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**MODELLING THE STRATEGIC INFORMATION SYSTEMS
PLANNING PROCESSES IN CANADIAN COMPANIES**

by

KWASI APPIAH, B.Sc. (Hons.)

A thesis submitted to

the Faculty of Graduate Studies and Research

in partial fulfilment of

the requirements for the degree of

Master of Management Studies

School of Business

Carleton University

Ottawa, Ontario

September, 1994

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**MODELLING THE STRATEGIC INFORMATION SYSTEMS PLANNING
PROCESSES IN CANADIAN COMPANIES**

submitted by Kwasi Asuming Appiah, BSc. (Hons)
in partial fulfilment of the requirements for
the degree of Master of Management Studies

Two handwritten signatures in black ink, one on the left and one on the right, both written over a horizontal line.

Thesis Supervisors

A handwritten signature in black ink, written over a horizontal line.

Director, School of Business

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September 22, 1994

Abstract

For the last two decades, North American managers have found strategic information systems planning to be of critical importance to their organizations. This study investigates the planning processes in 12 Canadian companies by interviewing senior IS and business managers. The results of this study show that strategic information systems planning to be done through a variety of approaches. However, two general styles are identified -- SISP as a special project, and SISP as an evolution of traditional IS endeavours in organizations. It is also found that SISP in Canada is not as structured as in the U.S or the U.K. SISP in the U.S is more driven through the use of planning methods. However like their U.K counterparts, Canadian firms tend to rely less on the use of planning methods.

Dedication

This thesis is dedicated to my father and mother, who have always kept reminding me of my potential for achieving anything I set my mind to.

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CHAPTER 1

INTRODUCTION

"In today's information-based society, where only the fittest survive, strategic information systems planning is no longer a luxury; it is a necessity."

- Yezdi Pavri (1989)

Strategic information systems planning (SISP) has been of critical importance to North American managers for a number of years. In 1988, three researchers from the University of British Columbia, University of Western Ontario, and Andersen Consulting, surveyed the key information systems/technology (IS/IT)¹ issues in Canada among a sample of 257 members from two professional IS societies in the country (Graham et al., 1988). Among the top 29 issues, SISP was the second. A similar study at the University of Minnesota in the U.S in 1989-90, found "improving IS strategic planning" in the third place among 20 key issues (Niederman et al., 1991).

The importance of SISP can be appreciated by looking at its benefits (Earl, 1993; Battaglia, 1991; Wallace, 1986). For example, Wallace (1986) considers SISP as a means to improve the IS department's awareness of the functions and objectives of the organization as a whole and other functional department's attitudes toward IS resulting in greater cooperation among all. Battaglia (1991) observes that SISP ensures that IT is aligned with a company's strategy. Earl (1993) sees SISP to be instrumental in capturing the attention and commitment of top management, line management and users to the IS function. Earl also views SISP as a better means of setting priorities for systems

¹ In this thesis, IS/IT is used interchangeably.

development projects in organizations.

Given the importance of SISP, it would be worthwhile having an understanding of the process. According to Lederer et al., (1992, 1991, 1988,1986), Mokowitz (1986), Vacca (1984) and Martin (1982), a typical company does its strategic IS planning by adopting a planning method such as IBM's Business Systems Planning and Andersen Consulting's Method /1.

Some organizations develop these methods in-house; others rely on external consultants who sell the methods as proprietary products. Typically, it seems that in strategic information systems planning, a team does its work by using a method as a guide. At the end, a final report is sent to top management with recommendations on how best to implement the plan. This description of SISP portrays it as a systematic process, analogous to the systems development life cycle. It further suggests that planning can be achieved by simply selecting and following a "canned" method.

But others argue that SISP is much more than that. Ward et al. (1990), for instance, describe the planning process to be more of an intuitive approach. They further claim that planning should follow a business strategy aiming at increasing the long-term well-being of a company. Thus the planning process is portrayed as the sum of three major activity groups:

- Getting started for planning,
- Conducting the strengths weaknesses opportunities threats (SWOT) analysis,
- Creating IS/IT alternatives.

In getting started for planning, the main activities are: identifying the stimuli

prompting the planning process, defining the scope and objectives, forming the planning team, forming the steering committee and securing the organizational support. Likewise, in the **SWOT analysis**, an attempt is made to understand the internal and external business and information technology environments. To **create IT alternatives**, the authors recommend that there be a thorough identification or exploitation of IS/IT opportunities to impact on the business strategy. Further, an organization-wide information architecture should be developed and it should provide a "road-map" for the development of the final IS/IT strategic plan. Ward et al. (1990) also suggest that creative applications of IT could change the way a company does its business.

Pyburn (1983) and Earl (1993) also present descriptions of the strategic information systems planning process based on their case study research. Pyburn investigated the SISP processes in eight U.S. companies. He interviewed IS and other senior managers about IS planning practices, management style, critical success factors, and the extent to which IS had addressed the critical needs of their companies. He identified three planning approaches: personal-informal, personal-formal, and written-formal.

Earl also studied the planning processes in twenty one U.K. companies by interviewing senior IS managers, CEOs, and user managers. Data were collected on the stimuli, objectives, benefits, success factors, problems, procedures and methods of SISP. He found five overlapping approaches to planning: business-led, method-driven, administrative, technological and organizational.

In spite of these disparate views of SISP portrayed by researchers, there has been

a lack of empirical research on "how" the planning process should be, can be, or is done. Most authors present discussions of "what" should be done, not "how" they can be done. For instance, Lederer et al. (1992, 1991, 1988, 1986), Vacca (1984), and Martin (1982) portray *what* is done in planning. Pyburn's and Earl's typologies were also mainly based on the *style and objective of planning*. Although Ward et al. present comprehensive details of how SISP should be done, their contribution is highly prescriptive rather than empirical.

But in order for us to understand the SISP process, to the extent that we can carry it out with greater confidence, we must understand *how* the planning process is carried out through empirical research. In particular, we must know the activities involved within the process, what benefits they offer and under what circumstances. Such knowledge would eventually enable us to see what works and what does not, what to follow, and what to avoid in a strategic information systems planning process. This is the motivation behind this thesis.

As a first step, I want to describe *how* the *activities* are carried out in planning. This description would include the *methods* used, *players* involved in carrying out the activities, *when* the activities were carried out, and the *problems* encountered. As will be seen, Ward et al.'s description of SISP activities would form provide the structure for the queries due to its "how to" depiction of the planning process. In particular, I found no reason to believe that a strict and structured method can work for SISP owing to the organizational complexities involved in such an endeavour.

The rest of the thesis is divided into four chapters. The next chapter reviews the

literature on strategic information systems planning. The chapter concludes with a theoretical rationale and platform for this study. The third chapter details the methodology of this research. Chapter four presents the discussion of the results of this study. Finally, chapter five concludes the thesis by stating its implications, limitations, benefits, and directions for future research.

CHAPTER 2

ISSUES RELATED TO STRATEGIC INFORMATION SYSTEMS PLANNING

According to Ward et al. (1990), despite the existence of a number of planning methods and of consultants willing to use them for strategic planning, strategic information systems planning is still in its infancy. To see what is known about it first, a recount of the evolution of strategic information systems may be helpful.

Based on our discussion of strategic information systems, a definition of their planning will then be provided in the next section. The third section reviews the activities involved in SIS planning; the bulk of this discussion would come from Ward et al.'s work and will be augmented by relevant literature on business planning and decision making.

2.1 Strategic Information Systems

Neumann (1994), Ward et al. (1990), and Wiseman (1985) explain that the strategic information systems evolve through the following business information systems: *transaction processing systems (TPS)*, *management information systems (MIS)* and *decision support systems (DSS)*. The use of these systems in organizations can be explained using Anthony's (1965) three-tier organizational systems structure. Organizational activities can be placed in three categories: operational, tactical and strategic. From the IS literature, TPS are typically used for solving well-structured problems at the operational levels of organizations. MIS are also normally used at the middle management level where focus is on tactical decision making. DSS are used to solve less-structured problems in organizations, typically by members of the senior

management.

Wiseman (1985) defines strategic information systems (SIS) as "information technology intended to support or shape the competitive strategy of the enterprise" (p.18). This concept of SIS is widely held even today. Most authors use this concept to define American Airlines SABRE system, American Hospital Supply's ASAP system, CIGNA Corporation's Risk Information System (CRIS), and Merrill Lynch's Cash Management System as SIS.

Such a definition leads one to conclude that SIS is a one-shot system deliberately planned to shape the way a firm competes. But as Kini (1993) and Senn (1992) note, the conclusion would be one-sided. They argue that many SIS are operational systems that just evolved through the stages of MIS and/or DSS in organizations. Neumann (1994) supports this notion. He sees no difference between SIS and the conventional systems--TPS, MIS, or DSS. Neumann and other authors such as Copeland and McKenney (1988) point to SABRE, for example, which was originally planned to be a transaction processing system to do inventory management. Its much touted strategic significance evolved over time.

Contradictions aside, all SIS share one common characteristic--innovativeness. They offer innovative change to a process or product in a company (Neumann, 1994). For example, American Hospital's ASAP system's innovativeness was in linking customers' orders to suppliers' inventory distribution system.

Two views of a strategic information system above have been presented. One is born strategic. The other is a conventional information system which assumes strategic

significance over time as users become more aware. In either case, a strategic information system has been identified to be any system--TPS, MIS, or DSS, or any combination thereof--as long as it has strategic significance. Most important is the requirement that a strategic information system creates competitive advantage. SIS can also represent the alignment of IT strategy to the business strategy. With this background, we explore next the process that defines a SIS; that is, the process of SIS planning.

2.2 Strategic Information Systems Planning

Given its significance, creating a strategic information system should be expected to need a good deal of planning. The success of Merrill Lynch's cash management account system was due to comprehensive strategic planning in the corporate planning department (Ward et al., 1990). Therefore understanding SISP would enable us to appreciate the process much better.

Pyburn (1983) defines strategic IS planning to be "a process of building some consensus regarding the role of IS vis-a-vis the rest of the firm and the resources that will be committed to achieving that role" (p.3). His comparative case studies on SISP in eight U.S. organizations revealed three broad approaches: *personal-informal*, *personal-formal*, and *written-formal*. These are the categories of style of planning and do not imply three sets of planning methods.

In the *personal-informal* approach, according to Pyburn, planning is accomplished by IS managers interacting with top management face-to-face. With the *personal-formal*

approach, the IS managers along with selected functional managers carry out the planning. Planning is controlled through formal presentations to and guidance of a steering committee. Other mechanisms include the IS managers' involvement in business planning sessions, periodic presentations to top management, and, participation in departmental or corporate staff meetings. In the *written-formal* approach, the IS department, not a manager, carry out the planning. According to Pyburn, planning through this approach involves interpretation of written business plans which indirectly makes IS planning a component of strategic business planning.

It is noteworthy that Pyburn's objective was to describe how to carry out the tasks involved in strategic information systems planning. But unfortunately, he was not able to achieve that goal. With weak support of data, Pyburn concludes that the personal-formal approach is the best.

Lederer and Sethi (1988) also defines SISP to be "the process of identifying a portfolio of computer-based applications that will assist an organization in executing its business plans and consequently realising its business goals" (p.446). They surveyed the SISP practices in 80 American companies and found that about 96% of the firms used canned methods in carrying out their planning. The planning methods identified to be popular were IBM's Business Systems Planning, Holland Corporation's PROplanner, MIT's Critical Success Factors, and Andersen Consulting's Method /1.

Their study provided a useful list of problems encountered in SISP. But these problems are associated only with the use of off-the-shelf planning methods suggesting that SISP is carried out primarily through the application of a planning methods.

Recently, Earl (1993) found five overlapping approaches to SISP after studying the planning processes in twenty-one British companies. These approaches and their notable characteristics are shown in Table 2.2-1 as: a) business-led, b) method-driven, c) administrative, d) technological, and e) organizational.

Table 2.2-1. Earl's SISP Approaches

FEATURES	A (4 firms)	B (2 firms)	C (3 firms)	D (4 firms)	E (6 firms)
Assumption	Business plans and needs should drive IS plans	Use of a SISP method	Conforms with management planning and control procedures	Information modelling exercise	Continuous decision-making activity
Emphasis	Business leads IS	"Best" method is used	Identification and allocation of IS resources to meet business needs	Production of models and blueprints	Learning about business and IT contribution
Players	IS Planners	Consultant	Steering committees	IS Staff	Planning teams influence outcomes

NOTE: A=Business-led Approach; B=Method-driven Approach; C=Administrative Approach; D=Technological Approach; E=Organizational Approach

Source: Earl, M.J (1993). "Experiences in Strategic Information Systems Planning." MIS Quarterly, March 1993, p.12

The main assumption of the business-led approach is that a SISP should follow a business plan. The emphasis of the approach is on business leading the IS development. The major influence on the plan is from the IS planners. Earl also found that this approach is rather adhoc and appeals to common sense. In the method-driven approach, the top management determine the "best" method. Usually external consultants have a substantial influence on the recommendations. According to Earl, the consultants become "the drivers of the SISP exercise and therefore have substantial influence on the recommendations" (p.8). It is surprising that only *two* out of the twenty-one companies in Earl's study adopted method-driven approaches to planning while a full 96% of Lederer and Sethi's (1988) sample were said to have used methods. The huge discrepancy suggests that it is possible that there is a slump in the use of methods for SISP in the 1990's.

The administrative approach describes SISP as all other planning activities in a company following the same bureaucratic planning and control procedures. The emphasis of the approach is on identification and allocation of IS resources to meet the agreed upon needs of the organization. Steering committees influence the most outcomes of planning in this approach.

In the technological approach, SISP is carried out primarily as an information modelling exercise. It is assumed that data modelling would lead eventually to a comprehensive understanding of IT requirements. Due to its technical flair the approach is dominated by IS specialists and often resented by the top and user managers. And finally, the organizational approach to SISP is a continuous decision-making process

involving all functions in the organization. The emphasis here is on learning about the business problems and IT opportunities. The various teams of functional managers influence the outcomes of the planning endeavour. The process is driven by "themes" that emerge in an organization and drives the rest of business activities.

Earl also found that SISP could be a special undertaking or a part of business planning. He believes that SISP approaches "comprise a mix of procedures, techniques, user-IS interactions, special analyses, random discoveries, some formal activities and at times informal behaviour" (p.7). However, in the final analysis, Earl's study, like others', discovers styles and objectives of planning rather than how it is actually done.

Given the previous researchers' preoccupation with categorization of SISP, there is a lack of empirical research on *how* the planning is done. And it seems that to effect improvements in strategic information systems planning, we need to know how the process is carried out in more details than have been available. In this regard, Ward et al. (1990) provide a full description of the planning process from a "how-to" perspective. Although Ward et al.'s descriptions has little documented empirical basis, it serves as a good model for this study. The next step then will be to describe how the strategic information systems planning process should be carried out according to what Ward et al. proposes and the little that is documented in the literature.

2.3 Strategic Information Systems Planning Activities

Ward et al.'s description of SISP is summarized and shown in Figure 2.3-1. According to Ward et al., a planning process is a collection of activities—a complex collection which involves the application of various techniques and methods. The ensuing sections will describe how SISP should be done according to Ward et al.'s activity description and the relevant SISP literature.

Figure 2.3-1. SISP Activities

<p><i>Getting Started For Planning:</i></p> <ul style="list-style-type: none"> Identifying the stimuli prompting planning Defining the scopes and objectives Formation of planning team Formation of steering committee Securing the organizational commitment
<p><i>Strengths Weaknesses Opportunities Threats (SWOT) Analysis:</i></p> <ul style="list-style-type: none"> Analyzing the internal business environment Analyzing the external business environment Analyzing the internal IS/IT environment Analyzing the external IS/IT environment
<p><i>Creating IT Alternatives:</i></p> <ul style="list-style-type: none"> Identifying SIS opportunities Developing the information architecture Preparing the IS/IT strategic plan

Source: Ward J, P. Griffiths, and P. Whitmore (1990) "Strategic Planning For Information Systems," Wiley & Sons, New York., p.134

2.3.1 Planning For Planning

Planning for planning involves the initial steps taken to ensure the planning process starts in the right direction. The authors note this phase to be difficult, given the anticipated differences between users and IS staff as well as the inevitable organizational politics that this phase invites. The main tasks in this phase, shown in Fig 2.3.1, are described in the four subsequent sections.

2.3.1.1 Identifying the Stimuli Prompting Planning

It is important to understand the underlying causes of SISP in organizations. According to Ward et al. (1990), the stimulus for SISP could arise from the need to integrate IS/IT as a result of changes in the business environment such as:

- New manager with a new attitude to IS/IT;
- Major rationalisation such as a IS/IT budget cuts resulting from a decline in the economy;
- Restructuring often resulting from corporate strategic planning;
- New Products or markets;
- Recognition of the importance of SISP.

