Implementing an IS Strategy—A Team Approach

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Information systems strategy planning (ISSP) has been identified as vital to continuing organizational success and effective IS performance. However, although ISSP methodologies have been used for many years, organizations are still failing to deal effectively with untangling IS planning-related problems. This is mainly because many ISSP methodologies do not seem to realize that the IS-related problems result not merely from technological problems, but are also derived from paying too little attention to the interrelationship between IS and business and organizational factors.

Research has shown that despite the growing number of theoretical frameworks for ISSP, practice still faces three major problems:

- need for integration of ISSP and overall corporate strategy;
- moderate practical utility of existing ISSP methodologies;
- limited management involvement and commitment to the ISSP activities.

It has been argued by Lee and Gough that the multidimensional nature of the ISSP process must be considered. This focus on processes is in line with recent research work in software process modelling, as well as with the effort on total quality management. Such efforts highlight also the need for structuring the work of teams.

This article attempts to develop an ISSP process model, which aims to increase the practical usefulness of IS planning within organizations. The process model identifies separate elements of the process: phases, stages and modules of elementary activities, and aims to satisfy the need for a consistent linkage of IS strategy with corporate strategy by adopting elements of the corporate strategic planning literature. It also provides a framework for enforcing the participation and involvement of managerial staff of the target organization and supports a structured team approach during the process's implementation. A case study of the approach illustrates the merits and pitfalls of the process.

Although information systems strategy planning (ISSP) is vital to continuing organizational success and despite the existence of a multitude of frameworks and methods, organizations are still failing to deal effectively with IS planning problems. In order to help alleviate this problem, this article proposes an ISSP process. The article identifies separate process elements: phases, stages and modules of elementary activities. The proposed process aims to satisfy the need for a consistent linkage of IS strategy with corporate strategy by adopting elements of the corporate strategic planning literature. It provides a framework for enforcing the participation and involvement of managerial staff of the target organization and supports a structured team approach during the process's implementation. A case study of the approach illustrates the merits and pitfalls of the process.
participation of management, the support of team work and the inclusion of review and control activities. Next, the phased approach to the ISSP process is presented, together with the organizational structure and the related management procedures. Finally, the implementation of the process is described, while the concluding remarks identify the advantages and weaknesses of the approach and point to directions for further research.

1. Review of the Literature

ISSP is the first stage in the system development life-cycle. Olle et al. indicate that ISSP is taken to refer to the strategic planning of computerized information systems. The main purpose of ISSP is to identify which information systems are needed rather than planning in detail for any specific system. An IS plan should show which new systems are required and the sequence in which they should be implemented.

Several terms have been used to represent the strategic level of IS planning, e.g. strategic information planning, information strategic planning etc. Although these terms include the strategic aspect of IS planning, they all seem to view the process as context independent. Exceptions to that include Galliers and Ward et al., who view ISSP as a management task concerned with:

- integrating IS considerations into the corporate planning process;
- planning for effective long-term management and optimal impact of information, IS and IT;
- incorporating all forms of manual systems, computers and communications;
- addressing the problems of limited management awareness, communication barriers and problematic organizational approaches.

Many frameworks and methods towards this end have been proposed. Surveys have been given in Munro and Huff and Neo. A recent change in the development of ISSP methodologies towards multiple methods has occurred. For example, Galliers, in reviewing the development path of ISSP methods, stresses the need for 'multiple methods', i.e. the fact that elements of different methods are likely to be more or less required in different circumstances and that ISSP should include human, organizational and infrastructural issues. In addition, a study based on a survey of companies in the UK suggests that the focus of ISSP should no longer be on method alone, but rather the multi-dimensional nature of the ISSP process should be explicitly considered.

Although a 'multiple methodology' approach has been widely canvassed for the development of ISSP methodologies, all current ISSP methodologies seem somewhat normative in that they do not address managerial problems of how strategic planning is to be done and how to make the best use of current methodologies; in other words, they focus on the issue of 'what should be done', rather than on 'how to do it'.

