model proposed by Quinn (1980), namely understanding the decision process using the theory of logical incrementalism. The general model is shown in Figure 2.

The upper left block (diagnosis dimension) represents IS management participation in corporate strategic planning to identify the business processes and corporate plans to enable the clear delineation of the way the IT area can contribute to projected business. This approach requires an IS management team who understands business process and corporate plans, and business unit managers who understand the value and role of IT.

The arrow between the diagnose dimension and the plan dimensions (between upper left and upper right blocks) asserts that the results of the diagnose dimension are used by the plan dimension. It also indicates that the results of the plan dimension are used by the diagnose dimension in a continual and alternating feedback process.
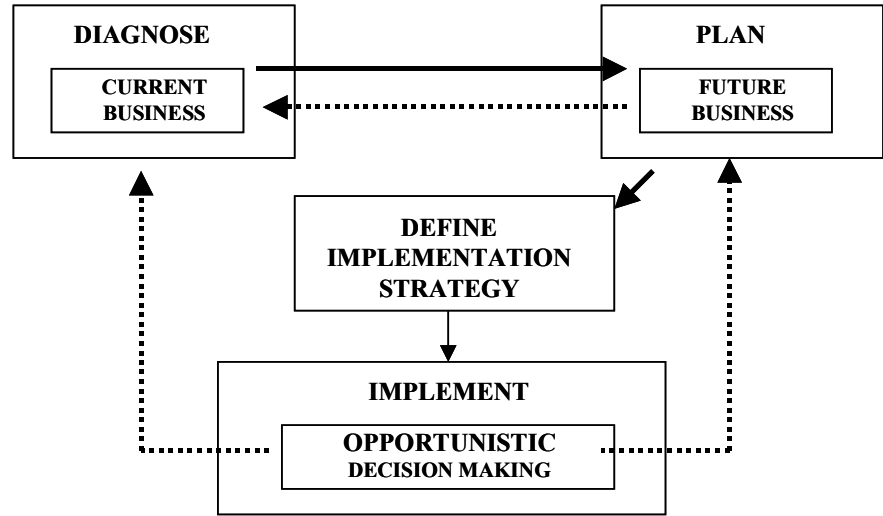
Figure 2. IS Planning Model

The upper right block (the plan dimension) defines the role which the IS area is going to perform in the organizational business. The IS area planning staff, the IS area objectives and polices, and the IS plans are defined, and the technological infrastructure is delineated to meet the organizational demands.

In this sense, the plan dimension feeds directly (via the arrow from the plan dimension to the define implementation strategy dimension) to the team responsible for conducting the change process, where the concern is centered on organizational learning questions. This transition must prepare the enterprise to accomplish an efficient implementation of the generated plan, incorporating knowledge and procedures aiming to create an environment of learning amenable to change.

The main challenge at this point is how to help people form and share a vision. The creation of this vision needs to be promoted through cooperative learning efforts. Cooperative learning takes place in environments in which small groups gain knowledge together to achieve a common goal. An educational approach and cognitive approach can be used to reach this vision and facilitate interpersonal relationships that in turn will have positive effects on motivation, self-esteem, commitment, and conflict resolution.

The bottom block represents the implementation dimension. The main challenge here is to avoid the gap that has existed between business and IT groups. Returning to the concept of learning, both users and IS professionals, generally need education in utilizing IT in business. This is an organizational learning process, which has interconnections to individual learning. It's cycles affect learning at the organizational level through their influence on the organization's shared mental models (Kim, 1993). In this sense, organizational learning is dependent on individuals improving their mental models, and making those mental models explicit. The process itself allows organizational learning to be independent of any specific individual. Individual learning is thus necessary but not sufficient.

The broken arrows between the bottom and the upper blocks show the incremental approach on the decision process. The decision process should be conducted under the principle of Logical Incrementalism, recognizing the existence of an IS plan which is the result of the strategic planning process, but allowing a great flexibility. This flexibility is necessary because the decision process takes place in the face of the technological, organizational, and market changes and transformations. Such decision making is thus referred to as opportunistic decision making.

Conclusion

The preliminary IS planning model presented here is drawn from three case studies in this research and from cases and examples in several IS strategy projects over 10 years, and also from a literature review of the area. Despite developments in the area, IS planning has continued to be one of the most critical management challenges today.

Research in this field is important to IS planners and to researchers; To IS planners and managers because they can use the decision process approaches and organizational learning techniques to improve the effectiveness of their plans. On the other hand, studies in this area are important to researchers because they provide new insights into the impact and contribution of decision process and organizational learning theory to IS planning, and this may provide a foundation for revising current ISP frameworks and methodologies. This kind of research, in a broader sense, can provide more groundwork for research dealing with information system planning and organizational learning.

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