Ward et al. (p.81) suggest that most initiatives of SISP come from the IS/IT department. But Brancheau and Wetherbe (1987) after surveying the key IS issues that would remain critical in the 1990's, found from general managers that the "need to plan" as well as the "competitive use of IS/IT" were important. Clearly, their findings indicate that there is anticipated hope that general managers would become much more interested towards IS/IT activities, especially SISP.

Knowing the triggers of SISP alone does not provide us with sufficient understanding of the planning process. More can be gained by studying its effect on the entire planning process.

In sum, the literature leads us to believe that SISP could be triggered through top management's vision of using IS/IT to become competitive or through the IS management's initiative toward integrating IS into the long-term business imperatives.

2.3.1.2 Defining the Scope and Objectives

In most cases described in the literature SISP is treated as a project. Like any other project, SISP needs to define its scope. Ward et al. (1990) describe the scope of SIS planning to be limited to the corporate or to the business unit level. They observe that companies with little or no experience in SISP are better off with a narrow planning scope. They argue that with a narrow scope, an organization can learn more about the SISP process. Subsequent planning efforts could then be extended to larger scopes.

Like other projects, defining the objectives of SISP is also mandatory. This is important since it serves as the target for introducing strategic IS/IT to the organization. Moreover, Ward et al. measure success of SISP in terms of whether it has been able to achieve defined objectives. Earl (1993) and King (1988) have identified some popular planning objectives including:

- Aligning IS/IT to long-term business goals.
- Exploiting IS/IT for competitive advantage.
- Revamping IS/IT function.

- Forecasting IS requirements.
- Gaining top management commitment.
- Developing technology policies and architecture.
- Developing a scheme for prioritizing the application portfolios of companies.
- Planning for the future applications of computer information and communications technology in various areas of the organization.

Ward et al. (1990) note that the objectives should depend upon the size of the business unit, the sophistication of a current applications portfolio, the stage of development of the organization, and the nature of problems being faced by management.

But none of the planning methods--*Method 1*, *BSP*, *PROplanner*, or *Critical Success Factors*--specify how the scope of SISP is arrived at, nor the problems encountered. They only recognize the need to define the scopes and objectives. Furthermore, the SISP literature does not tell us how the planning scopes are defined. All that we know from Ward et al. (1990), is that the organizational culture and history can affect the definition of a scope.

Nevertheless, one could surmise from the strategic management and decision-making literature that there could be at least two ways in which planning scopes and objectives can be defined. Mintzberg (1987), Fredrickson and Mitchell (1984), and Bourgeois (1980) present two ways in which executive teams make key decisions in organizations. The first is the "rational" approach which presumes that top management can agree on goal priorities, search thoroughly for alternatives, and then integrate the optimal choice into existing strategy (Fredrickson and Mitchell, 1984). The alternative approach is based on the "political incrementalism" in which there is no necessary a

priori goal consensus (Lindblom, 1959; Quinn 1978), search is problemistic and constrained (Cyert and March, 1963), and choice is either satisficing (Simon, 1957), or delayed (Quinn, 1978). In this approach, decisions are made in small increments. In either of these two scenarios, it is possible that the CEO of the organization could dictate the decisions or try to build consensus among the decision makers; or act as a "premise setter" who stands back allowing the top management to make the decisions (Bourgeois and Brodwin 1984; Mintzberg 1987). Apart from these dynamics, as always some political actions affect the definition of scopes and objectives in SISP. Decisions could also be made in the midst of a medley of conflicting interests from different parties in the organization. In forming planning objectives through negotiations, bargaining is expected among various coalitions. Thus planning objectives, could end up as compromises reflecting the relative power of coalitions (Bedeian, 1984).

The SISP literature provides us only with a shopping list of possible planning scopes and objectives. All that the planning methods do is to acknowledge that the scope and objectives should be defined. SISP could be focused on the business unit or corporate level. The planning objectives, most of which satisfy that of traditional information systems planning, include: competitive advantage, aligning IS to business strategies, and gaining top management commitment. Defining objectives which end up being realised is one measure of success of the SISP endeavour. Yet no information is provided on how these scopes and objectives are to be defined. The literature, on strategic management and decision making, however, suggests that the process could be complicated, involving a whole lot of organizational dynamics such as compromises, negotiations, consensus-building or tenets of autocracy.

2.3.1.3 Formation of Planning Team

Strategic IS planning is usually carried out by a team formed specifically for the chore (Ward et al., 1990). According to these authors, using the "best" people available could lead to success.

Martin (1982) notes that team members should be high ranking people. Ward et al. (1990) attest to this by arguing that the members need broad knowledge of the organization, its management, its culture, and its people. Head (1982) notes that such qualifications enable the team members to make valuable contributions. Inclusion of high ranking people in the team is sensible as they would be better able to convince others in the organization of the importance of SISP and solicit their cooperation. High ranking people would also be influential in the eventual implementation of the plans.

On the other hand, it could be argued that many senior managers in companies do not have the time to participate fully in the project given the demands of their regular jobs. Also, restricting the planning team to high level people could deprive it of specialized skills of some key people. Some tasks could call for the expertise of programmers or analysts, for example. Kesner (1988) points out that end-users in the functional units should be included in the planning team to ensure that the systems are accepted and used.

According to Martin (1982) and Lederer and Sethi (1991), team members are usually drawn from both functional areas and IS departments for a rich pool of technical and business expertise. At times, it becomes necessary to include external consultants in a planning team. Ward et al. (1990) recommend this idea for organizations that are new to SISP. Earl (1993) also found consultants in most SISP processes which involved the

use of SISP methods. But strategies drawn up by consultants, however, were deemed to be "unreal" by business managers and "business strategy in disguise" by top managers. In choosing consultants, Kesner (1988) warns that the right ones be selected by checking at least three references where they have performed similar tasks. He emphasizes the essence of this criteria since many undeserving consultants claim expertise.

Some of the popular SISP methods have also spelled out some recommendations as far as team formation is concerned. For example, according to Lederer and Gardiner (1992), the *PROplanner* method suggests that the team be made up of senior managers and the methods consultant. The senior managers, however, are expected to have an extensive understanding of the organization, be effective communicators, and command respect. Also, the same authors claim that *Method /1* specifies that the team members be selected from the areas covered in the scope of the project on the basis of their skills and experience. Rockart (1979) notes that the *Critical Success Factors* method recommends that the team consists of a consultant, well-versed with the method, and senior managers in the organization.

One important component of the team is the leader. The team leader should be strong and focused in coordinating activities of the team (Kesner, 1988). Lederer and Sethi (1991) advocate a dynamic, respected, technologically, adequate and business-oriented veteran who will be able to use his personality to drive the team on its work. They also recommend that a team leader have good communication skills.

According to Lederer and Gardiner (1986) and Vacca (1983), in the *Business Systems Planning* method, a leader's job is to interpret input from other executives

correctly and to maintain contact with them (Vacca, 1984). In some situations BSP method may require that the sponsor of the project be the leader. In the *PROplanner* method too, a team leader must also be able to coordinate the activities of the members and also ensure that they co-operate. *Method /1* requires the planning team leader to establish project guidelines, intermediate checkpoints, and other controls for the team. Thus he/she should have excellent leadership skills. The *CSF* method requires the leader, usually a consultant experienced with the intricacies of the method, to be able to educate the organization including the top management on the concepts of the critical success factors.

Unfortunately, we do not know how the leader or the team is selected. The importance of knowing how is underscored by Lederer and Sethi (1991) as they report that companies find it difficult in forming SISP teams as a whole. Their research confirms the suspicion that the process of forming planning teams is much more complex than how it has been described in the literature.

Given the fact that team members come from various business units, there could be a tendency for members to have conflicting interests. It could be argued, using Kling's (1980) Segmented Institutional theory, that some members could anticipate using the SIS to alter their power and dependency relative to other departments or units.

What can be inferred from the preceding discussion is that the SISP team, including the leader, selection could be a challenging task. The process may not be a simple matter of choosing say, five people from a list of equally competent and willing candidates. Competition, compromise, manipulation are some of the more likely ways

that the decisions could be made. But given all these information, one would wonders if there is any difference between SISP team formation and everyday project teams.

To summarize, forming a good team could be a contributing factor to the success of SISP. The SISP literature presents the role and composition of the SISP teams including the leader with some variation. The SISP team should be composed of senior managers from both the business units and the IS function; or a mix of external consultants, business unit managers and IS staff. The criteria for team selection includes knowledge of the business, technology, and experience. The team leader should have good communication skills as well as leadership ability in addition to the criteria spelled out for all the team members. The Organizational Behaviour literature suggest that there could be problems associated with forming cross functional teams, yet cross functional expertise drives the team's activities.

2.3.1.4 Formation of Steering Committee

A steering committee is necessary to control the SISP process (Ward et al., 1990). The steering committee is usually composed of senior managers from the business and IS department (Reck and Reck, 1989). These committee members could come from the business unit or the corporate level. They should be able to use their experience to guide the planning team members throughout the planning process. To some extent the composition of the steering committee is quite similar to that of planning team in the sense that they can both be multidisciplinary. Nonetheless, the steering committee members should definitely be higher in the organizational hierarchy than the planning

team in order to command the respect needed for their monitoring role.

Lederer and Putnam (1986) report that the *Business Systems Planning* method calls for the use of a steering committee to control the process. However from what they say, we do not know who should or should not be on the committee. In contrast, the *PROplan* method recommends that senior managers from the areas of the organization, sit on the steering committee (Lederer and Gardiner, 1992). In this method, the project sponsor is usually the chairperson of the steering committee.

Curiously, there has been no mention from what has been portrayed in the literature on *Method /1* and the *Critical Success Factors* of the need for steering committees. This raises questions regarding the usefulness of steering committees within the SISP process. If not, could it be that there are problems associated with its functioning? It is possible that steering committees, just like planning teams, could be fraught with power struggles, representation of personal interests, etc. If so, perhaps a steering committee may become a burden in the SISP process.

Clearly, the SISP literature provides us with an adequate account of the role and composition of the steering committee in strategic information systems planning. According to the SISP researchers and some planning methods, steering committees are usually composed of senior managers from the business units. Yet we do not know how the committee should be formed, and the problems that may crop up.

2.3.1.5 Securing Organizational Commitment

SISP demands sustained commitment from a variety of stakeholders. The top managers, end users, IS staff, and a great many people in key positions can cause a great deal of damage to the process by simply keeping aloof. Commitment to the planning process is demonstrated through support and involvement of these players.

Top management's commitment to the process is needed because they have to approve the relevance for the planning project. The mere fact that top management regards planning as an important activity motivates mid-level managers to do likewise (Head, 1982). A lack of support from top management is bound to generate only reluctant cooperation from the rest of the organization. Top management support is also vital to the planning process since they can veto the implementation of the SIS plan. Thus, top management's commitment to the process is one of the determining factors of the success of the SISP endeavour (Ward et al., 1990).

Support and commitment from IS personnel is also essential. In many centralised organizations, there is a perception among the IS personnel that the development of strategic systems will threaten their sovereignty. This fear can keep them from being enthusiastic at the planning table.

The support and enthusiasm of the users also act as incentives for the planning team in carrying out its activities. Kesner (1988) is a strong proponent of commitment of rank-and-file members of an organization. He argues that the support from the union groups, encourages the planning team in feeling that they are not planning for a system that threatens their, or other unionized, jobs. Earl (1993) encountered complaints from

users about their inadequate involvement in the SISP process, apparently these processes were dominated by the top management groups.

Rockart and Crescenzi (1984) suggest that user support and commitment can be secured by getting them to participate in workshops in the course of the planning process. The workshops focus on the planning method and the roles of different parties in it. They are mostly conducted by the planning team or by external consultants who provide the method. The participants in the workshop need to be convinced of the importance of SISP in achieving the organization's strategies and goals.

In the absence of workshops, discussions or interviews with the users can be conducted during planning to capture the necessary support and eventual commitment (Lederer and Gardiner, 1992; Lederer and Putnam, 1992; Rockart, 1979). According to these authors, the planning team briefs the organization's staff on the project's scope, objectives, and approaches to gain their interest and confidence. Question and answer periods are part of such workshops.

Obtaining organizational commitment, however, is not an easy task (Lederer and Sethi, 1988). One of the difficulties with top management commitment is that in many organizations, senior managers have little experience in managing IT and, as a result, are unable to relate the strategic opportunities to their businesses (Lederer and Putnam, 1986). This makes them feel more uncomfortable especially when long-term imperatives have to be associated with IS/IT usage. The literature falls short of discussing problems in securing IS staff's commitment towards strategic IS/IT issues. But in the case of the user commitment towards IS/IT issues, there is always the perennial problem of resistance to

change as with any other change agent. Users feel threatened in their jobs whenever there are an introduction of IS/IT innovations in the organization.

In sum, in securing the organizational commitment for SISP, the literature offers few approaches which are believed to be carried out. The approaches include the use of interviews, briefings, and workshops. Potential problems encountered in the process are users and some managers' resistance to change and top management's unwillingness to invest in long-term IS strategies.

2.3.2 Analyzing the Strengths, Weaknesses, Opportunities, and Threats

The bulk of the planning teams' tasks in SISP is in assessing the internal and external business and IS/IT environments (Ward et al., 1990). The activities here are very analytical in nature. The objective is to identify the organization's strengths and weaknesses, vis-a-vis its environment. Such analyses lead to the identification of ways in which organizations can take advantage of its strengths to create opportunities (Lederer & Gardiner, 1992). Ward et al. note that gaining a thorough understanding of the internal and external business and IS/IT environments could lead to successful strategic IS planning.

2.3.2.1 Analyzing the Internal Business Environment

Planning teams must understand the direction of the organization. The strategic business plan, if it exists, reflects such direction. There are some significant issues regarding the accessibility and availability of business plans.

First, many organizations do not reveal details of their plans. Ward et al (1990) suggest that in such instances, the business strategies could be identified through interviews with the top management. But the problem gets worse when top management prefers to keep its business plans confidential (Lederer and Gardiner, 1992).

Second, many organizations do not have business plans at all. Head (1982) suggests that the planning team should make reasonable assumptions about corporate goals and objectives. These assumptions must then be presented to top management for verification of their accuracy. Earl (1993) came across some of these issues in the business-led approach of SISP. He documented instances in which business strategies were neither clear nor detailed enough to specify IS needs. Documents therefore had to be studied, managers interviewed, meetings convened, and sometimes working papers written in order to clarify the strategies.

Upon understanding the business strategy, Ward et al. recommend that a full analysis of the strengths and weaknesses could be done through instruments such as Kotter's (1978). This instrument uses questionnaires and personal interviews with the business managers to examine:

- formal organizational arrangements; for example, formal procedures for determining the corporate or business unit strategy;
- the employees; for example, the quality and number of people, their skills and training level;
- the social structure, for example, relationships with unions and attitudes towards management;
- the dominant coalition, that is, the group which holds the key power in the organization.

But the extent to which such a procedure can be used by the team to understand the business environment is unclear. Do firms really go through all these procedures? And if they do, what are the problems encountered? I would guess that firms do not have the time to do such indepth analysis. For those that are able to so, it may be may not be easy. This is because people in organizations either suspect that information collected from them could be used against them.

A review of the SISP methods reveals different ways of analyzing the internal business environment. According to Lederer and Putnam (1986), in the *Business Systems Planning*, for example, the planning team interviews senior business unit managers to identify the organization's key business processes. Business processes are defined as "groups of logically related decisions and activities required to manage the resources of the business (ibid, pp.17)." The *PROplanner* method takes another direction in analyzing the internal business environment. In Lederer and Gardiner's (1992) description of the *PROplanner*, the planning team develops an organizational model. This model consists of an organization's structure, purpose, and function. In developing the organizational structure, the planning team interviews one to four personnel in each unit with the authority to allocate resources. The organizational purpose is also developed by the planning team interviewing senior management. The questions are based on the top management's goals, critical success factors, mission, current products and services, and future direction. And lastly, the functional model is constructed by the planning team identifying and listing processes within the functional units.

Lederer and Gardiner also explain in the *Method /1* method, that the planning team

analyses the internal business by reviewing the organizations's strategic business plan. Also, the business unit staff of the organization are interviewed by the planning team to identify their critical success factors. Rockart (1979) defines critical success factors as "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization." According to Rockart, they are the key areas where "things must go right for the business to flourish." During the interviewing process, the business unit staff are encouraged to be open and express their own opinions, not the perception of management's.

However we do not know which of these approaches is used by organizations, also those responsible and the problems encountered.

In sum, we see in the literature that the internal business environment should be examined by the planning team. This could be done through questionnaires and interviews with senior managers and other functional unit staff. Various planning methods could also be used in carrying out this activity. However, we need to know which methods or approaches are adopted, the players involved and the problems involved in this activity.

2.3.2.2 Analyzing the External Business Environment

The external business environment is analyzed in order to give organizations an idea of what their competitors are doing. (Ward et al., 1990). In this way firms become aware of their strengths and weaknesses in the competitive environment.