In order to tackle the IS-related issues more effectively, the process of ISSP needs to be clearly defined in such a way that it sets out a series of phases and provides clear guidelines for implementation. In addition, the ISSP process should ensure:

- consistent integration of ISSP within the overall business strategy;
- explicit and active participation (i.e. involvement and commitment) of management from the target organization;
- support of a teamwork approach;
- clear review and approval procedures that will guarantee the quality of the outcome.

Premkumar and King defined the IS planning process as consisting of 'context', 'input', 'process', 'output' and 'outcome' (see Figure 1). Given the importance of the participation of executives from the target organization in the planning process, some educational and training activities are also considered necessary to help the participants understand the planning process and the potential of IS technology in their operations. The resources required refer mainly to human, computer, time and cost resources to be used during the strategy formulation exercise. This emphasis on the ISSP process is in line with recent research activities on modelling an organization's processes.

2. Issues in Information Systems

Strategy Planning

2.1. Integration with Business Strategy

The need to integrate business and IS strategy has been stressed by researchers for more than two decades. IT has been analysed as a strategic tool for enabling competitive advantage, as well as a device for sustaining this advantage. The ISSP methodologies make explicit reference to the overall business strategy and its relation to IS strategy. In addition, a number of studies attempt either to integrate IS and business strategy or to provide frameworks for identifying opportunities for incorporating IS strategy within an overall corporate competitive strategy. Finally, other studies aim to provide recommendations for linking IS strategy to findings from corporate strategy research.

Nevertheless, several surveys of IS managers' opinions and studies of the success factors in ISSP show...
that the alignment of IS and corporate strategy is still one of the top priorities for the future.4,32

It seems that the major reason for this is the lack of management involvement and commitment. Actually, while it seems likely that management will involve themselves in ISSP, the quality of that involvement and the extent of their commitment to resultant change may be called into question. A number of surveys have verified this problem. According to Galliers as many as 58% of the respondents in a UK survey were prepared to admit that their strategic IS planning processes were “at best only tenuously linked with their business plans”.4 Part of the reason for this is that business planner involvement is still relatively rare, with 83% of the respondents admitting that this takes place on a occasional basis at best. This finding is also supported by a US survey conducted by Lederer and Sethi. According to them, the most serious of a total of 18 severe problems for strategic IS planning is “difficulty to secure top management commitment” for implementing the plan.6

In an attempt to integrate and align IS and corporate strategy the process described in this article harmonizes the formulation of IS strategy within five generic corporate strategy phases.33 In addition, in order to overcome the problem of involvement of managers it provides for their explicit participation.

2.2. Participation Aspects
The lack of management involvement, as well as commitment, to the ISSP activities has been considered as one of the major problems for the formulation and acceptance of an IS strategy.4,6 One way of solving this problem is to classify the various possible roles of management involvement and examine how these roles can be included in the strategy formulation process.

In a discussion of alternative ISSP processes Ormerod distinguishes between two styles: the ‘Conventional Process’, in which the members of the working group carry out interviews of the organization’s managers; and the ‘Participative Process’, in which members of the organization’s management join the working group in the actual technical work. Within the participative process five prototypical roles, first identified by Friend and Hickling in the ‘strategic choice approach’, are used. These roles are: ‘accountable’ for the decisions to be taken; ‘responsible’ for guiding the conduct of the decision-making process; those to whom periodic ‘reference’ should be made because they have crucial roles in other fields of decision-making; those who may have a ‘representative’ in relation to specific interests; the ‘stakeholders’ in the sense that they will be directly impacted by the decisions taken in the strategy formulation process.