According to Ward et al., the internal business environment has to be examined

concurrently with the planning team. Ward et al. discuss the use of Porter's (1985) *competitive strategy analysis* technique as a way of assessing the external business environment. In this technique, firms evaluate their current position in the industry in terms of the following forces:

- The relative power of the major customers,
- The relative power of the major suppliers,
- The threat of substitute products or services,
- The threat of the new entrants into the industry,
- The current basis of competition within the industry.

In addition to the above, Ward et al.(1990), recommend that the planning team examine the effects of key pressure groups such as shareholders and the government. According to these authors, shareholders exert pressure on companies by specifying how the business will be conducted.

Fried and Johnson (1991), point out the need for planning teams to be aware of the effects of economic pressures such as trade imbalances and pricing of essential commodities. Such external factors, they claim, may influence an organization's ability to carry out IT investment plans in the right environment. To obtain this information, Fried and Johnson suggest ways like conducting competitive and corporate intelligence research, reviewing trade journals, annual reports, newspaper clippings, and even speaking to customers and suppliers. They also emphasize the need for hiring special intelligence groups or consultants for the purpose.

The literatures' description on the planning methods places little emphasis on

analyzing external business environments. According to Lederer and Sethi (1986) in the *Business Systems Planning* method, for example, there is no need for the analysis of the external business environment. And it should also be realised that knowing how this activity should be carried out is not enough. What is of prime importance are the potential problems that could be associated in the process. For instance there could be questions about the validity and credibility of this "external" information gathered since the market conditions, business and economic environment are always subject to change.

To summarize, the external business environment should be analyzed by examining the government's influence on issues such as the standardization of computer software/hardware, product liability, and deregulation. Porter's competitive strategy analysis technique can also be employed to enable companies to understand the effect of the industrial five forces. Even though these approaches inform us on what should be done, we do not know how to do it. We also do not know which people in the organization are responsible for carrying out this activity.

2.3.2.3 Analyzing the Internal IS/IT Environment

The objective of analyzing the internal IS/IT environment is to identify the contributions of an existing IS/IT application portfolio to current and future business needs (Ward et al., 1990). Included in Ward et al.'s recommendation is the need to evaluate the hardware, software, communications capability, skills of IS staff, and the methods in use for systems development. Analysis is also to be done of many "soft" aspects of the IS/IT environment include the management of the IS organization, its size,

structure, as well as the reporting relationships between IS and the business. This is important as Lederer and Sethi (1988) found out that IS departments with executives reporting to a controller received less attention to IS/IT activities, as compared to those reporting to a president or vice-president.

Likewise, Lederer and Gardiner (1992) and Lederer and Putnam (1986), advocate similar analysis of the existing systems, by assessing how well they fit the organization's needs. They also encourage further investigation of the organization's current hardware, software, operations, and capacity.

But it should be noted that organizations have different ways in which they carry out these analyses depending upon their culture and policies. Moreover, the trend in most companies today is to outsource² the evaluation of their IS/IT functions to external consultants. With these approaches to analyzing the IS/IT environment, it is possible that there could be some hostility between the internal IS staff and external consultants given their common background and skills. The internal IS staff may consider the consultants as threats to their job security. Moreover, investigating the IS activities solely by their staff could certainly reflect the predominant philosophy of that department. This will lead to a bias of the information gathered.

Thus, the literature recommends the internal IS/IT environment be analyzed by evaluating the "hard" and "soft" aspects of the current application portfolio. These include examining the software, communications capability, skills of IS staff, methods in use for systems development, as well as relationships between the IS function and the

²Grover and Teng (1993) define outsourcing as the practice of turning over part or all of an organization's IS function to external professionals.

entire department. In terms of the players involved, the literature hints that some external consultants could play an important role, especially in the event of outsourcing.

2.3.2.4 Analyzing the External IS/IT Environment

The main purpose of analyzing the external IS/IT environment is to obtain a perspective on trends and opportunities for using IS/IT in innovative ways (Ward et al., 1990). This activity according to Ward et al., does not necessarily aim to seek ideas for implementing cutting-edge technology. Rather its focus is on finding ways of using existing technology at a lower cost.

Ward et al. recommend companies look at what competitors or other comparable organizations are doing. This idea of comparing an organization's IS/IT maturity to that of its competitors ensures that it uses IT innovatively. Lederer and Gardiner (1992) in their description of *Method 11*, explain that the planning team analyzes the external IS/IT environment by studying the use of technology within the organization's own industry and others. These trends are then contrasted with the organization's existing use of IT to obtain an accurate view of its current condition. It is surprising that in Lederer and Putnam (1986) and Lederer and Gardiner (1992)'s description of the *Business Systems Planning* and *PROplanner* methods respectively, no mention is made of this activity.

Moreover we do not know how the external IS/IT environment can be analyzed and the players who have to conduct this analyses. But it is important that we know how companies determine what technology to use owing to the changing trends in hardware and software.

In sum, we have identified from the literature, that companies can analyze their external IS/IT environment by comparing what they are doing with their competitors. *Method 1* is the only method which recommends this activity. Unfortunately, the literature does not inform us on how to conduct this investigation and also which players are responsible carrying out the activities.

2.3.3 Creating IS/IT Alternatives

After a thorough understanding of the business, the technology, and the competitive environment, it is time to come up with creative propositions of IS/IT strategies that would satisfy the long-term needs of the organization (Ward et al., 1990). As a result, a number of IS/IT alternatives need to be produced. The following sections discuss the activities which lead to the development of the final IS/IT strategy.

2.3.3.1 Identifying Strategic IS/IT Opportunities

Upon identifying the trends of technology in the external environment, the next step for most firms is to search for strategic information systems opportunities. According to Neumann (1994), there is no standard search technique for all organizations. He argues that this search process is more likely to come from functional or business unit staff rather than the IS. This is because the functional unit staff have a much better understanding of the products, customers, suppliers, and competitors.

Neumann (1994), Sullivan (1986), and Ward et al. (1990) emphasize the need to assess the impact or value of the ideas in the course of searching for SIS alternatives.

They discuss two most widely used frameworks: Porter's (1985) *value chain*, and Wiseman's (1985) *model of strategic thrusts*.

Porter (1985) suggests that to succeed with IS, companies should link their systems together along the value chain. The value chain model separates the primary and secondary activities of the business, concentrates on how each activity adds value to what the customer receives and is independent of organizational structures. The benefit of the value chain approach is that it enables the information flow model of an organization to be defined in order to identify areas on which IS will have the most positive impact in their performance with relation to its customers, suppliers, and its competitors.

Wiseman presents another approach -- the strategic thrusts. The strategic thrusts approach requires team members to analyze the strategic targets of a firm's industry: the suppliers, customers, competitors, product or service, and cost. According to Wiseman, the strategic thrusts approach requires a thorough understanding of the state of the industry, the firm's competitive position, the determining factors for success and the industry value system plus a well understood business strategy. Having identified the strategic thrusts, firms have to decide whether to be "offensive to gain or increase an edge, or defensive to reduce a competitor's edge or prevent a potential disadvantage."

Lederer and Gardiner's (1992) presentation of *Method 1*, also provides *how* to search for IT opportunities and assess its impact or value. Porter's concept of value chain analysis and competitive strategy analysis are both incorporated in this method. This search is recommended to be carried out by "advisers" and "focus groups." The advisers are experts in a specific area who advise the planning team in that area. Generally, they

are invited by the planning team for advice. The focus groups are made of people from the functional units who help uncover strategic opportunities. The focus group's duty is to use the value chain analysis to search for activities that are critical to the customers and also how they can be enhanced through IS/IT.

In sum, the literature broadly discusses several ways in which SIS opportunities could be identified in organizations. These are through the use of theoretical frameworks such as Porter's value chain and Wiseman's strategic thrusts, and also forming SIS groups. Usually the search for SIS opportunities is carried out by functional unit members since they have a better understanding of the customers, environment, and competition.

2.3.3.2 Developing the Information Architecture

An information architecture represents a high-level blueprint for developing future IS. Developing an information architecture is usually directed towards achieving business integration (Sullivan, 1986).

Ward et al. point out that the information architecture be produced after "a rationalisation of business activities to end up with a logical enterprise-wide model (pp. 336)." Even though these authors describe the components and the role of information architecture in SISP, but they do not touch the question of how to do it.

In the description of the *Business Systems Planning* method, Lederer and Putnam (1986) point out that the information architecture is developed by the planning team using the business processes identified in the SWOT analysis. These business processes are

grouped into related categories called data classes using matrices and charts. Data bases for future IS strategies are then designed from these classes and relevant systems and subsystems are also identified.

Similarly, developing an information architecture through the *PROplanner* method requires the planning team to identify the data and systems needed by the organization for both current and future applications (Lederer and Gardiner, 1992). This is also derived from the entity relationship diagrams developed during the SWOT analysis. First the team defines the entity-relational diagrams entities like employees, vendors, and products. The team then defines the relationships between the entities using diagrams. It also prepares a list of all processes (derived from the organizational model) and identifies each entity used by each process. These processes are used eventually in defining the application systems. The *Method /I* method requires planning teams to first develop data and technological architectures, which is specific computer and communications hardware and supporting data base and systems software (Lederer and Gardiner, 1992). In developing the information architecture, the team designs data entities and specifications for applications using CASE tools based on the business processes. The team also identifies requirements for data management, security, and training.

These tasks as designed in the three methods, describe how the information architectures are built. But they do not specify who should carry out this activity. Is it solely the responsibility of the IS team members given the nature of the task, or the entire team? And even the literature on outsourcing shows recent trends of external consultants developing enterprise-wide information architectures for most organizations (Grover and

Teng, 1993). It was therefore not surprising when Earl (1993) found, in his technological approach to SISP, that companies used methods such as Information Engineering provided by external consultants to develop information architectures.

Development of information architectures is not devoid of problems. Notable among them is the length of time and complexity involved in data analysis and design. In Earl's study, user managers complained of the overly technical side of this activity which ended up displacing the business priorities. Earl also observed that business managers were unsure of the validity and meaning of information architectures. As a result business managers ended up in conflicts with IS managers. Niederman et al. (1991) also report on the difficulties involved in developing and maintaining information architectures in changing business environments.

We know from the literature, that developing the information architecture is primarily a technical activity. There are also some problems associated with this activity. The process takes a lot of time and is also found to be complex especially when done according to the guidelines of planning method. Functional unit managers complain of too many people getting caught up in technically oriented activities in lieu of the usual business priorities. Also owing to the changing nature of business requirements developing an information architecture could be a problem.

2.3.3.3 Preparing the IS/IT Strategic Plan

An IS/IT strategy is more than a technological solution. It relates to computer-based material as well as human factors such as skills and knowledge (Ward et al., 1990). Its main objective is to ensure that users, management and IS personnel understand and value the key elements of the strategy (ibid).

As they do for the information architecture, Ward et al. present a detailed description of the components of a typical IS/IT strategic plan. In it, they include an IS/IT management as well as business IS/IT strategy. In the IS/IT management strategy, the common issues are the resources and allocation of responsibility and authority for IS/IT decisions related to development and operation. Also included are the investment and vendor policy guidelines for management to use in making decisions on investments and specific vendors. The business IS/IT strategy also indicates how the business will deploy IS/IT in achieving its objectives.

Similar details are spelt out in the planning methods as to what to include in the IS/IT strategic plan. But the question of *how* these plans are developed still remains unanswered. What are the necessary dynamics involved and who are the key players? Given the changing nature of businesses, there could be anticipated difficulties in trying to come to grips with all the demands of the functional units. This could result in negotiations and compromises among those responsible for preparing the plan.

In summary, the literature on preparing the final IS/IT strategic plan only highlights the constituents of the plan. But there is still a missing gap in our knowledge of how the strategic plan is actually prepared, those responsible, and the problems likely

to be encountered.

2.4 Summary

Ward et al. present different ways in which the strategic information systems planning can be carried out. They suggest that the SISP process can be partitioned into three main activity groups or phases: planning for planning, SWOT analysis, and creating IT alternatives.

In planning for the planning process, Ward et al., suggest that the scope and objectives be clearly defined. The scope usually covers a strategic business unit (SBU), or the corporate level or both. SISP objectives can be to align IS/IT to long-term business goals, to attain competitive advantage, or to gain top management commitment. Since SISP is usually done in the form of a project, a planning team usually carries it out. It appears from the literature that the team members could be senior managers from the IS function or other business units. The team could also include external consultants. The planning process is monitored and controlled through the use of steering committees. These committees, are probably composed of senior managers from the business and IS department. As advocated by most SISP researchers and practitioners, sustained organizational support and commitment towards for the process is essential for success.

The SWOT analysis according to Ward et al. involves an assessment of the internal and external business and IS/IT environments in terms of organization's strengths, weaknesses, opportunities and threats. To analyze the internal business environment, the authors propose evaluation procedures of their organizational processes and their IS/IT

resources. Some of the standard planning methods such as *Method 1*, also provide directions on *how* to conduct such analysis. Likewise for the analysis of the external business environment, the literature proposes that companies apply techniques such as Porter's competitive strategy analysis. Some authors see the need for assessing the external IS/IT environment and recommend that organizations study the trends of IT in their own industry.

Ward et al. also see the search for SIS alternatives as a creative process. In order to assess the impact of the potential SIS on the organization, popular frameworks such as Porter's value chain and Wiseman's strategic thrusts could also be used. While Ward et al. provide no direction on how to build the information architecture, the planning methods provide detailed prescriptions.

Our understanding of the strategic information systems planning from Ward et al.'s description of SISP and that from the academic literature is not sufficient for us to understand how a complex process such as SISP is carried out. As we can see in Figure 2.4-1, a number of gaps have been identified in the literature. Most of these prescriptions in the literature focus on *what* has to be done in planning. Only in few situations do we know how to carry out activities, how to avoid problems etc. As a result, to fully understand the process, more research needs to be done in knowing *how* all these activities are carried out, *when* they are carried out, the *players* responsible, and the potential *problems* that are encountered. The rest of this thesis will be directed towards taking up some of these issues.

Figure 2.4-1 Gaps in the SISP literature

ACTIVITIES	MISSING INFORMATION
<i>Identifying the stimuli prompting planning</i>	How; Problems encountered
<i>Defining the scopes and objectives</i>	How; Problems encountered
<i>Formation of team</i>	How; Problems encountered
<i>Formation of steering committee</i>	How; Problems encountered
<i>Securing organizational commitment</i>	Problems
<i>Analyzing the internal business environment</i>	Division of responsibility; Problems encountered; when
<i>Analyzing the external business environment</i>	Division of responsibility; Problems encountered; when
<i>Analyzing the internal IS/IT environment</i>	Division of responsibility; Problems encountered; when
<i>Analyzing the external IS/IT environment</i>	Division of responsibility; Problems encountered; when
<i>Identifying SIS opportunities</i>	Division of responsibility; Problems encountered; when
<i>Developing the information architecture</i>	Division of responsibility; Problems encountered; when
<i>Preparing the IS/IT strategic plan</i>	Division of responsibility; Problems encountered; when

CHAPTER 3

RESEARCH DESIGN

3.1 Research Objective

The objective of this thesis is to describe how the strategic information systems planning process is carried out in Canadian companies: the players involved at the various stages, the methods used, the problems encountered, and when they were carried out.

3.2 Research Question

In order to pursue the objective above, this study is directed at answering the following question:

What are the similarities and differences in the strategic information systems planning processes carried out by Canadian companies?

3.3 Research Methodology

An exploratory study using the *multiple-case research* methodology described by Yin (1989) and Benbasat et al. (1987) is used. This methodology was chosen owing to its appropriateness in:

- studying information systems issues in natural settings in order to generate theories from practice,
- answering "how" and "why" questions in understanding the nature and complexity of the processes taking place;
- researching areas in which few previous studies have been carried out.

In attempting to open the "black box" of strategic information systems planning the case research strategy would be the most fitting approach. Details of the methodology are described in the following sections.

3.3.1 Site Selection

The sites were selected from the Financial Post list of Canada's top 500 firms. They were large firms with revenues ranging between \$110 million and \$20 billion. Large firms were chosen to increase the probability that a target organization has a SISP process in place. Fifty out of the top 500, were selected on the basis of their proximity and the researcher's educated guess that they might engage in SISP.

All the fifty firms were sent an introductory letter (Appendix A) requesting their participation. Follow up phone calls were made to verify their willingness to participate as well as to schedule interviews. Twelve firms agreed; their profiles are shown in Table 3.3.1-1. These companies represented diverse industries such as banking, insurance, finance, utility, transport, food, and electronics. Their experience with SISP also ranged from one to twenty years.

Table 3.3.1-1. Sample Profile

Type of Industry	Annual Revenue (\$B)	SISP Budget (\$M)	Total Employees	IS Employees	SISP Experience (Years)	Subjects' Title
Banking	0.4*	N/A	25,000	600	20**	IM,FM
Banking	6.0*	10	48,000	2,000	10**	IM,FM
Finance	0.04*	N/A	611	65	2	IM
Insurance	1.3	24	2,000	250	6	IM
Transport	4.0	N/A	18,000	600	10**	IM,FM
Transport	N/A	N/A	3,000	N/A	20**	IM,FM
Electronics	0.2	0.5	1,500	22	10**	IM
Electronics	0.3	0.2	1,600	40	7	IM
Manufacturer	0.4	N/A	500	30	3	IM
Postal	4.3	1.0	60,000	300	8	IM,FM
Utility	0.3	0.5	400	16	10**	IM
Food	4.0	0.8	11,000	150	2	IM

NOTE: * Annual Gross Profits; ** With these firms, SISP evolved from their traditional IS planning; N/A - Not Available; IM - IS Management; FM - Functional Management; GM - General Management

3.3.2 Research Instrument

In order to increase the reliability of the research, a semi-structured interview protocol (Appendix B), with queries regarding the activities as described by Ward et al. (1990), was used as the primary instrument for data collection. The introductory section of the protocol asked for background information on each organization in the sample (included in Table 3.3.1.1-1). Many of the questions in the main body of the protocol were open-ended allowing the interviewee to explain the hows, whys, and problems encountered in the planning process in his or her own terms. The last section contained

questions on the success rating of planning on Likert scales from one to five.

The schedule was tested with a senior consultant, with substantial experience in IS including SISP. The feedback from this consultant provided a "reality check." In addition, the schedule was tested on an insurance company with five years experience in SISP. An insurance company was deemed appropriate for testing the instrument because of its information-intensive nature of operations. The data from this company has been included in the study as no other insurance firm was willing to take part in the study. A few questions in the schedule were modified slightly after the pre-test to eliminate ambiguity and redundancy.

3.3.3 Data Collection

Two people, one senior IS manager and one non-IS or general manager with involvement in SISP, were interviewed separately in seven of the firms. In each of the remaining five, only one senior IS manager was interviewed. The respondents were asked to describe the SISP activities in their firms. Some provided written documents on their planning activity schedules which helped to increase the objectivity of the verbal account of the events. Evidence drawn from two sources in seven firms also helped in improving the validity of the results (Yin, 1989). Some of the respondents were aided in their response effort with brief descriptions and terminologies of activities used in this study. The interviewees then indicated whether or not such activities were undertaken. For those undertaken, specific questions were asked on how they were carried out, those responsible for carrying them out and the problems encountered. Interviewees were also

asked to discuss the sequence of the activities. Each interview lasted between an hour and a half and two hours. Given the nature of these interviews, a longer time would have been more revealing. However, the severity of time limitation helped keep the interviews focused and rolling in all cases. The interviews were taped and transcribed within seventy-two hours. The transcripts were reviewed and followed up later on any open points. These follow-ups or second round interviews were conducted face-to-face and in some cases, on the phone.

3.3.4 Data Analysis

The analysis was conducted at the *firm* level. The unit of analysis was one project on which the respondent was asked to focus. The data collected were organized and aggregated into the categories shown in the matrix framework in Figure 3.3.4-1 for *within-case* and *cross-case pattern search* analyses (Eisenhardt, 1989).

Within-case analyses are case study write-ups central to the generation of insights (Gersick, 1988; Pettigrew, 1988). This analysis allows unique logic of a case to emerge. Cross-case search show the similarities and differences between cases (ibid). This method would be useful in studying the patterns of the matched activities. According to Yin, matching patterns could help reinforce the internal validity of the results. Eisenhardt (1989) also stresses the usefulness of cross-case analysis in improving the likelihood of accurate and reliable theory which fits case data. The write ups on each case were placed together on a table to search for patterns. This search for patterns was expedited by (1) taking pairs of firms and listing the similarities and differences between

Figure 3.3.4-1. Basis for Data Analysis

ACTIVITY GROUP	FOCUS OF DESCRIPTION
<i>Identifying the stimuli prompting planning</i>	<ul style="list-style-type: none"> - How and when - Problems
<i>Defining the scope and objectives</i>	<ul style="list-style-type: none"> - How and when - Scope(s) and objectives - Problems
<i>Formation of planning team</i>	<ul style="list-style-type: none"> - How and when - Composition - Problems
<i>Formation of steering committee</i>	<ul style="list-style-type: none"> - How and when - Composition - Problems
<i>Securing organizational commitment</i>	<ul style="list-style-type: none"> - How and when - Extent of commitment and support from top management, IS staff, and users - Problems
SWOT ANALYSIS: <i>Analyzing the internal business environment</i> <i>Analyzing the external business environment</i> <i>Analyzing the internal IS/IT environment</i> <i>Analyzing the external IS/IT environment</i>	<ul style="list-style-type: none"> - Whether, how and when - Division of responsibility - Problems
<i>Identifying SIS opportunities</i>	<ul style="list-style-type: none"> - Whether, how and when
<i>Developing the information architecture</i>	<ul style="list-style-type: none"> - Whether, how and when - Division of responsibility - Problems
<i>Preparing the IS/IT strategic plan</i>	<ul style="list-style-type: none"> - Whether, how and when - Divisions of responsibility - Problems

each pair, and (2) by dividing up the sample in two groups on a number of a dimensions:

more successful and less successful; more problems and less problems; top management

triggered and IS triggered projects; and years of SISP experience; and so forth. For instance, the firms with "more" problems were those classified as having *more* than the mean of the total number of problems encountered in the planning process. The firms with "less" problems were those classified to have *less than or equal* to the median number of problems. The same classification was applied to the "more" successful and "less" successful categorization. In this case, the mean success rating was 3.9 on a Likert scale ranging from 1-5. Thus the "less" successful firms had a rating of less than or equal to 3.9. Since one firm was in the final stages of its planning process, it did not provide a score on the success rating. In effect, out of the twelve firms, *four* were "less" successful and *seven*, "more" successful.

Frequency tabulations of some data and statistical means of the likert scale data, were also calculated. This quantitative step was also used to look for relationships which may not be conspicuous otherwise (Eisenhardt, 1989). As observed by Eisenhardt, combining qualitative and quantitative data provides synergistic views of data from case study research. Jick (1979) also argues for usefulness of qualitative data in suggesting theory which can then be strengthened by quantitative support.

The analysis of the case data was done simultaneously to some degree as the data was collected. This was advantageous; Eisenhardt (1989) notes overlapping the two processes gives a head start in analysis. To help this, field notes were used extensively. Van Maanen (1988) explains field notes to be "an ongoing stream-of-consciousness commentary about what is happening in the research, involving both observation and analysis -- preferably separable from each other." The field notes included impressions

on the responses throughout the interviews. Field notes were also used to summarize a segment of discussion in the form of: "What did I learn?."

Now we can turn to the presentation of the actual data and their analysis in the subsequent chapters.

CHAPTER 4

OBSERVATIONS

This chapter presents the results of the case data analysis. Here we will see a description of the SISP activities carried out by the firms. This presentation is based on the observations from the "within-case" and "cross-case" pattern search analysis of the activities.

4.1 Descriptive Review of Activities

The findings show that the SISP activities are quite similar to those described by Ward et al. (1990). Table 4.1-1 shows the number of firms engaging in a specific activity within a SISP process. Although almost all the activities are reported to have taken place in all the firms, there were several ways in which they were carried out. In some cases, the approaches to carrying out these activities differed from how Ward et al. suggest they should be done, particularly in terms of the emphasis and when they are done. The description of these activities follows.

Table 4.1-1. Number of firms undertaking activities associated with SISP

ACTIVITIES	NUMBER OF FIRMS DOING
Identifying stimuli prompting planning	All
Defining the scopes and objectives	All
Formation of planning team	All
Formation of steering committee	All
Securing organizational commitment	All
Analyzing the internal business environment	All
Analyzing the external business environment	All
Analyzing the internal IS/IT environment	All
Analyzing the external IS/IT environment	All
Identifying SIS opportunities	All
Developing information architecture	11
Preparing the IS/IT strategic Plan	All

4.1.1 Planning For Planning

4.1.1.1 Identifying the Stimuli Prompting Planning

Table 4.1.1-1 presents the three main triggers for SISP. First, in *five* firms, SISP started as a result of top management's vision of using IS/IT to become more competitive. Second, for the *six* others, the trigger for SISP came from the IS management's decision on restructuring and integrating the role of IS/IT in the business.

Table 4.1.1-1. Stimuli prompting SISP

HOW	PLAYERS	NUMBER OF FIRMS
Use of IS/TT to become competitive	Top Management	5
Restructuring role of IS/TT in the organization	IS Management	6
Strategic planning of IS/TT	IS and Top Management	1

Third, in *one* firm, the need for planning arose as a result of the IS and top management's decision to plan IS/TT strategically. These results are consistent with Ward et al.'s propositions on the possible triggers of SISP in organizations presented in Section 2.3.1.1. However, the results seem to differ from the authors' observation that most SISP initiatives stem from the IS function. It is clear from Table 3, that the respondents from about half of the firms indicated that top management's vision to use IS/TT competitively propelled the planning process. For instance, in an insurance firm, the CEO was said to have provided the "grand vision" of strategic IS/TT planning in the organization. This may signify a trend that SISP is no longer solely an IS activity, other groups are full participants in the IS related decisions.

Notably, in *all* the five firms where top management triggered the SISP process, top management commitment was high. *Three* out of these firms reported a top management commitment rating of "5" on a scale of 1-5 and *two* a rating of "4". Given the fact that top management was the initiator of SISP, it is not surprising to find such extent of support or enthusiasm demonstrated by the senior management towards the

process. On the contrary, *four* out of the six firms which triggered SISP from the IS management had a rather high commitment level from their top management-- *two* reported ratings of "5" and the other *two*, "4". On the other side of the scale, *two* firms reported ratings of "3" and "2" each indicating respectively that top management was moderately and lowly committed to the planning process. The reduction of top management commitment in firms in which the IS triggered SISP is not surprising. This is because in some firms it takes time to convince the top management of the need for IS-driven projects especially those of strategic and long-term nature. No clearly distinguishable patterns were found between the triggers of SISP and the degree of IS and end-user commitment towards the planning process. And also no problems were encountered in triggering the need for SISP in the firms. Thus, the above results could lead us to surmise that firms in which top management trigger the SISP effort, are more likely to getting a sustained top management commitment and support towards the process.

In sum, we have seen that strategic information systems planning efforts are the brain child of both the IS and senior management in organizations. Moreover, firms in which SISP is triggered by the top management, have a more sustainable top management commitment and support throughout the planning process as opposed to those in which the IS management drives the effort.

4.1.1.2 Defining the Scope and Objectives

As indicated in the literature, SIS planning is supposed to start with a clear definition of the scopes and objectives. *All* the firms confirmed this. The scope of the firms' SISP was either focused solely at the corporate level or on the functional units. Not surprisingly, *ten* out of the twelve firms reported to have focused their planning on the business units and only *two* indicated attention solely at the corporate level.

As noted earlier in the literature review, business unit planning is more effective than corporate planning (Ward et al., 1990). The interview data, shown in Table 4.1.1-2, revealed that *all* the "less problem"³ firms focused their SISP at the functional units. On the other hand, *five* out of the *seven* (71%) "more problem"⁴ focused their

Table 4.1.1-2 Relationship Between Planning Scope and Level of Difficulty

LESS PROBLEMS		MORE PROBLEMS	
SCOPE	NUMBER OF FIRMS	SCOPE	NUMBER OF FIRMS
Functional Unit level	5/5	Functional Unit level	5/7
		Corporate level	2/7

planning at functional units and the remaining two (29%) planned at the corporate level. Although not defensible statistically, it appeared as if functional unit level planning could be less difficult to manage than planning at the corporate level. Looking also to see

³ "Less Problems" firms are those who had *less than or equal* to the median number of problems in the entire planning process.

⁴ "More problem" firms are those which had *more* than the median of the total number of problems in the entire planning process.

whether the focus level of planning has any effect on success, from Table 4.1.1-3, *two* out of *four* of the "less successful"⁵ firms did SISP for functional units, the other 50% defined their scope of planning at the corporate level. By contrast, *all* of the "more

Table 4.1.1-3 Relationship Between Planning Scope and Success

LESS SUCCESSFUL		MORE SUCCESSFUL	
SCOPE	NUMBER OF FIRMS	SCOPE	NUMBER OF FIRMS
Business Unit level	2/4	Business Unit level	7/7
Corporate level	2/4		

successful"⁶ firms planned at the functional unit level. It should be noted that the categorization of the "less successful" and "more successful" scales served as a substitute in determining the factor for success. Owing to time constraints in the interviews, case data could not be captured on the manager's impressions on why they were successful or unsuccessful in the planning process. In spite of this, we see a possibility that planning at the functional unit level could increase the likelihood of success. The reason for this may be due to the fact that the business managers would have more interest in the activities carried in their units.

In addition to defining the scope, the objectives of SISP were set out in such a way that they reflected the overall business goals. These objectives were:

⁵ "Less successful" firms are those firms which rated *less than or equal* to the median success ranking on a likert scale of 1-5.

⁶ "More successful" firms are those firms which had *more* than the median rating of success rankings on a likert scale of 1-5.

- To use IT to gain competitive advantage (*seven firms*)
- To use IS to support the business unit strategies (*five firms*)
- To develop cost effective IS resources (*five firms*)
- To build strategic alliances with other firms (*two firms*)
- To prioritise and support IS projects (*two firms*)
- To increase systems reliability (*two firms*)
- To increase customer satisfaction (*two firms*)

Obviously, several firms had more than one objective. Galliers (1987) also found this in his study implying that SISP covers a wide gamut as far as organizational imperatives are concerned. It is not surprising as these same authors have noted that SISP also covers the same mandate of traditional information systems planning in organizations. This is in accord with Neumann (1994)'s assertion that traditional information systems planning could also be of strategic importance. However, one interesting objective of SISP was identified: "building strategic alliances with other firms." According to the Manager of Strategic Planning in one firm, the intent of such an objective was to receive specialized services in IS from the others in order to become a "big player in the IT market."

Three different ways of arriving at the scope and objectives of SISP were identified. As shown in Table 4.1.1-4, *eight* firms arrived at the scope and objectives of planning through consensus within each of their planning committees. In this consensus approach, it usually took a while to arrive at decisions. In the decision making literature, Mintzberg (1987) and Bourgeois and Brodwin (1984) suggest that often the top

management have to step in to ensure consensus in a group. Not surprisingly, it was found in most of these firms that, at one time or another, the CEO had to do some "arm-twisting" to break an impasse or expedite the process.

Table 4.1.1-4. Mode of Defining Scopes and Objectives

HOW	NUMBER OF FIRMS
Joint Consensus within planning committee	8
Approval at Functional-level	3
IS Management decision	1

The IT Director of one firm described the CEO's involvement in consensus building: "there were too many people pulling at each other to the extent that the president had to say enough was enough in order to put some order to the chaos." The dynamics involved in these decision making processes support one of the views on how executive teams make key decisions in organizations, the political incrementalism approach (Quinn 1978; Lindblom 1959). According to these researchers, in strategic decision making, there is no *a priori* consensus and as such the process of arriving at the final decision could be delayed.

Also, *three* firms were found to have made the scope and objectives decisions at the functional unit level. Each function, including IS, was represented by a senior manager; each presented its own priorities which were subsequently assessed and approved by higher authorities. And in *one* firm the scope and objectives were based solely on the decision of the MIS management. In this study only one firm was found

to have followed this route, but according to Pyburn (1983) this is quite typical. He describes this as a "personal-informal" approach to planning in which an IS manager defines problems in his or her terms. In the firm where such was the case, the MIS management was not arbitrary about the decision; it used standard operating procedures to arrive at the decisions. The use of standard operating procedures to make SISP decisions is the main characteristic of Earl's (1993) administrative SISP approach.

Given the objectives set out by the firms in this study, it was reasonable to identify what they really achieved. The respondents could identify *three* benefits obtained as a result of defining the scope and objectives at an early stage. These benefits were more or less expected to be achieved as a result of the planning effort. At the same time, they reported *four* "spin-off" benefits from the planning process. Table 4.1.1-5 lists both of these two kinds of benefits (direct and spin-off) identified by the respondents.

Table 4.1.1-5. SISP Benefits

BENEFIT	TYPE	NUMBER OF FIRMS
Effective Resource Planning	Spin-Off	4
Competitive Advantage	Direct	1
Aligning IS with business needs	Direct	
Increasing customer satisfaction	Direct	1
Providing communication devices amongst business units	Spin-Off	4
Focusing people in the organization	Spin-Off	5
Building organizational support towards IS activities	Spin-Off	1

Considering the direct benefits, *one* firm confirmed that planning did provide them with a competitive advantage. This firm achieved its competitive advantage by being able to produce quality products at a reduced cost. Competitive advantage was one of Earl's (1993) findings on SISP benefits as well. *One* firm was also able to align its IS with business needs. The respondents in this firm said that SISP enabled the functional units to meet their long-term business goals. Also, *one* firm, whose objective was to increase customer satisfaction, claimed that SISP provided them with the opportunity to put that need on the IS agenda.