The process described in the next section aims to satisfy the participation objective, based on the premise that ISSP processes which ensure the involvement and commitment of the target organization’s executives are much more effective, although they can be more demanding of management time. However, a less complicated distinction of user roles is made, compared to the one by Friend and Hickling.35 The
3. An ISSP Process Model

3.1. Basic Framework of the Process Model

A process can be defined as a set of partially ordered steps intended to reach a goal. Any component of a process is considered a process element. A process model is an abstract description of a process which represents selected process elements which are considered important and can be enacted by a human or a machine. Planning the IS strategy formulation process beforehand can prove to be a tedious and even dangerous task. Hence a ‘divide and conquer’ approach is proposed. The decomposition distinguishes between three process elements, in order of increasing detail: phases, stages and modules. The phases of ISSP are generic strategy formulation steps that can be applied to any corporate strategy development process. Each phase is divided into stages. Stages are considered to be semi-autonomous components of work, which can be planned relatively independently. The stage is defined in terms of the resulting behaviour and appearance of its end-product and the information structures that underlie it. Stages are further divided into modules. Modules can either be units of work (i.e. activities) or collections of activities.

Each of the above process elements (phases, stages and modules) has its own objectives (i.e. purpose within the overall process), participants (i.e. the recommended actors and their roles), preconditions (i.e. inputs, references etc.), products (i.e. the end products subject to management and quality control) and techniques (i.e. the models and tools that may be used).

Finally, following the related literature on the application of Total Quality Management methods in IS development, each module of the ISSP process goes through a mini life-cycle with five milestones: plan; approve; do; review and revise; evaluate. The actual interpretation of the milestones may differ with the phase, the stage and type of module, yet they essentially describe a plan–do–refine approach, punctuated by peer reviews of results.

The following sections expand on the main elements of the ISSP process.

3.2. Description of Phases, Stages and Modules

The first division of the overall ISSP process is into five phases (see also Table 1): strategic awareness; situation analysis; strategy conception; strategy formulation; strategy implementation planning. These phases are then separated into stages and modules of activities (see Table 2).

The objective of the first phase is to raise awareness on the issue of strategy formulation and to provide first, rough answers to major questions concerning the overall direction of the organization and its competition. Hence the identification of corporate strategic goals is of crucial importance, since they will provide the guidelines for the development of, and the alignment to, IS strategy goals. In this phase the major collections of business processes and IT systems should be identified and the strategic relevance of each of these should be analysed. In addition, this very first phase provides for the overall planning of the process and the management and organization of the process’s implementation.

The phase of situation analysis can be classified as the various stages concerned with the business, the organizational structures and the IT issues. The latter issues should be examined both internally within the target organization and externally, i.e. with regard to the trends in the environment (e.g. competition, state of the art etc.). The major aim of this phase is to arrive at a clear and documented diagnosis of the existing business and IT situation in the target organization, to identify problems, misfunctionalities and inefficiencies, and in the meantime identify possible opportunities from the internal and external environment. Tools and techniques such as SWOT analysis, portfolio analysis, stage of growth models, analysis of competitive forces and value chain analysis are very useful. The aim is to synthesize a range of views as to the strengths and weaknesses of the organization and its aims and objectives, in the context of the environmental impositions and trends and its historical setting, all in the context of its management and planning of the information resource.

Strategy conception, the third phase of the process, can be considered to include (at least partly and informally) the strategy thinking, analytical component of strategic decision-making. Strategy conception refers to scanning the future for the identification of opportunities for competitive and performance advantages and the identification of alternative scenarios for future growth. Alternative perspectives and assumptions should be identified and incorporated into the scenarios. In addition, a shared understanding and vision should be the overall objective rather than a consensus. In this phase the IS scenarios to be constructed should be in accordance with the overall business strategy and should provide clear IT insight into the efforts for their accomplishment. Techniques that are of use here include analysis of critical success factors, what-if analyses, cross impact analysis, scenario evaluation methods, multicriteria techniques etc.