While the above described benefits related to the planning objectives specified at the onset of planning, others were new. As shown in Table 4.1.1-3, in *four* firms, planning offered them effective ways for IS resource planning and utilization in the organization. This benefit was obtained as a result of pursuing a cost effective IS resource. *Four* firms realised that planning served as an effective communication channel between people in different functional units. The activities in the planning process forced the interaction amongst various units, thus increasing their mutual awareness. In other words, as Wallace (1986) points out, SISP acted as a catalyst for bringing the units together by exposing their mutual interdependencies. *Five* firms indicated that SISP enabled some people to clearly see their career options in the organization and out. And finally, *one* firm saw SISP as instrumental for building organizational commitment towards current and future IS activities. Confirming Earl's observation in this firm, the top management and the line management had begun to show more interest in IS-related matters as a result of the SIS planning.

In summary, these findings indicate that the scopes and objectives of SIS planning do not differ substantially from those discussed in the SISP literature. However it appears as if planning at the functional unit level reduces the number of problems encountered in the SISP process. More importantly, it seems as if planning at the functional level could be a contributing factor towards the success of the planning endeavour. Three ways of defining the scopes and objectives were identified: consensus decision-making, functional heads putting forward their priorities for consideration, and unilateral decision making by the IS management. A majority of the firms seem to take the consensus building route which tends to support the "political incrementalism" (Quinn 1978; Lindblom 1959) approach to strategic decision making. The actual benefits of SISP, as opposed to the objectives, were identified as: effective resource planning, effective communication among functional units, focusing people in the organization, and building organizational support.

4.1.1.3 Formation of Planning Team

The strategic information systems planning in *all* the firms were team-based. The teams were all formed in the initial stages of planning. *Seven* firms reported this activity to be the most critical to the planning process since planning evolved around the teams' responsibilities. Planning teams were formed under two situations: specifically for SISP (*seven* firms) and using a team already working on an IS project (*five* firms). The variants within these two modes are presented in Tables 4.1.1-6 and 4.1.1-7 respectively. These tables show the various compositions in the planning teams as well as the corresponding leaders.

All of the firms with special teams had less than ten years experience in SISP. Another way of looking at this observation is that using special teams for SISP is a recent development. In forming these special teams, in *five* of the *seven* firms, the heads of

Table 4.1.1-6. Formation of Special Teams

COMPOSITION	LEADER	NUMBER OF FIRMS
Senior IS and functional managers knowledgeable of industry trends, business and technology	IS Manager (five)	6
	Internal Consultant (one)	
External IS consultants and IS function managers	External Consultant (one)	1

Table 4.1.1-7. Use of Existing IS Teams

COMPOSITION	LEADER	NUMBER OF FIRMS
IS Specialists	Senior-most specialist *	5

NOTE: * Data on team leader was available from only 3 of the 5 firms

various functions (including IS), designated senior representatives of their function in the planning team. Their selections were based on the members' outlook of the industry, experience in the firm and knowledge of the business and technology. This way of forming SISP teams has been recognized by Martin (1982), Ward et al. (1990), and Lederer and Sethi (1991). They propose that members be experienced senior managers from both IS and functional areas. In these firms, a senior IS manager was appointed to be the leader by top management. The team members seemed to be content with the

appointment of such leaders. This was because of the fact that they were "qualified" for the position given their experience in the business as well as technical knowledge.

In *one* firm the Director of IS services appointed an internal consultant as the team leader and had him select the team members. This firm believed that putting together an effective team demanded some skill and knowledge from a non-prejudiced and experienced person. Such a decision was to serve as a prevention of political considerations in team formation.

One other firm took a very different approach. It formed its special team using a mix of external consultants and people from its own IS group and functional units. One of these consultants was appointed the team leader by the Director of IS. These consultants were chosen for their track record in SISP. Kesner (1988) suggests this basis for using external consultants in SISP teams. The firms' steering committee, with the help of the external consultants, chose the internal IS and functional unit staff based on their functional knowledge, technology and experience. They interviewed the heads of the functional units and asked them for their nomination of the "best" people for the team. At the end, it was the senior-level managers who got selected. The use of such a mix in special SISP teams brought together the senior staff from the functional units as well as consultants to work as a team. The resulting interaction resulted in sharing of experiences and learning from each other.

The results of the pattern search analysis presented in Table 4.1.1-8 shows that *four* out of the *five* (80%) firms which had less problems in planning used external consultants. Also, less than half (*three* out of the *seven* or 43%) of the firms with more

problems in planning used external consulting services.

Table 4.1.1-8 Relationship Between Usage of External Consultants and Problems Faced in SISP

LESS PROBLEMS (FIVE FIRMS)		MORE PROBLEMS (SEVEN FIRMS)	
FEATURES	NUMBER OF FIRMS	FEATURES	NUMBER OF FIRMS
Assistance from experienced external consultants	4/5	Assistance from experienced external consultants	3/7

Table 4.1.1-9 shows that *two* of the *four* less successful firms used the services of external consultants on certain occasions during the planning process and the other *two* did not. Among the successful ones, *six* out of the *seven* (85%) firms used consultants.

4.1.1-9 Relationship Between Usage of External Consultants and SISP Success

LESS SUCCESSFUL (FOUR)		MORE SUCCESSFUL (SEVEN)	
FEATURES	*NUMBER OF FIRMS	FEATURES	*NUMBER OF FIRMS
Assistance from experienced external consultants	2/4	Assistance from experienced external consultants	6/7

* One firm did not report its success rating since at the time interviewing they were in the middle of the planning process.

Although these findings are not compelling enough, experienced consultants could provide some advantage in the planning process by accelerating the pace of planning and

by reducing redundant tasks within the activities. They could also help prevent the creation of certain planning problems based on their experience of similar problems in past planning exercises. External consultants need not necessarily be employed in carrying out the entire process. They could be of useful assistance particularly in the creative activities involving the generation of ideas owing to their extensive experience, and expertise of the industry. Thus experienced industry-specific consultants could serve as catalysts to the planning process. As de Geus (1988) notes, consultants could bring in a change or learning experience to the organization. At the same time it could be argued that the services of external consultants may create problems as their solutions may not fit the organization due to difference in philosophies, cultures and practices. Choosing the "right" consultants for the organization is therefore important. Byrne (1994) suggest that firms rigorously interview and screen several consultants and ask for at least three recent client references. By doing so, the good use of the qualified industry-specific consultants could be a contributing factor in the successful planning of IS as Byrne (1994, p.66) notes that they bring "a fresh and impartial eye to a company's problems."

Despite the use of consultants and various approaches to forming the SISP teams, formation of planning teams is a difficult activity (Lederer and Sethi, 1988). Therefore it was not surprising when the respondents mentioned a number of problems. One common problem with special SISP teams was the members' conflict with other daily duties. Most of the senior managers in the team complained of SISP taking too much of their regular duties. The result of this was time overruns in deliveries. Also, an IS Director of one firm reported on problems he faced as a leader in effectively managing

his specially-formed team members. These problems had to do with the different personality traits and interests amongst the team members. Some were active; others passive. Such behavioral problems, unfortunately, are very difficult to solve.

In contrast to using special teams, five firms used existing IS development teams to carry out SISP by adding to their mandate. In these instances, team formation was the first activity in the planning process. In each case, the team members were IS specialists. In *three* of these, the highest ranking person was deemed to be the natural leader of the team. Ward et al. do not mention the use of such teams. All the firms which had ten or more years experience in SISP used existing IS teams for SISP. These firms said that their strategic IS planning was not different from the traditional IS planning which has been around since the 1970's. Perhaps this adds more evidence to Senn's (1992) view of strategic information systems evolving from the traditional information systems.

Like the special teams the existing teams also faced conflicting demands as the team members were expected to meet deadlines of projects to which they were already committed. As a result, project managers had to negotiate with their client departments to meet the resource requirements. Thus, a major problem with both approaches to team formation was coping with the conflicting demands of planning and other on-going activities. Only two firms reported benefits in the use of existing IS teams. According to these firms, the use of existing teams introduced a less formal atmosphere in the planning process. Members were already recognized in the organization to be responsible for IS related activities.

It looks as if the problems encountered in the team formation are equally

applicable to the formation of any project related team. This suggests that team formation in SISP is no different from that espoused in the team and group dynamics literature.

To conclude the discussion on team formation, planning teams were formed specifically for SISP in some organizations; others used existing IS development teams. Special SISP teams were composed either of people from different functions or of internal and external IS specialists. In the use of special SISP teams, which was common in firms with less than ten years experience, some of the stumbling blocks were politics, conflicts with the members' ongoing duties, and dealing with the different personalities. Some benefits to this special SISP team formation was learning from each other. The use of external consultants helped reduce the extent of problems faced, hence the success level of most firms in the planning process. Existing IS teams, on the other hand, were used mostly in firms with more than ten years experience in SISP suggesting that SISP in those firms started from the traditional IS planning. One of the problems faced in firms with existing teams were conflicting demands with on-going IS activities. The main benefit of using existing teams was the creation of an informal and congenial atmosphere in the planning process.

4.1.1.4 Formation of Steering Committee

Pyburn (1983) found that in the personal-formal approach to SISP, steering committees were used to monitor and control the planning process. *All* firms in the sample used committees of some sort to steer and control the process. In most of these firms the steering committees were formed early on in the process -- either before or

shortly after forming the planning teams. Similar to the planning teams, these committees were formed in two different ways: steering committees specially for the SISP effort (*seven* firms) and the use of existing management structures for regular IS projects (*five* firms).

All the specially formed steering committees comprised of senior managers from the functional units. In most cases, the CEO appointed members to the committee, while in one, the Board of Directors made the appointments. In one of the seven firms the strategic business planning committee served the same role as the steering committee. The reason for this was to ensure that the IT planning moved in the direction of the established strategic business plan. Nevertheless, the committees in all these firms shared the same responsibility: to occasionally review the progress of the planning teams' work. This was done in a very informal way: informal in the sense that there was no *strict* deadlines to the submission of deliverables. Reviews were done either on a quarterly, monthly or bi-weekly basis. All the firms which had special planning teams happened to use steering committees particularly for SISP. This suggests that strategic IS planning from a clean slate calls for the need of steering committees in effectively managing and controlling the process.

Five firms, developed their "steering committees" from the existing management structures in the IS department. These firms saw no need for the use of "special" committees in the SISP exercise. Not surprisingly, these firms used their existing IS development teams for the SISP effort. In effect, in most of these firms it was either the IS or functional unit managers who oversaw and steered the process. One firm did use

special steering committees in the SISP process because of its past failures with the functioning of steering committee. The committee members in that firm were apparently caught up in a power struggle. Each was trying to influence the planning process to advance his or her department's interests. According to Kling (1980) this situation should be quite common as the members try to use IS to alter their power and dependency positions in relation to other departments and units. Another firm reported that it had to do away with steering committees because they offered nothing positive but contributed only to delaying and slowing down of decision making processes in IS related projects. Thus in order to streamline decision making in IS projects steering committees were abolished. This firm reported a savings in overhead costs as a result of scrapping steering committees.

These observations also demonstrate that in some firms SISP is considered to be another IS development project. Hence we once again confirm Neumann's (1994) proposition that SISs are no different from traditional information systems.

In sum, it was found that steering committees like planning teams could be formed in two ways: specially for the SISP effort and relying on the IS management's usual monitoring of IS projects in the organization. In the latter case, the committee was usually comprised of senior managers from the functional units. With the former, IS management usually serves as the steering committee for SISP, suggesting that SISP is viewed as a regular IS project. Firms in this category consider special SISP steering committees as vehicles of power struggles and increased overhead costs.

4.1.1.5 Securing the Organizational Commitment

Lederer and Sethi (1992), Ward et al. (1990), and Rockart and Crescenzi (1984) recommend the need for organizational support, in particular from top management, for the success of strategic IS planning. These authors' assertion was confirmed as organizational support for the planning process was essential in all *twelve* firms. Securing the support was an on-going activity throughout the planning process in each firm. Commitment was sought from three main groups in the organization -- top management, IS staff, and the end users. This commitment was obtained in three ways as shown in Table 4.1.1-10 below. These were through organizing meetings and sessions, holding conferences, and through the use of electronic mail and bulletin board facilities.

Table 4.1.1-10. Ways of Securing Organizational Commitment

MECHANISM USED	NUMBER OF FIRMS
Meetings, Sessions	12
Teleconferences	2
Communication Technologies - Electronic Mail, Bulletin Board Systems	1

As we see in Table 4.1.1-10, *all* the firms organized meetings and information sessions to discuss the objectives of IS planning. This approach has been recommended by Rockart and Crescenzi (1984) and Ward et al. (1990). On some occasions these were similar to Joint Application Development (JAD) sessions as reported by Andrews (1991). Andrews found that these sessions manage the politics of projects and increase user commitment and involvement by encouraging understanding.

Three firms were innovative. As shown in Table 4.1.1-10, *two* organized meetings using teleconferences to present the planning idea to the organizational members. The reason behind this was to let the organizational staff have a feel of the importance of the SISP effort and also to elicit their much needed feedback. *One* also used electronic mail and bulletin board systems to disseminate information about the goals, progress, and difficulties of the planning process. Comments and suggestions were also solicited through the same media. As a result this firm became satisfied with the method. Research indicates that electronic communication often makes people feel comfortable in expressing their opinions and ideas (Sproull and Kiesler, 1991; Allen and Hauptmann, 1987).

But whether all these mechanisms were effective enough in obtaining the desired commitment is another question. It is not surprising as one IT Director of a Financial Institution observed: "No matter what you do, one-third of the people will be with you, one-third will be against you and the other third will be neutral."

In Table 4.1.1-11, *five* firms indicated that the top management were *highly* committed (rating 5). An additional *four* firms reported that the top management were committed to the process (rating 4). In most of the firms in these sets, top management were solidly behind the idea of SISP in the organization. Clearly, this finding contradicts the much espoused talk about lack of top management commitment or support in the literature (Lederer and Sethi, 1988). But as we can see from the table, such high top management support was not the case in all the firms. In *two* firms the top management were moderately committed (rating 3). The reason why they were that reluctant in

supporting SISP was their anticipation of a huge cost of implementation. This particular firm, obviously, had not been successful in its previous planning efforts. And as such the top management did not want to take any risks at all. The problem of

Table 4.1.1-11. Commitment From Organizational Players

WHO	COMMITMENT LEVEL (RATING ON SCALE OF 1-5)	NUMBER OF FIRMS
TOP MANAGEMENT	2 - Lowly Committed	1
	3 - Moderately Committed	2
	4 - Committed	4
	5 - Highly Committed	5
IS STAFF	3 - Moderately Committed	1
	4 - Committed	5
	5 - Highly Committed	6
END USERS	1 - Not Committed	1
	2 - Lowly Committed	1
	3 - Moderately Committed	3
	4 - Committed	6
	5 - Highly Committed	1

securing top management commitment in the absence of demonstrably favourable cost-benefit analysis of not only SISP (Mokowitz, 1986), but any technological change, has

been long recognized in the literature. This suggests that Canadian senior managers are still myopic when it comes to the application of IS/IT. Canadian managers therefore need to adopt a long term focus in IS/IT usage in terms of the return on investment. This is not surprising since Gerwin & Kolodony (1992) and Johnson & Kaplan (1987) have realised that North American managers are "excessively concerned" with short term rather than long term imperatives. Also the top management commitment in *one* firm was low (rating 2). Here the top management were not too concerned about IS/IT related activities. This observation was clearly manifested in the words of the Director of IT strategy in that particular firm in saying that: "Top management gives IS/IT issues little attention or investment...they rather tend to minimize it from the top organizational objectives."

The IS staff was committed to the planning process in most of the firms. In *six* firms, the IS staff was *highly* committed (rating 5) to the planning process. *Five* firms also had their IS staff committed (rating 4) to the SISP effort. Interestingly, most of these firms used existing IS development teams in the SISP. As a result the staff saw the demands of SISP to be no different from their day-to-day IS related tasks. These firms, in particular, had been doing SISP on an evolutionary basis. Hence it seems from this observation that using existing IS development teams in SISP may increase the likelihood of building the needed IS commitment. However, *one* firm reported a moderate IS support level (rating 3) to the planning process. According to the IS Director of this firm, the functional users were not too cooperative with the IS function since previous SISP projects had not been too successful. As a result, when the senior management initiated

the new strategic IS planning, they left the IS staff out. So when the IS staff got involved in the subsequent stages, they tended to demonstrate a lacklustre commitment to the planning process.

Just as in the above cases, the end users in the firms showed varying degrees of support to the planning process. In *six* firms the users were said to have been committed to the planning process (rating 4). Interestingly, the only firm which used electronic mail and bulletin board systems for discussions and generating the much needed support and interest towards the planning process reported a high user commitment (rating 5). It could be that the usage of communication technologies could increase the organizational support and hence boost the enthusiasm level towards SISP.