The other two phases (strategic formulation and strategy implementation planning) conform with
what Mintzberg calls strategic programming; in fact strategy formulation, i.e. the fourth phase of the ISSP process, corresponds to what Mintzberg\textsuperscript{36} calls codification, i.e. the clarification and expression of strategies in terms sufficiently clear to render them formally operational, while implementation planning corresponds to elaboration and conversion, where elaboration is defined as the breaking down of codified strategies into substrategies and \textit{ad hoc} programmes as well as action plans, and conversion is the consideration of the effects of the changes on the organization's operations.

In the strategy formulation phase the chosen scenario(s) should be analysed in terms of the functions (business systems), hierarchies and responsibilities (organizational structure), as well as in terms of the technical architecture required for the building of IT systems that would support the alternative growth strategies. Hence, in this phase various models of the target organization should be elaborated: a functional model depicting the flow of information; an organizational model depicting the responsibilities and hierarchies; a technical (logical and physical) model depicting information storage, distribution and processing issues, analysis of communication methods, examination of security, cost and maintenance issues etc.

Planning the implementation of the IS architecture (i.e. the set of the functional, organizational and technical models) requires the definition of concrete actions, the evaluation of budgetary requirements, the study of time and organizational constraints, the elaboration on issues of human resources, management and plan coordination, migration and cut-over etc. In addition, the action plan needs to be examined concerning its risks, its strategic importance, the satisfaction of short-term needs of the organization and its harmonized integration within the overall evolution of the specific organization. Finally, follow-up and control procedures should be established in order to monitor and control the cost and to manage the implementation process.

3.3. Team Organization and Management Participation
The organizational structure of the ISSP process has a two-fold objective: clarify management involvement and support teamwork. It is based on the arrangement of project team, team leader and guidance team, following the approach first suggested by Scholtes.\textsuperscript{39} The idea is that each project team is formed by, and remains responsible to, the guidance team. The latter is responsible for removing obstacles and providing resources. The guidance team does not manage the project teams, that is the role of the team leaders. The responsibilities of the guidance team are as follows: identification of project goals; preparation of mission statement; determination of project teams; selection and assignment of project teams' leaders and members; determination and provision of other resources needed by the project teams; monitoring the progress of project teams; approval of the results produced by

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**Table 1: Phases of the IS strategy process**

<table>
<thead>
<tr>
<th>Phases</th>
<th>Examples of major issues</th>
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<tbody>
<tr>
<td>Strategic awareness</td>
<td>Where are we going? How are we doing? Analysis of competition</td>
</tr>
<tr>
<td>Situation analysis</td>
<td>Definition of opportunities and threats Definition of strengths and weaknesses Use of information as a strategic resource Analysis of IT use</td>
</tr>
<tr>
<td>Strategy conception</td>
<td>Where do we want to go? What strategic alternatives are available? Which are the elements of a good choice?</td>
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<tr>
<td>Strategy formulation</td>
<td>Analysis of alternative growth strategies Analysis of business systems in alternative growth strategies Analysis of IS in alternative growth strategies</td>
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<tr>
<td>Strategy implementation planning</td>
<td>Structure of the IS strategy Resource management and control Risk management Management of change</td>
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Source: Thomson.\textsuperscript{33} 