On the other hand, *three* firms had moderate user support (rating 3). They attributed this to the user community's aversiveness to learning and adjusting to new things. This attitude has been the focus of research on resistance to change for the past 30 years. So it is surprising that today any firm would complain about that and not take appropriate measures to deal with it. In *two* firms the end users were not committed to the planning process at all (rating 1). The Director of IT Strategy in one of these firms reported the frustration of not getting majority of the end users, to think of this process as a long term investment to the organization. According to him the users are "only interested in getting their day-to-day jobs done." The General Manager of IT in the other firm also reported that "the business units never perceived IS as being integral to their delivering products and services and as a result are not enthusiastic towards IS related projects." These two firms in particular, reported a low and moderate top management

commitment respectively towards the planning process. Moreover these firms happen to be Federal Government firms. This ingrained mentality of the top management and end users towards IS/IT activities in these two firms suggests that Federal government staff lack organizational understanding of the long term potential of IS/IT. This finding is not surprising since it was noted earlier by Johnson and Kaplan (1987) that North American managers lack foresight as far as strategic imperatives are concerned.

User commitment has been noted by Ward et al. (1990) and Kesner (1988) as one of the factors necessary for successful planning. The results of the search for patterns in Table 4.1.1-12, revealed that in *five* of the *seven* (71%) more successful firms, user commitment to planning was high. Only *one* out of *four* (25%) of the less successful firms reported lower than average user commitment. Therefore the data seems to support the long believed hypothesis that user commitment is essential for success in planning.

Table 4.1.1-12 Relationship Between User Commitment and Success in SISP

LESS SUCCESSFUL		MORE SUCCESSFUL	
FEATURES	NUMBER OF FIRMS	FEATURES	NUMBER OF FIRMS
High user commitment	1/4	High user commitment	5/7

In summary, all the organizations were not 100% successful in securing the organizational support and commitment. Most tried methods such as conducting meetings, briefing sessions, and communication technologies in order to educate the organizational members on the purpose of the planning effort. Some of the problems

encountered were top management's lackadaisical attitude, top management and the end users' myopic views on SISP, and IS staff's reluctance to be instructed by senior management. Yet, in spite of these problems, the top management, IS staff, and end users in *most* of the firms, seemed to be committed to the planning process. But the more successful firms in SISP had greater user commitment and support towards the process.

4.1.2 SWOT Analysis

4.1.2.1 Analyzing the Internal Business Environment

Organizations derive their understanding of business operations and needs through an analysis of the internal business environment (Ward et al. 1990). *All* the firms did this. The activity was carried out in three ways as presented in Table 4.1.2.1: a) on a daily basis (*three* firms), b) as part of strategic business planning (*two* firms), c) as part of business process reengineering and d) during the SISP process (*seven* firms).

In the first scenario, assessing the internal business environment was part of the organizational day-to-day activities. *Two* firms which carried out such kind of analysis, relied on the IS development requests submitted by the functional unit managers to form the basis for the discussion of related problems. The planning team however faced some problems upon heeding to such requests. The cooperation between the IS and from unit users was too poor for them to work together. The IS people blame the functional counterparts for their narrow perspective and vice versa.

This approach taken by the planning team in understanding the functional unit users needs does not lead to a proper analysis. Instead, as we discussed earlier, Ward et

al. propose analysis of the business through a thorough fact finding exercise. This is because much of the information needed for strategic IS planning resides "in people's heads and needs to be elicited through discussion" (op. cit, p.146). Such analysis would provide a sufficient understanding of the business environment thus enabling the development of practical plans.

Table 4.1.2-1. Mode of Analyzing Internal Business Environment

WHEN	HOW	WHO	NUMBER OF FIRMS
Daily Basis	Responding to requests from users; Informal discussions with functional heads	Planning team	3
During Strategic Business Planning	Formal interviews and use of questionnaires	Planning team	1
During Business Process Reengineering	Formal interviews and use of questionnaires	Reengineering team (External Consultants, IS staff, functional unit staff)	2
During SISP	Formal interviews and use of questionnaires	External Consultants, IS team, or Planning team	6

In one firm the planning team frequently initiated discussions with senior managers from various departments. The discussions were focused on identifying the critical success factors for the functional units. An advantage of this informal discussion

approach, according to the Director of Information Systems, was that it allayed managers' fear of some grandiose systems which could threaten their positions. No problems were reported to have been encountered with this approach.

As indicated in Table 4.1.2-1, in *one* firm the internal environment analysis was done during the firm's overall strategic business planning. In this case, the documented fact finding exercise, conducted during the strategic business planning served as an input to the strategic IS planning effort. In the strategic business planning, planning teams interview the functional unit managers to better understand their needs. The fact finding process took a bottom-up approach in that they used operating plans submitted by various units to come to grips with the overall business environment. This firm had faced a problem in having to resolve many conflicting views to make a congruent picture.

In the third scenario, analyzing the internal business environment for the purpose of SISP was done during the business reengineering effort in *two* firms. Hammer (1993, p. 32) defines business reengineering as "the radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service, and speed." In these two firms the business reengineering team consisting of external consultants and selected IS and functional unit managers analyzed the organizations' products or services, operations, structure, and functional responsibilities. This analysis was done by interviewing the business unit users. The interviews were focused on the important areas within the organization and how IT can add value, reduce costs, and create an advantage. This approach to the analysis of the internal business was essentially derived from the consultants' method, used in the reengineering effort. No problems were

encountered in the process.

The methods were not applied mechanically. Judgement and intuition had to be added. Thus the methods served only as guidelines for the analysis. But the Director of IT Strategy in another firm embraced the business reengineering approach. He was of the opinion that the thorough documentation of the organizational analysis conducted in business process reengineering could provide a useful direction for SISP.

Analyzing the internal business was done during the SISP process itself. As in the strategic business planning and reengineering scenarios, in most of these firms, senior managers of the business units were interviewed by external consultants (using a method as a guide), an IS team, or the planning team using formal questionnaires. The questions were based on the overall business strategy. Thus in most of these firms, the strategic business plan drove the strategic IS planning. In *three* of the firms the interviews spanned a wide gamut in the organization: from the rank-and-file to senior managers. This way the whole organization's IS and business objectives were covered for analysis. This approach to analysis would probably fall in Earl's *business-led* category in which the emphasis is on business objective for driving IS applications. (Analysis of the business through interpreting and reviewing documented business plans was also part of Pyburn's *written-formal* approach to SISP).

Some problems were encountered in this approach. The first one was the unavailability of business plans. Typically the strategies are unpublished. This problem has been recognized by Lederer and Gardiner (1992) and Ward et al. (1990). A lack of documentation is probably the source of the problem. The second problem was that the

functional unit users could not answer some of the questions on the questionnaires, especially those which required quantitative responses. A simple example of such questions according to the Manager of Computer Operations of an electronics firm is "How many E-mail messages do you send in a day." This problem suggests that the planners end up making assumptions about the needs of the end users.

An interesting observation on the analysis of the business was that although most of the firms used fact-finding techniques to understand the business environment, few were as elaborate as Ward et al. recommends. These authors suggest a systematic and diagnostic analysis of the business using models such as Kotter's (1978), which has already been discussed in section 2.3.2.1. However the firms which were doing reengineering happened to be more in depth in their organizational analysis.

To conclude, the analysis of the internal business environment was found to be carried out under four pretexts: on a daily basis, during strategic business planning, during business process reengineering, and during SISP. There were three ways of going about the analysis -- responding to requests from the business users, informal discussions with senior business unit managers, formal interviews and administering of questionnaires with functional heads. This activity was the primary responsibility of the external consultants, IS staff, reengineering or planning team. Some firms followed the guidelines of a planning method. Overall, the analysis of the internal business environment was not as in-depth or detailed as proposed by Ward et al. Also, a number of problems were identified in this activity: lack of cooperation between IS staff and business users, unavailability of documents on business strategies, conflicting business unit strategies,

poor communication, and prioritising abundance of business needs.

4.1.2.2 Analyzing the External Business Environment

In strategic planning the internal environment of a firm cannot be analyzed without taking into consideration the influences from the external environment. The assessment of the external environment enables a firm to determine its competitive strengths and weaknesses. Most of the firms in this study, analyzed their external business environment concurrently with the internal business environment analysis. Therefore, the external environment was also analyzed under four pretexts as well: on an ongoing basis (*three* firms), during business process reengineering (*two* firms), during strategic business planning (*one* firm), and during SISP itself (*eight* firms).

Table 4.1.2-2 presents how this activity was carried out. Under each of the above four scenarios, *three* sets of ways of analyzing the external business environment were identified. The first was to use focus groups, market research, customer surveys and networking within industry association groups. Stewart and Shamdasani (1990) define the focus groups approach to be sessions conducted among a particular type of people-- potential customers or end users -- to generate discussions in obtaining information and perceptions on a product, for example. The respondents in the firms reported a peculiar advantage in the use of focus groups. Apparently, it helped in the generation of ideas which is often left for customer surveys or market research. Reliance on the information produced from market research reports, customer survey results also provided useful input information to assessing the firms' competitive strength. Such information provides a

useful way of understanding the effects of the industry forces recommended by Porter (1985) in his competitive analysis strategy.

Table 4.1.2-2. Mode of Analyzing External Business Environment

WHEN	HOW	WHO
Daily Basis (3 firms)	Focus Groups, Market Research, Customer Surveys, Industry Networking; Benchmarking; Review of Government Documents	Business Managers, External Consultants, Reengineering Team, Selected People in organization
During Strategic Business Planning (1 firm)		
During Business Reengineering (2 firms)		
During SISP (six firms)		

However, *two* firms reported problems with the credibility of information derived from such sources, aside the focus groups. According to a Manager of Financial Planning of a bank, most of the information had to be cross-checked through different sources. This is not surprising as Mintzberg (1994, p.110-111) notes:

"The problem with hard data that are supposed to inform the senior manager is they can have a decidedly soft underbelly. Such data takes time to harden, which often makes them late. They tend to lack richness; for example, they often exclude the qualitative. And they tend to be overly aggregated, missing important nuances."

Mintzberg (p.111) continues "managers who rely on such formalized information such as market-research reports tend to be detached in more ways than one." As we can see from Table 4.1.2-2, most firms as a result also rely on other "soft" information from sources such as industry networking. Mintzberg (p.111) has also found that the effective managers "rely on some of the softest forms of information, including gossip, hearsay,

and various other intangible scraps of information."

Aside from these ways of analyzing the external environment, another approach reported by five firms was to benchmark against potential competitors. Camp (1989, p.12) defines benchmarking as "the search for industry's best practices that lead to superior performance." These firms not only looked at *what* their competitors were doing. They also focused on *how* they were doing it. According to the respondents in these firms, the main benefits of benchmarking was being able to meet the customers' requirements and becoming competitive. But one of the respondents reported that benchmarking was a continuous activity carried out in his firm irrespective of SISP or strategic business planning. No one reported any problems with this approach.

The third way, recommended by Ward et al., was to review documents on government regulations, product liability, and legislation as often as possible. The information accrued from such documents would enable them to understand and be aware of the boundaries of the business operations. As Ward et al. note, the influence from the government affects the way firms shape their environment to meet requirements for creating a sustainable competitive advantage.

To conclude, analysis of the external business environment was done in different ways at different firms and at different phases of the planning process. As in the case of the internal business environment, it is carried out on a daily basis, as part of strategic business planning, business reengineering, or in the SISP process itself. Three ways of analysis are evident: customer-focus research (focus groups), benchmarking, and review of government documents.

4.1.2.3 Analyzing the Internal IS/IT Environment

In strategic IS planning the evaluation of the strengths and weaknesses of an organization's current and future IS resources is essential (Ward et al. 1990). According to the authors, it represents the beginning point from which future IS developments can begin. Some firms undertook to assess the current systems on a daily basis (*two* firms), during business process reengineering (*two* firms), or during the SISP process (*eight* firms).

As we can see from Table 4.1.2-3, in one of the firms which evaluated their systems as part of their regular day-to-day activities, the responsibility rested on

Table 4.1.2-3. Mode of Analyzing the Internal IS/IT Environment

WHEN	HOW	WHO	NUMBER OF FIRMS
Daily Basis	Evaluating current systems application portfolio	IS Staff	1
	Method-driven approach	External consultants	1
During Business Reengineering	Method-driven approach	External consultants and IS staff	2
During SISP	Evaluating current systems application portfolio	External consultants; Planning team; Functional staff well-versed in technology	8

the IS staff. The IS staff in these firms evaluated the current systems in terms of hardware, software facilities, staff, technical know-how, and the available training

facilities. Since this exercise was carried out by the internal IS staff no problems cropped up. In effect, the output of such analysis served as an input to the strategic IS planning process. Thus, there was no duplication of effort. On the other hand, the other firm analyzed its IS/IT function through outsourcing services to external consultants. The Director of IT Strategy in this firm indicated benefits of this approach as developing systems on a fixed cost basis as opposed to variable cost. However, there were problems in controlling the quality of the work done by the external professionals, as the work was no more under the control of the firm. But the IT Strategy Director pointed the need for the use of "good judgement in maintaining active monitoring and control of the outsourced company's work." The reason for maintaining active control of the outsourcing activities was to prevent the outsourcing from going out of hand. There were also some union problems encountered since the outsourced activity was a part of the work which would be normally done by the firm's unionized staff.

Outsourcing was not the only way in which organizations assessed their IS environment. As shown in Table 4.1.2-3, some firms analyzed their internal IS/IT environment through business process reengineering. In these firms the reengineering team used followed the guidelines of a method. This team consisting of the external consultants and selected IS and functional staff followed the exact steps specified by their method. The team assessed how well these systems fit the organization's needs and how effectively the organization uses its information resources. It also assessed the quality of the MIS departments' services, its staffing level, the skills of its members, its management practices, policies and most importantly, the ability to support existing and

2 of/de 2

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

potential information systems. This in depth method-driven approach is similar to that recommended by Ward et al. in their assessment of the IS environment.

Some communication problems were encountered in this approach. The Assistant Vice-President of Information Technology of a Telecommunication firm and the Director of IT Strategy of a Postal firm both hinted that the IS staff felt that their ego were trampled upon when some of the consultants pointed out certain deficiencies in the existing systems, methodologies, and tools in use. But despite this problem these firms liked the idea of having professional and reputed consultants working with them.

The last way of analyzing the external environment was during the SISP process. The firms which took this approach had their planning team evaluate their current application portfolio in terms of its "strategic usefulness." The "strategic usefulness" was determined by the speed, flexibility, and market-responsiveness of the IS resources. An advantage of this approach, as reported by a Director of IS in one firm, was the assistance it provided in prioritising potential systems development work. One problem was that the planning team had to battle with the dilemma of having to make critical decisions on how to deal with their legacy systems. Most of these existing systems, typically mainframes, were so complex and yet central to the firm's operation and therefore too expensive and risky to scrap entirely. The firms were thus faced with the nightmare of replacing their systems and related software with something new and untested.

To summarize, analysis of the internal IS/IT environment was carried at three times: on a daily basis, during business process reengineering, and during SISP. Again, three distinct ways of carrying out the analysis were identified: evaluation of the current

application portfolio, outsourcing, and application of a planning method. With the outsourcing approach, benefits included the improvement in the quality of the IS function's products at a cost-effective scale. There were also some problems to this approach such as loss of control and union labour conflicts. Firms which used methods seemed to be more detailed in their analytical approach. With the application of a planning method, there were communication problems between the consultants and the internal IS staff. The evaluation of the current application portfolio was fraught with problems in making decisions on how to deal with existing systems.

4.1.2.4. Analyzing the External IS/IT Environment

In order for firms to obtain a better perspective of the trends in IT and also to know what their competitors and others are doing, an assessment of the external IS/IT environment is done. It was not surprising that *all* the firms did an analysis of the external environment during SISP. Since knowledge of the latest trends in IS/IT affects a firms' IS/IT function, most firms did the analysis of the external IS/IT environment concurrently with the internal IS/IT. As shown in Table 4.1.2-4, there were *two* ways of carrying out this activity: during SISP (*eight* firms) and on a daily basis (*twelve* firms).

In strategic IS planning, the first was through technological benchmarking. *Four* firms indicated that they investigated IT trends within their industry. The functional staff and some IS staff were responsible for the studying trends in the IT industry. They carried out such investigation through informal interviews or conversations with other firms in the same industry and no problems were reported to have occurred in the process.

It seems as if technological benchmarking is common practice in the IT industry since firms are willing to learn from each other.

As we see in Table 4.1.2-4, the second approach was through reliance on the specialized IT research companies. These firms were chosen based on their prior experience and satisfaction with their performance. These companies provided the firms with competitive IT analyses reports on hardware, software, networks, and other system

Table 4.1.2-4. Mode of Analyzing the External IS/IT Environment

WHEN	HOW	WHO	NUMBER OF FIRMS
During SISP	Technological Benchmarking	Knowledgeable IS people, Functional managers, IS managers, External Consultants	6
	Use of IT Research Groups		2
Daily Basis	Attending IT shows, seminars and reading IT magazines		12

support. *One* firm, instead of relying solely on the research group, their own Research and Development unit collaborated with IT research firms to speculate on future trends of IT. Like the technological benchmarking, there were no problems encountered in this professional approach.

Apart from the above approaches to knowing the latest IT trends, all the firms constantly updated their knowledge on IT trends by regularly sending their IS staff to technology exhibitions. The intent is to educate them. Acquisition of IT knowledge

makes the IS function, and for that matter the firm more knowledgeable of their future direction.

These above approaches give us an understanding of how the external IS/IT environment is analyzed. Ward et al. make no mention of how this activity is done., but we find that there are several distinct ways. Moreover, through these exercises organizations learn a lot about themselves.

The analysis of the external IS/IT environment, then was carried out on a regular basis as well as in the SISP process. There were three approaches identified: IS staff or business unit managers doing technological benchmarking, using the services of professional IT research groups, and IS staff educating themselves by regularly attending IT shows and reading journals.

4.1.3 Creating IS/IT Alternatives

4.1.3.1 Identifying Strategic IS/IT Opportunities

Upon discovering the technological trends, organizations try to identify opportunities for using IT in useful ways (Ward et al., 1990). Most of the firms tried to uncover IT opportunities after the SWOT analysis. The process of identifying such opportunities involved a lot of creativity. Brainstorming technique was used in *all* the firms. Brainstorming is an idea generation technique to facilitate the generation of new ideas and encouragement of creative expression (Stewart and Shamdanasi, 1990). In such sessions, the participants refrain from criticising each others ideas. Taking part in brainstorming sessions were the functional unit managers along with the planning team,

and external consultants with the planning team, and the top IT people. The use of functional heads in this exercise was essential owing to their knowledge of their operation hence their contribution to generating ideas for IT opportunities (Neumann, 1994). Apart from searching for the SIS opportunities, the firms had to assess the impact of the potential SISs in order to decide on the appropriate technology to adopt. This was essential given the rapid changes and risks associated with IT.

For the justification process, *six* relied on intuition for drawing patterns of trends observed in the environment. *Three* firms decided to adopt technology, not necessarily the latest, that would satisfy the customer and by increasing productivity at the same time. The approach to identifying value-added IT is consistent with the value chain analysis proposed by Porter (1985). *Three* firms ran pilot projects using their chosen technology to estimate the benefits that could be gained. A prototype of a system using the identified technology was developed and tested with the end users. Feedback was solicited on their impressions of using that technology. Their responses influenced the final decision on whether to proceed with the technology or how to modify it.

It is surprising that despite all the enthusiasm about Porter's value chain analysis, discussed in Section 2.3.3.1, only three firms use it. None was using the strategic thrust analysis, perhaps because it is outmoded.

In sum, brainstorming was used by all for generating ideas for exploiting IT. External consultants, IS staff, and business unit managers were the players identified to be participating often in the idea generation process. On deciding on a particular technology to adopt, the firms used three approaches: reliance on their intuition and

judgement, value-added services to the firm (value chain analysis), and relying on feedback from end users.

4.1.3.2 Developing an Information Architecture

Information architectures usually include the designs of data bases, hardware, software and networks of the IS applications. Given its importance to the IS/IT activities in an organization, one would expect every firm to develop an information architecture in SISP. Yet one firm reported not designing an information architecture during the planning process. According to the IS Manager of the firm which did not develop an architecture, the reason was due to the firm's small size. The manager felt that the size of the company did not call for developing a company-wide architecture mainly because of financial resource constraints. From the responses provided by the other eleven firms, the information architecture was developed during the planning process. Table 4.1.3-1 below shows how the information architecture development was carried out.

Table 4.1.3-1. Mode of Developing an Information Architecture

WHEN	HOW	WHO	NUMBER OF FIRMS
During SISP	Method-driven approach	External consultants	4
	Creative thinking	IS team and business unit users	7

Of the eleven firms, *four* employed the services of external consultants. The consultants followed the guidelines of methods in developing the architectures. In these

four firms the external consultants worked hand in hand with the internal functional staff in developing the architecture. Despite the consultants help, the Director of IS in one of the firms found the use of the method to be "too complex and time consuming." This problem was also noted by Earl (1993) to be a characteristic of the *technological* approach to SISP. These observations suggest that relying on canned methods in developing information architectures does not yield good results in strategic IS planning.

In the remaining *seven* firms, the IS planning team worked creatively with the end users in carrying out the tasks required. The IS staff used the data entity definitions in the business processes to develop the foundations of the information architecture. The main problem reported with this approach was having to deal with the redundancies and ambiguities associated with the definitions in the organization's numerous operations.

Thus the information architecture for SISP was developed under two situations: during SISP and on a daily basis. There were also two ways in which the architecture was developed: external consultants' use of off-the-shelf or proprietary methods, and the IS planning team working creatively with the business units. The external consultants' canned methods were too complex and time consuming.

4.1.3.3 Preparing the IS/IT Strategic Plan

In the Ward et al. framework, at the end of the planning process, all the information collected and analyzed are consolidated to formulate the IS/IT strategic plan. As expected, this phase in the IS/IT strategic planning process was carried out in *all* the firms. The major concerns at this stage of planning include recommendations on how to

accommodate concerns such as standardization, flexibility, and speed of the future systems. Also, action plans on certain soft issues such as organizational restructuring, infrastructure provisions and business process reengineering.

There were two major distinguishable approaches to preparing the IS/IT strategic plan. In the first approach, the senior members of the planning team or the steering committee wrote up the IS/IT strategic plan. Usually board meetings were held for discussions on components of the plan. At times, there was the need for negotiations among its members, especially on concerns as to what should be included or kept out from the plan given the financial constraints. These negotiations and compromises in balancing the demands of the business units were occasionally done via electronic mail or behind "closed doors". After the necessary negotiations and discussions amongst each other, the members drafted the sections of the plan using word processing software on their workstations. Finally, these portions of the plan were amalgated to form the overall strategic IS/IT plan. The plan is then reviewed by all the members and then presented to the top management for approval. If necessary, changes are made at this stage before final submission to top management.

Nevertheless, some problems were associated with this approach. In the process of negotiating on the constituents of the plan, *two* firms realized that they had underestimated the changes in the organization. The business had been going through changes throughout the planning process. As a result, the managers were not good at articulating the business unit strategies. The Director of Finance and Administrative Services of one firm lamented: "We missed the focus of the business units initially and

as a result ended up being myopic in the planning process."

Despite these problems the dynamics involved in preparing the final IS/IT strategic plan represents a learning and creative process. Ward et al. (1990) also recognize the creativity needed in developing flexible plans in the planning process in order to meet the demands of the business.

In the other scenario, the IS/IT strategic plan was developed mainly by the external consultants who applied their method in driving most of the tasks in the planning activities. In the firms which took this approach, the external consultants met with the top management to discuss the details of their method to be adopted in preparing the plan. Top management took this opportunity to direct the consultants on what they "wanted" and "did not want" in the final plan. But then the task of writing up the plan was entirely the responsibility of the external consultants. The top management only reviewed the document for the needed or necessary changes. Unlike the former, there were no problems encountered in this approach.

Thus, to conclude, the IS/IT strategic plan was developed in two ways. The first was writing up the plan as joint effort of the senior planning team or the steering committee members. In this approach negotiations and compromises had to be done in order to balance the demands of the business units. The main problem faced in this approach included having to cope with the ever-changing demands of the business. The second approach had to do with the external consultants writing up the plan according to the guidelines of their planning method. The guidelines in the plan had to be approved by the IS management.

4.2 Summary

The findings demonstrate that the Canadian firms' practice of SISP has similarities to and differences from that described by Ward et al. (1990). Also, the ways in which the activities are carried out are not uniform. Parts of one firm's practice resembles that described by some authors in the SISP literature, while the other parts may be closer to some other author's recommendations. The practices vary in terms of players involved, problems faced, steps taken, emphases, sources of initiative, reasons for planning and sequence of activities. Hence, it is difficult to identify patterns of activities among the strategic information systems planning processes in the sample.

For instance, in the first activity group, "planning for planning", there are various ways in which the activities are being carried out. First, the SISP process can be triggered by either the top management or IS management. Top management may drive the SISP process by vision of competitive usage of IS/IT. Often the IS management promotes the need for SISP to integrate IS/IT in the business. Second, the scopes and objectives can be defined through three approaches: joint consensus decision-making among functional heads, sole decision making IS management, or proposal by IS group and approval by the functional management.

Third, firms with more than ten years experience seem to use existing traditional IS development teams for SIS planning. Those with less than ten years experience strike special planning teams usually consisting of senior IS and functional managers. In some instances, the external consultants who sell a method for planning are also included in the planning teams. In some firms, player selection is highly skewed by politics; in others

is nominal. In many firms, not all, team functioning is marred with conflicting demands from the members' regular duties.

Finally, in securing organizational commitment, various mechanisms such as workshops, briefings and open house meetings are used. Some firms have adopted solutions such as E-mail, electronic bulletin boards and teleconferences. Regardless of the approach, the top management and IS staff in most firms were committed to the planning process. In a few firms, however, the top management reported to have a lackadaisical attitude towards SISP. End user commitment to SISP on the whole was low compared to that of the top management and IS management. The few firms with high end user commitment turned out to be successful in their planning efforts.

In the second major activity group, the SWOT analysis, no clear patterns were identified. Several of carrying out the activities were discovered. For instance, the internal business and IS/IT environment were examined at four different occasions: during SISP process, during business process reengineering, during strategic business planning, or a daily basis.

In analyzing the internal business environment, a planning team would typically interview the end users to identify their requirements. Few firms also follow the guidelines of any prescriptive method in performing the tasks in this activity. Those who do so apply their judgement to ensure that the methods fit the organizational needs. In spite of these approaches, the examination of the business environment is not as detailed as recommended by Ward et al. Some of the common problems encountered in analyzing the internal business environment are lack of cooperation between IS and users, the

unavailability of documented business strategies, conflicting business unit strategies, and, poor communication between the IS and functional staff.

The internal IS/IT environment analysis can be done in different ways: through the evaluation of the current portfolio, and the use of a canned method. It covered all the "soft" and "hard" aspects of the IS/IT function. In the method-driven approach, where external consultants were involved, there were occasional union labour conflicts, and almost always communication problems between the internal IS staff and the consultants.

A variety of ways were also adopted in creating the IT alternatives in the planning process as well. The members brainstorm to identify the best SIS opportunity. Only a few firms used the principles of Porter's value chain analysis.

Some firms' planning processes also resemble some facets of Pyburn's (1983) and Earl's (1993) approaches to SISP. For instance, some firms use steering committees, hold meetings and make presentations to top management during the planning process. All these activities are part of Pyburn's *personal-formal* planning approach (section 2.2). Pyburn's *written-formal* approach is reflected in some strategic business planning activities, such as the analysis of the external business environment.

Some characteristics of the five SISP approaches identified by Earl in the U.K, were evident in the planning practices of Canadian firms. As we see in Appendix D, *five* firms considered their IS planning to be geared towards supporting the business strategy and thus seemed to follow a *business-led* approach. Also in most of these firms the IS planners had a great degree of influence on the final IS/IT strategic plan. However, none of these facets of the *business-led* approach were unique to that approach alone. They

could be seen in bits and pieces in other firms. However, one firm planned very similarly to the *method-driven* approach. In this approach, the IS strategy is reinforced through the use of a planning method often sold by consultants. According to the respondents of two of those firms, the consultants had a major influence in the final IS strategic plan. The characteristics of the *organizational* approach, like those of the *business-led* approach, were also not unique to a set of firms. These features turned to be interwoven amongst other approaches. For example, characteristics such as the use of planning teams consisting of senior managers, continuous decision-making processes, and SWOT analyses, were evident in almost all firms in one form or another. Three firms also showed evidence of some facets of the *administrative* approach. Likewise, four firms showed some features of the *technological* approach. In other words, there is no exact fit of Earl, and Pyburn's planning typologies in Canadian firms.

Thus it can be concluded from the above that it seems no identifiable planning approach has become the Canadian standard. Firms are using a variety of approaches.

CHAPTER 5

CONCLUSIONS

In this chapter all the implications from the observations will be elaborated and the benefits of the study would be examined. Furthermore, there are some limitations to the kinds of conclusion one can draw from this study. These limitations will also be listed to maintain the integrity of research. And finally, the future directions for research drawn from the results of this study.

5.1 Implications

The intent of this study was to model the strategic information systems planning processes as carried out in Canada. From my observations on how the activities in SISP are done, four broad implications can be drawn.

First, strategic information systems planning in Canada seems to be less structured and formal than in the U.S or the U.K. The studies of Pyburn (1983), Lederer and Sethi (1988), and Earl (1993) discussed in section 2.2., all show more structure in the processes they studied than can be seen in my sample. Pyburn was able to categorize SISP in the U.S in three styles -- the personal-informal, personal-formal, and written-formal. Lederer and Sethi (1988) also concluded that SISP in the U.S was carried out primarily by planning methods. Earl (1993) on the other hand, found SISP in the U.K to be carried out through a number of approaches namely, business-led, administrative, method-driven, technological, and organizational. The results of this study indicate that SISP in Canada displays only some facets of the "structured" approaches of SISP in the U.S and the U.K.

Also of importance is the fact that Lederer and Sethi (1988) found 96% of their sample of twenty companies to be using method-driven approaches, while Earl (1993) found only two out of his sample of twenty-one companies, adopted the method-approach. In this study, only one out of the twelve companies used the method-driven approach for their entire planning process. These observations raise the question: Are fewer firms using methods for their planning process than before? Is the trend in SISP moving away from method-driven approaches?

Second, SISP in Canada can be done in either of two fashions. These are: a) through explicitly recognizing SISP to be discrete and attempting a departure from old IS applications, or b) through an evolution of the traditional information systems planning. In the former, SISP is done as a special project in which a special team is formed to carry out the planning activities. In the latter, however, SISP is not that different from the traditional information systems planning. The traditional IS project teams are typically responsible for most of the SISP activities. Some activities, such as the SWOT analysis, are done as part of day-to-day activities methods. Moreover in this style of planning, documents from other strategy planning processes such as business planning and reengineering are often used to align SIS to the business strategies and needs.

Third, Canadian firms need to increase the user support or commitment towards strategic information systems. While a great deal of emphasis is placed in the literature on securing organizational commitment for successful planning, in reality the attention to support and commitment is skewed mostly to the top management and IS staff. A lack of enthusiasm to include the end users in the process reduces organizational support

needed for successful planning. It was not, therefore, surprising that the few firms which had reasonably high user commitment ratings, ended up with more successful planning.

Fourth, the fact that Canadian firms are still experiencing problems in spite of their number of years of experience in SISP, suggests that either:

- they are not learning fast enough from their mistakes, or
- they are not planning as well as they should be; or
- simply because the planning process is too complex.

To elaborate on the first possibility, as noted in the findings, some Canadian managers do not seem very concerned with strategic use of IT. Unfortunately, this finding does not differ from what Johnson and Kaplan (1987) found in their 1982 survey of 230 chief executives in the U.S suggesting that the change in the attitudes of managers towards strategic issues has been very little. Yet a firm's ability to use IT strategically can provide it with a *sustainable* advantage over its competitors.

The second possibility is that the firms are not planning as well as they could. A look, for instance, at how they analyze their internal business environment explains why. Their analysis covers only the needs of the functional units, not the delicate issues such as coordination of the key processes that define the products and activities, the culture or relationships with trade unions. It was not surprising when one such firm reported problems it encountered with trade unions when it outsourced the evaluation of the internal IS/IT function to external consultants. This calls for the need for effective methods to incorporate many more details in planning procedures.

Finally, the finding that some firms with several years of planning experience are

still fraught with problems perhaps can be attributed to the complexity of the SISP process. The planning issues touch everyone in the organization -- from the top management to the end users -- making it impossible for one person to come to grips with it or to forge a common understanding in the team. As a result application of structured methods becomes cumbersome. On the other hand, in many firms, a process without commitment to a method runs the risk of avoiding all the difficult steps. On the other hand, research has also shown that organizations with "rigid procedures tend to learn more slowly than those with flexible and open communication channels" (de Geus, 1988, p.74).

In handling these issues, experienced consultants can be useful. Good consultants can serve as catalysts to a SISP process. They can help change the mind sets in the organization. They also bring in the needed "objectivity, experience, expertise, and people power" in solving critical management issues (Byrne, 1994). But it should be noted that as much as experienced consultants can be of assistance, they can also be a burden. There is often the tendency for them to take a short cut and recycle an idea that has worked before. This would be inappropriate as organizations differ in cultures and structures. These differences affect the speed of learning and change process. Thus care should be taken in selecting the consultants. Byrne (1994, p.61) may be right in recommending:

- rigorous interview and screening of consultants and asking for at least three recent client references;
- visits to client sites and asking executives for evidence of tangible benefits delivered by the consultants -- and whether the firm could have done as well on its own;
- insistence that the analysis of the firm's issues be done not solely by consultants

but by client-consultant team, with in-house managers outnumbering consultants; and

- that consultants share their skills and knowledge of the methods with the in-house team.