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<table>
<thead>
<tr>
<th>Phases</th>
<th>Stages</th>
<th>Modules of activities</th>
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<tbody>
<tr>
<td>Strategic Awareness</td>
<td>Identification of strategic goals</td>
<td>Identification of strategic business objectives</td>
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<td></td>
<td>Identification of business and IT systems</td>
<td>Identification of strategic IS objectives</td>
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<td></td>
<td>Definition of planning process objectives</td>
<td>Identification of planning horizon</td>
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<td></td>
<td></td>
<td>Identification of collections of business processes</td>
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<td></td>
<td></td>
<td>Identification of IT systems (current, planned procurements, contracts, parallel projects etc.)</td>
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<tr>
<td>Situation Analysis</td>
<td>Analysis of business systems</td>
<td>Relevance to the strategic planning process</td>
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<td>Identification of functional, technical and organizational detail of the analysis</td>
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<td></td>
<td>Project organization (roles, committees etc.)</td>
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<td>Process instantiation (timetable, resources, decision and control points)</td>
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<td>Production of project plan</td>
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<td>Analysis of organizational systems</td>
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<td></td>
<td>Analysis of IT systems</td>
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<td></td>
<td>Analysis of external business environment</td>
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<td></td>
<td>Analysis of external IT environment</td>
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<tr>
<td>Strategy Conception</td>
<td>Scanning of the future</td>
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<td>Identification of alternative scenarios</td>
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<td>Scenario elaboration</td>
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<td>Strategy Formulation</td>
<td>Formulation of business architecture</td>
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<td></td>
<td>Formulation of IT architecture</td>
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<td>continued overleaf</td>
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<tr>
<td>Phases</td>
<td>Stages</td>
<td>Modules of activities</td>
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<tr>
<td>Strategy Formulation</td>
<td>Formulation of organizational solutions</td>
<td>Analysis of organizational processes</td>
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<td>Synthesis and prioritization</td>
<td>Inter-departmental analysis</td>
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<td>Analysis of data views</td>
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<td>Distribution of organizational processes</td>
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<td>Prioritization of solutions</td>
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<td></td>
<td></td>
<td>Assessment of compatibility with strategic goals</td>
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<tr>
<td>Strategy Implementation</td>
<td>Definition of action plan elements</td>
<td>Inventory of actions for strategy implementation</td>
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<tr>
<td>Planning</td>
<td></td>
<td>Study of implementation procedures (budgetary constraints, organization constraints, types of financing etc.)</td>
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<td>Elaboration of action plan</td>
<td>Action prioritization (with reference to strategic importance)</td>
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<td>Evaluation of plan</td>
<td>Study of each action element (objectives, work breakdown structure, anticipated results etc.)</td>
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<td>Definition of follow-up and control procedures</td>
<td>Cost dimension (H/W purchase cost, S/W development cost etc.)</td>
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<td>Analysis of human resources issues (training, re-organization etc.)</td>
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<td>IS management and coordination structure</td>
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<td>Analysis of migration and cut-over aspects</td>
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<td>Actions to be immediately initiated</td>
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<td>Risk management</td>
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<td>Coherence with business and organizational aspects</td>
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<td>Strategic importance (e.g. impact on CSFs)</td>
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<td>Satisfaction of short-term needs</td>
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<td>Harmonized integration with organization’s evolution</td>
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<td>Specification of procedures and indicators for implementation monitoring</td>
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<td>Specification of cost management process</td>
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<td></td>
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<td>Specification of quality management system</td>
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Implementing an IS Strategy—A Team Approach

The project teams; accountability for the overall result of the project.

The project teams are made up of people who will do the actual work. They are relatively small, i.e. 3–4 people. Generally project teams are mixed in the sense that they include people from the target organization as well as external experts. Each team is headed by a team leader. Given the need for effective communication and coordination, and the fact that social interaction within a team is a commonly overlooked cause of trouble, the role of the team leader should not be synonymous with ‘guiding light or chief decision-maker'; e.g. see Constantine for the case of software development teams. Rather, a consensus approach to decision-making within the teams should be followed. Being the team leader means taking on (or nominating another team member to do so) the following responsibilities: facilitator, archivist and manager and contact.

Four different types of teams can be specified: functional; technical; issue-specific; coordination. The functional teams include business managers from the target organization while the technical teams include IS managers. The need for issue-specific teams arise when there is a requirement for studying, e.g. the impacts of alternative strategic choices to specific parts of the target organization. Such teams should be made up of high-level executives from the affected parts of the organization; they can be considered equivalent to the executive workshops proposed by Goldsmith. The coordination team is made up of the project manager and the team leaders of the various project teams.

Finally, the guidance team is made up of the project manager and senior directors of the target organization. The inclusion of senior business directors (versus only IS staff) in the guidance team is considered a prerequisite for the successful implementation of the ISSP process.