To conclude, strategic information systems planning in Canada is neither a structured nor a formal process unlike the U.S nor U.K. Also it seems that the primarily use of methods for planning, as Lederer and Sethi found in the U.S, is no longer in vogue. Instead SISP is carried out as a special project or as an progression of the traditional IS planning. SISP can also takes place through various organizational processes: day-to-day activities, strategic business planning, and process re-engineering. In most firms, more attention is placed on securing the commitment of the top management and IS staff leaving the users in the oblivion. And finally, many firms are experiencing problems perhaps because of the complex nature of the process. This complexity may explain why firms are not learning as fast as they should. Qualified consultants may serve as catalysts to accelerate the learning in some firms.

5.2 Benefits

The results of this study should be beneficial to researchers and practitioners in strategic information systems planning. For academics, the results provide a better understanding of strategic information systems planning. The problems faced in the various activities of the planning process could form the grounds for future research in SISP.

For practitioners, the described approaches to SISP could provide alternatives to

practices that are in current use in their firms. Firms new to SISP could use some of the descriptions provided as benchmarks for comparing what they are doing to what other firms do.

5.3 Limitations

There are four main limitations to the results of this study. First, it should be noted that the findings represent the observations of SISP practices in only a handful of large Canadian firms. As a result, some of the results may not be applicable to small firms. Second, using a larger sample could have increased the generalizability of the results. Even though the twelve of the fifty firms which participated in this study is considered to be small, it is possible that a larger sample would have provided the opportunity for identifying patterns between the various industries and sector groups. But it should be beared in mind that a larger sample on the other hand may not have provided us with much different results. Third, most of the observations are recalls and interpretations of events by the participants. This means that the objectivity of the responses may have been compromised on occasions. Finally, the analysis of the case data was done by a single researcher. According to Eisenhardt (1989), this poses a limitation on the "complimentary insights" which a collaborator could have added.

5.4 Directions for Future Research

As stated earlier, the implications drawn from the observations in this study could partly be an artifact of a small sample of Canadian firms. Therefore a suggestion for further research would be to use the implications drawn from this study to survey a wider sample of Canadian companies to detect patterns of matched activities in their planning processes. It is also necessary to correlate activities, methods and techniques so as to determine the effectiveness of the overall process and of the activities themselves with a larger sample.

APPENDIX A LETTER OF INTRODUCTION

Dear Sir/Madam,

Many organizations are reported to be practicing strategic information systems planning. However, there are many unanswered questions about its effectiveness, cost and methodologies.

I am conducting research on strategic information systems planning. As part of this research, I would like to meet with you (or an appropriate colleague) for an hour to discuss how your firm approaches this type of planning.

Please note that your responses will be confidential. Only aggregate data will be published, and no individual person or company will be identified. If you wish, I will send you a summary of my findings after analyzing the data.

I will be soon contacting you by phone for an appointment. Should you have any questions regarding this research, please feel free to contact me at (613) 521-4704, or any of my thesis supervisors: Dr. Vinod Kumar at (613) 788-2600 ext 2379 or Dr. Siva Pal at (613) 788-2600 ext 2390. Thank you very much for your assistance.

Sincerely,

Kwasi Appiah, B.Sc.

School of Business, Carleton University.

APPENDIX B INTERVIEW PROTOCOL

I am a graduate student in the School of Business, Carleton University conducting a study to understand the strategic information systems planning process. I am particularly interested in knowing how and when the activities in planning were carried out, those involved and the problems encountered. The identity of the respondents, both corporate and individual will be anonymous.

Please think of the most recent SISP experience in order to answer the following questions and remember this conversation is strictly confidential.

BACKGROUND INFORMATION

Company: _____

Address of Company: _____

Primary business (e.g., manufacturing, electronics): _____

Total Number of employees (please estimate): _____

Total Number of employees in IS department: _____

Company's 1992 revenue (approximate): _____

Company Canadian-owned: _____

Name of Interviewee: _____

Title/Position of Interviewee: _____

Number of years with the company: _____

Department (e.g., research, sales): _____

Telephone Number for Contact: _____

Date of Interview: _____

1. How did you get started with SISP?
2. Did you adopt a specific methodology or methodologies for planning? If so, what methodologies did you use and why?
3. For how many years has your company been involved in SISP?
4. Please tell me in chronological order the main activities carried out in the SISP process?

(The following questions will be asked to the senior managers)

QUESTIONS RELATED TO FORMATION OF THE PLANNING SCOPE

1. What level or area in the organization was the SISP focused?
(i) *Functional unit level* (ii) *Corporate level* (iii) *Both*.
2. How did you decide to focus your planning in this area?
2a. Were there any individuals or groups who played an influential part in defining the scope?
2b. How did others react during the decision-making process(es)?

QUESTIONS RELATED TO THE DEFINITION OF THE PLANNING OBJECTIVES

1. What were the objectives of SISP?
2. What were the procedures involved in setting the planning objectives?
3. Were there any individuals or groups who played an influential part?
3a. How did others react during the decision-making process(es)?
(i) *active* (ii) *enthusiastic* (iii) *passive*
4. What was the planning horizon?
5. Could you explain your company's qualification of short/medium/long term?

QUESTIONS RELATED SECURING ORGANIZATIONAL COMMITMENT

1. On a scale of 1-5, how would you rate the overall degree of commitment from these people towards the SISP process:

	No commitment at all	Very committed
(a) Top Management	1-----2-----3-----4-----5	
(b) IS Staff	1-----2-----3-----4-----5	
(c) Users	1-----2-----3-----4-----5	

3. Was the commitment consistent within these groups?

4. At what point during the planning process was the commitment of these people secured?

5. Can you recall some specific steps taken to secure the commitment and support from these groups?

6a. Who took on this responsibility?

7. Were there any problems encountered in obtaining the support and commitment of these people in the organization?

7a. If so, what were the problems and how were they overcome?

QUESTIONS RELATED TO TEAM FORMATION

1. At what point during the planning process was the team formed?

2. What was the criteria and procedures involved in forming the team and determining its size?

3. Who were those responsible for the team formation?

4. Was there a necessity for the team to be changed in the course of the planning process?

5. What were the problems encountered in forming the team and how were they overcome?

QUESTIONS RELATED TO THE TEAM LEADER

1. What was the role of the planning team leader?
2. Was the criteria and procedure of selecting the leader similar to that of the team?
- 2a. If not, how was it different?

QUESTIONS RELATED TO THE FORMATION OF STEERING COMMITTEE

1. Was there a steering committee in the SISP process?
2. What was its role?
3. How often did the committee review the progress of the team's activities?
4. Which people in the organization sat on the committee?
5. At what point during planning was the committee formed?
6. Was the steering committee membership maintained throughout the planning process?

The following questions will be asked to respondents who were more involved in the SISP process)

QUESTIONS RELATED TO THE ANALYSIS OF THE INTERNAL BUSINESS ENVIRONMENT

1. Was SISP conducted in the direction of an existing strategic business plan?
2. If no, then how did the team get to understand the business strategy?
 - (i) *By interviewing top management to understand the strategy*
 - (ii) *By developing a business plan from scratch*
 - (iii) *Other:*
3. Did the planning team use any formal procedure or technique in collecting information on the company's key internal operations?
- 3a. If yes, what was this procedure or technique used?

- 3b. If no, how did you obtain key information on the company's activities?
- 4. Which members of the team were responsible for this information gathering process and why?
- 5. From which people in the organization did the team members elicit the information?
- 6. At what point during the planning process was this information collected?
- 6a. What were some of the problems encountered and how were they overcome?

QUESTIONS RELATED TO THE ANALYSIS OF THE EXTERNAL BUSINESS ENVIRONMENT

- 1. Did the planning team assess the effect of the external environment on the company's business?
 - 1a. If so, how did they do it?
 - 1b. What particular techniques or procedures were used?
 - 1c. Which of the planning team members participated in these activities and why?
- 2. Were there any governmental and/or economical issues of major concern to the planning exercise?
 - 2a. What were some of these issues taken into consideration by the team?
- 3. At what point during the planning process were these external concerns analyzed?
- 4. What were some of the problems encountered in analyzing these external concerns and how were they overcome?

QUESTIONS RELATED TO THE ANALYSIS OF THE INTERNAL IS/IT ENVIRONMENT

- 1. Did the planning team examine the company's IS/IT environment?
- 2. If so, how did they do it?
 - 2a. What techniques or procedures were used in understanding the company's IS/IT environment?

3. Which members in the team participated in this activity?
4. What were some of the problems encountered and how were they overcome?

QUESTIONS RELATED TO THE ANALYSIS THE EXTERNAL IS/IT ENVIRONMENT

1. Did the planning team assess the current and future technological trends in the industry?
2. If so, how did the team do it?
- 2a. Knowing how unpredictable or unstable the technological environment is, what measures or strategies did you adopt?
3. Which members of the team took part in this activity?
4. What were some of the problems encountered and how were they overcome?

QUESTIONS RELATED TO EXPLOITING IS/IT OPPORTUNITIES

1. Did the planning team identify new ways in which IS/IT could be used in the company?
 2. If so, how did you identify these new opportunities for IS/IT usage?
 - 2a. Were these new ideas geared towards the company attaining a competitive position in the industry?
 3. Did you employ any formal technique(s) or procedure(s) in identifying these new opportunities?
- (i) *Brainstorming to using Porter's competitive strategy analysis.*
- (ii) *Brainstorming using Porter's value chain analysis.*
- (iii) *Brainstorming using Wiseman's strategic targets.*
- (iv) *Other:*
4. Which members took part in this activity?
 5. What were some of the problems encountered and how were they overcome?

QUESTIONS RELATED TO DEVELOPING AN INFORMATION ARCHITECTURE

1. Did the planning team develop a foundation for the company's future systems, networks and data applications?
 - 1a. If so, how was it developed?
2. Did you employ any formal computer-based techniques or tools?
 - 2a. If so, what were these techniques or tools?
3. Which team members took part in this activity?
4. What were some of the problems encountered in carrying out this activity and how were they overcome?

QUESTIONS RELATED TO PREPARING THE IS/IT STRATEGIC PLAN

1. Did the planning team develop a particular strategy for implementing future IS/IT in your company?
 - 1a. If so, could you please summarize how your strategy was developed?
2. Did you follow any formal techniques or procedures in developing the strategy?
 - 2a. If so, what kind of techniques or procedures were they?
3. What were the key elements of your IS strategy?
4. Which members of the team took part in developing the strategy?
4. What were some of the problems encountered in developing the strategy and how were these problems overcome?

CONCLUSION

Before we conclude this session, I would like to gather information on two critical issues:

1. Could you please list the benefits your company has reaped from doing SISP?
2. On a scale of 1-5, how would you rate the success of your company's endeavour in SISP:

1-----	2-----	3-----	4-----	5
Failure	Reaped some	Been better	Successful	Highly
	benefits but	than not	but can	successful
	didn't need	doing it	improve	
	SISP to			
	achieve them			

3. Could you explain why you think they achieved such extent of success?

Thank you very much for your assistance and cooperation!

APPENDIX C SUMMARY OF THE FIRMS' PLANNING PROCESSES

FIRM 1

Planning Process: The Head of IS triggered the SISP initiative in the company. The scopes and objective were defined through a joint consensus among the senior functional managers. Special purpose teams and steering committee were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff, and end users were very committed to the planning process. The internal business environment and external business environment was analyzed on a day-to-day basis. The internal IS/IT environment and external IS/IT environment was analyzed on a day-to-day basis. SIS opportunities were identified during the planning process and the company-wide information architecture also built during SISP.

Outcome: Successful

FIRM 2

Planning Process: The top management drove the SISP initiative in the company. The scopes and objective were defined through the independent approval of the senior functional managers. Existing IS teams were used in carrying out and monitoring the SISP activities. The top management, IS staff, and end users were very committed to the planning process. The internal business environment was analyzed as part of the strategic business planning effort. The external business and internal IS/IT environments were analyzed during the SISP process. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified during the planning process and the company-wide information architecture also built during SISP.

Outcome: Successful

FIRM 3

Planning Process: The top management drove the SISP initiative in the company. The scopes and objective were defined through a joint consensus among the senior functional managers. Special purpose teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff were very committed to the planning process. However, the end users were moderately committed. The internal business environment, external business environment, and internal IS/IT environment were analyzed during the SISP process. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified during the planning process and the company-wide information architecture also built during SISP.

Outcome: Moderately successful

FIRM 4

Planning Process: The Head of IS drove the SISP initiative in the company. The scopes and objective were defined through a joint consensus among the senior functional managers. Existing IS teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff were very committed to the planning process. However, the end users were moderately committed. The internal business environment, external business environment, and internal IS/IT environment were analyzed during the SISP process. The external IS/IT environment was however analyzed on a day-to-day

basis. SIS opportunities were identified during the planning process and no company-wide information architecture also built during SISP.

Outcome: Moderately successful

FIRM 5

Planning Process: The Head of IS drove the SISP initiative in the company. The planning endeavour was done primarily through the use of a planning method. However, the scopes and objective were defined as a result of the IS management's decision. Special purpose teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff and end users were very committed to the planning process. The internal business environment, and internal IS/IT environment were analyzed during the SISP process. The external business and IS/IT environment were however analyzed on a day-to-day basis. SIS opportunities were identified during the planning process and the company-wide information architecture was built during the process.

Outcome: Very successful

FIRM 6

Planning Process: The top management drove the SISP initiative in the company. The scopes and objective were defined through the independent approval of the senior functional heads. Existing IS teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff were very committed to the

planning process. The end users were however moderately committed. The internal business environment, and internal IS/IT environment were analyzed during the SISP process. The external business and IS/IT environment were however analyzed on a day-to-day basis. SIS opportunities were identified during the planning process. The company-wide information architecture was also built during the process.

Outcome: Successful

FIRM 7

Planning Process: The top management drove the SISP initiative in the company. The scopes and objective were defined through the independent approval of the senior functional heads. Existing IS teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff and end users were very committed to the planning process. The internal business, internal IS/IT, external IS/IT and external business environments were analyzed on day-to-day basis. SIS opportunities were identified during the planning process. The company-wide information architecture was also built during the process.

Outcome: Very Successful

FIRM 8

Planning Process: The Head of IS drove the SISP initiative in the company. The scopes and objective were defined through joint a consensus among the senior functional heads. Special purpose teams were used in carrying out and monitoring the SISP activities

respectively. The top management were moderately committed to the process. The IS staff and end users were however committed to the planning process. The internal business, internal IS/IT, and external business environments were analyzed during the planning process. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified during the planning process. The company-wide information architecture was also built during the process.

Outcome: Unknown

FIRM 9

Planning Process: The Head of IS drove the SISP initiative in the company. The scopes and objective were defined through a joint consensus among the senior functional heads. Special purpose teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff and end users were very committed to the planning process. The internal business, and internal IS/IT were analyzed during the planning process. The external business and IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified and a company-wide information architecture was also built during the process.

Outcome: Successful

FIRM 10

Planning Process: The top management drove the SISP initiative in the company. The scopes and objective were defined through a joint consensus among the senior functional heads. Special purpose teams were used in carrying out and monitoring the SISP activities respectively. The top management, and IS staff were committed to the process. The end users however were not too committed. The internal business, internal IS/IT, external business environments were analyzed during business re-engineering planning processes. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified and a company-wide information architecture was also built during the process.

Outcome: Successful

FIRM 11

Planning Process: The Head of IS drove the SISP initiative in the company. The scopes and objectives were defined through a joint consensus among the senior functional heads. Existing teams were used in carrying out and monitoring the SISP activities respectively. The top management and the end users were not too committed to the planning process. However the IS staff were committed. The internal business, internal IS/IT, external business environments were analyzed during business re-engineering planning processes. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified and a company-wide information architecture was also built during the process.

Outcome: Successful

FIRM 12

Planning Process: Both the top management and the Head of IS drove the SISP initiative in the company. The scopes and objectives were defined through a joint consensus among the senior functional heads. Special purpose teams were used in carrying out and monitoring the SISP activities respectively. The top management, IS staff and the end users were committed to the planning process. The internal business and IS/IT environments, as well as the external business environment, were analyzed during the SISP process. The external IS/IT environment was however analyzed on a day-to-day basis. SIS opportunities were identified and a company-wide information architecture was also built during the process.

Outcome: Moderately Successful

APPENDIX D. EARL'S SISP APPROACHES IN THE CANADIAN CONTEXT

FIRMS	* APPROACH
1,2,3,4,10,12	Business-Led
5	Method-driven
6,7,10	Administrative
1,5,9,11	Technological
3,8,9,10,11,12	Organizational

*** NOTE:** The planning practices of Canadian firms show facets of the above recent SISP approaches identified in the U.K. Apart from the method-driven approach, none of Earl's above typologies fit exactly into the Canadian context.

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