A graphical representation of the organizational structure is given in Figure 2, while Table 3 gives the correspondence between the ISSP organizational entities and the roles proposed by Friend and Hickling in the strategic choice approach.
Concerning quality management, for each process element there exist the corresponding actors. At the level of phases the relevant actor is the guidance team, at the level of stages the relevant actor is the coordination team, while at the module level the corresponding actors are team members. Hence, the quality cycle (plan, approve, do, review and revise, evaluate) is applied to each process element by the corresponding actors.

4. An Illustrative Example

The process described in the previous sections has been applied to a number of ISSP cases. The major characteristics of the process are illustrated with the description of one of these cases which concerns the formulation of an IS strategy in a banking enterprise.41

The banking example described below refers to a small-sized investment-commercial bank with a significant investment portfolio. The main principles of the bank's philosophy were:

- to provide security, profitability and sensitivity to customer requirements;
- to ensure dynamic growth, competitiveness and reliability.

Before initiating the IS planning process, the bank developed a rigid business plan for its expansion (both geographically and in terms of banking products and services). The IS planning process had to provide support for the determined business objectives, as well as identify further opportunities and challenges mainly through the use of advanced IT.

The discussion that follows focuses on the organizational and structural issues of the ISSP process and describes the results obtained.

4.1. Organizing and Managing the Planning Process

The organizational structure of the project was as follows. From the bank's side, the deputy president was responsible for the project’s supervision and was assigned the role of head of the guidance team. The other members of the guidance team included the Vice Presidents of Operations and Control, Planning and Economics, and Bank Development, the head of
the MIS department, as well as the project manager and deputy manager from the external experts. This synthesis of the guidance team guaranteed the involvement of high-level business representatives in the decisions and directions that were taken, the clarification of the project’s mission and goals, the allocation of required resources and the overall coordination and monitoring of the project’s progress.

Five project teams were set up: one technical, two functional and two issue specific. The technical team was responsible for analysing the present IT architecture and designing the target technical system, while the two functional teams were responsible for two groups of business areas: a group including all major banking services provision (e.g. deposits, loans, imports and exports, securities and portfolio management, foreign currency and exchange etc.) together with accounting, and a group concerned with specific activities of the bank (e.g. marketing, personnel management etc.). The team leader for the technical team was the head of the MIS department, while the functional teams were led by business managers from the accounting and the organization departments. Given the importance and work-load of the first functional team the number of persons involved was almost double compared with the second.

The two issue-specific teams were set up after the initiation of the project: the first one was concerned with money market and underwriting applications and the second dealt with card management and ATM-related issues. Finally, the coordination team was made up from the project manager, the deputy and the team leaders of the five project teams.

Each of the ISSP process elements (phases, stages and modules) were designed in detail during the strategic awareness phase, and a customized project plan was developed during the “Production of Project Plan” module of the stage called “Definition of Planning Process Objectives” (also see Table 2).

4.2. Implementing the Planning Process
As previously mentioned, each of the ISSP process elements has its own objectives, participants, preconditions, products and techniques. The following gives an illustration of this structure, using the example of the “Strategy Formulation” phase and specifically, the stage entitled “Formulation of Information Technology Architecture”.

The specific IT architecture planning elements were based on the TACT method. According to this method the formulation of a logical and physical architecture of the IS are included in this stage:

- **Formulation of technical architecture**: this module referred to the definition of a number of functional and organizational issues. It constituted the main link between the functional architecture (i.e. IS applications) and the technical architecture. The different types of site were determined (i.e. central, branch etc.) and each IS application was analysed in terms of its nature (i.e. batch, on-line), its communication requirements, the frequency by which various IS objects were created, read, updated or deleted (CRUD) etc. Using this approach a number of servers were defined (i.e. groups of data used by the same IS applications in the same type of site).

- **Formulation of logical architecture**: this module referred to the examination of the types of various logical servers (i.e. type of operating system to be used, types of communications required etc.). The major difference between the logical and physical architecture was that the latter included a detailed sizing of the hardware systems concerning power, memory and storage requirements and of the software systems concerning function points and man-hours of development required.

The participants in this stage included the technical team, while the preconditions for delivering the stage end-products (i.e. the logical and technical architecture) concerned the decisions taken for the business architecture (i.e. the end-products of the stage “Formulation of Business Architecture”, during which entity-relationship and state-transition diagrams of the individual IS applications were developed).

The milestones of the ISSP process already mentioned above (plan, approve, do, review and revise, evaluate) were followed for quality assurance. Initially, their implementation was rather strict and faced a lot of negative reactions from the members of the project teams. Nevertheless, the usefulness of such a procedure (despite its time-consuming nature) was realized rather early, since it was understood that review actions could help avoid both errors in the design and misunderstandings between project teams. During the roll-out of the project, however, team members became less formal and even skipped some review meetings, being able to recognize the difference between troublesome and benevolent procedures.

4.3. Results of the Planning Process
The “Strategy Implementation Planning” phase of the planning process resulted in a concrete action plan which outlined the necessary actions for the implementation of the coupled business and IT objectives of the bank.

The results after the implementation of this action plan were very positive in business terms, since the bank ascended from 10th to 4th place of the country’s list of banks and is the 3rd largest lender in the nation. The revenues of the bank increased seven times during a period of 2 years. The newly installed IT infrastructure permitted the expansion of the bank's
network from 14 to 29 branches which have uniform information systems. In addition, the information systems that were in place permitted the expansion of the market share in commercial products and the extension of services such as guarantee operations (e.g. payment guarantees, performance bonds, advance guarantees, tender and customs guarantees and standby letters of credit).

5. Conclusions

This article has presented an attempt to develop an ISSP process towards increasing the practicality and appropriateness of IS strategies within corporate settings. The ISSP process aims towards the linkage of IS strategy with corporate strategy and towards the provision of an environment for enforcing the participation and involvement of managerial staff of the target organization. In addition, it attempts to support a structured team approach for the process execution. Elements from the quality management approach are also included, in order to guarantee that review and control activities are explicitly taken into account.

The advantages of the proposed process are:

- The use of a generalized strategy planning approach that can incorporate corporate strategy making issues (and hence be considered familiar to business managers), as well as include multiple IS strategy development methods.
- The explicit (and formal) incorporation of structures for management involvement.
- The support of a group approach, which seems to be the most appropriate for IS strategic planning.
- The ability of managers formally to control and review the various deliverables during the whole life-cycle of the planning process.

Some limitations and weaknesses remain:

- The ISSP process treats planning as an one-shot activity; nevertheless IS planning operations should be on-going management activities and should form integral parts of the dynamic process of defining and monitoring corporate strategy.
- The ISSP process can be considered as a formalization of what Mintzberg\textsuperscript{38} calls ‘strategy programming’, i.e. the codification, elaboration and conversion of strategies. Limited formal support is introduced for the ‘strategy thinking’ aspect, i.e. the synthesizing of qualitative and quantitative data into visions of the appropriate direction to pursue.

Finally, let us stress that major benefits from IS can be gained when information systems are used to reposi- tion organizations, transform work practices, develop new products and enable enterprises to serve new markets. The formulation of strategic movements, in order to exploit these IS-related benefits, is more a creative activity than an analytical procedure. The article presented an analytical process which establishes a strong foundation upon which the strategic IS planning procedure can be built. However, it cannot substitute the need for creative and innovative thinking on the part of planners. Although the practical application of the process elements described above can give a solid background for planning and implementing the IS strategy planning procedure, one must always be cautious, in the sense that there is no magic formula—each case needs to be judged on its merits and an approach developed which suits both the culture and the current state of development of an organization. We argue that although the specific process elements presented here should change in order to fit circumstances and personalities, the principles outlined should not.

References


