The fall of Strategic Information Systems Planning and the rise of a dynamic IS Strategy

Real life happens beside things people are planning (John Lennon)

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Abstract

For nearly 30 years, since its introduction onto corporate management scene in the early 1970s, strategic planning has been on a roller coaster ride. Nearly a decade later strategic information systems planning was put on the same track but that does not mean we have to stay on the same track or that we have to take it at the same speed. If we know what is ahead we can speed up and if we know which obstacles are further on the road we can take a different road to take us where we want to go. We can both learn from history because we have taken the road before and we can learn from the future from the corporate strategy road map but we cannot look into the future. Therefore we cannot suffice to build a static, programmed analytic information plan but have to reckon with changes of the planning environment and internal changes of the organization. There is a need for a dynamic theory of information systems strategy.

Keywords: IS Strategic Planning, Strategic Management

BRT Keywords: EF

Introduction

In the early eighties strategic information systems planning (SISP) has been identified as the single most important information management issue of the decade (Galliers, 1987, Brancheau & Wetherbe, 1987).

However before the end of the decade cracks appeared on the firmament. King (1988) was one of the firsts to ask how effective SISP was in the organizations. Much research followed to measure the success of SISP (Earl, 1993, Fitzgerald, 1993, Raghnuthan & Raghnuthan, 1991, Premkumar & King, 1991, Lederer and Sethi, 1988, Sääksjärvi, 1988). These papers resulted in many success factors, difficulties in effectiveness measurement and most important of all, many concerns.

While one group of researchers concentrated on improving the measurement (Segars &Grover, 1998, Delone & McLean, 1992, Fitzgerald, 1993), another group of researchers tried to improve the SISP process (Pant & Hsu, 1999, Mentzas, 1997, Salmela, Lederer & Reponen, 1996, King, 1995, Chan et al, 1998). In this paper we

try to integrate both streams of research by clustering the success factors and concerns around accepted key factors of SISP. The summarized key success factors of SISP hold that the planning process can only be effective if the planning process:

1. fits with the organizational environment and planning culture
2. is realistic with respect to resources available for planning
3. provides sufficient capabilities to align IS strategy with business strategy
4. provides sufficient capabilities to conduct necessary analyses
5. ensures consensus and support for implementation of the decisions and plans
6. incorporates self assessment and learning of the planning process itself

Uncertainty has become a way of life; companies are finding it ever more difficult to predict changes in their environments (Luftman, 1996). Environmental turbulence increases the risk of IS investment failure (Salmela, Lederer & Reponen, 1996). Participation, especially from top management is seen as one of the main problems of SISP (Lederer& Sethi, 1988). Mentzas (1997) argues that limited management involvement and commitment in general is causing SISP failure.
Aligning business and technology strategies is an ongoing executive responsibility (Henderson, Venkatraman & Oldach, 1996).
Integration means a better understanding of the processes, power bases and existing technologies, which characterize the firm (Segars and Grover, 1998). King (1995) argued that a flexible and continuously improving infrastructure of organizational capabilities is critical for the company's competitive advantage.
Lederer and Sethi (1988) show that only 24% of the identified projects in a strategic information systems plan are really implemented. The reason that so many plans are not realized is not of technical nature but of social nature. SISP should reduce potential conflicts (Segars & Grover, 1998).
Learning to perform SISP is seen as one of the main results of the planning process (Raghnuthan & Raghnuthan, 1991, Segars & Grover, 1998) but that is still not explicitly recognized in the methodologies. It is our responsibility to translate successes and failures of SISP into a continuous strategic IS process.

Should SISP be quantitative or qualitative, should the emphasis be external or internal and should the focus in its goals be short-term or long term (Wilson, 1994)? Corporate Strategy theory helps us to overcome some knowledge problems (Heracleous, 1998, Schoemaker, 1995) because developments in corporate strategy methodologies followed the same patterns as described above for SISP (Mintzberg, 1994, Geus, 1988).

The main goal for this paper is to create a dynamic theory for giving direction to information systems strategy. To derive this result we ask the following questions:

1. Which prescriptions can be derived from SISP effectiveness research and how can we cluster them?
2. What can we learn from strategic management?
3. How can we create a dynamic IS strategy?

These questions are answered with a comprehensive literature study from which a dynamic IS strategy is derived.

Prescriptions for IS planning

Strategic information systems planning is the process of identifying a portfolio of information systems that will assist an organization in executing its business plans and realizing its business goals. Carrying it out is a critical challenge for many information systems and business executives. On one hand, strategic information systems planning can contribute to their organization. For example, it can identify the most desirable information systems applications in which to invest (Henderson and Sifonis, 1988). SISP can help an organization use its information systems to carry out its existing business strategies, help it define new business strategies, technology policies, and architectures (Earl, 1993; Porter, 1985). Finally SISP can help it align its information systems strategy with its business strategy (King, 1988). On the other hand, the failure to carry SISP out can cause lost opportunities, duplicated efforts, incompatible systems, and wasted resources (Raghunathan and King, 1988).

Research has produced a large number of prescriptions, methods, and guidelines for organizing a successful planning process (Boynton and Zmud, 1987; King, 1988; Henderson and Sifonis, 1988; Lederer and Salmela, 1996; Segars and Grover, 1998). Descriptive surveys of planning practices have offered a broad look at SISP practices across a large set of companies in different countries (Galliers, 1987; Wilson, 1989, Earl, 1993). Survey research has studied the extent to which planning prescriptions are being followed (Lederer and Sethi, 1988;) and the extent to which adherence to prescriptions contributes to success (Premkumar and King, 1994). Researchers have participated in IS planning processes across large arrays of organizations, and thus, identified prescriptions, as well as more general frameworks for planning (Goodhue, ET al., 1988; Goodhue, Kirsch, Quillard and Wybo, 1992; Kovacevic and Majluf, 1993; Reponen, 1993; Venkatraman ET al., 1993).

Contingency prescriptions emphasize the need to align the planning process with the uncontrollable variables in the planning environment. Since the environment cannot be changed, managers should adapt the SISP process. For instance, in a volatile environment, planning process should not be made too rigid (Lederer and Mendelow, 1990; Raghunathan and Raghunathan, 1991). The process should not differ too much from the organization's general planning style, planning horizon and control structure (McLean and Soden, 1977; Pyburn, 1983; Cash, McFarlan, McKenney and Applegate, 1992; Guimares and McKeen, 1989; Jarvenpaa and Ives, 1993; Doukidis, Mylonopoulos and Lybereas, 1994).

A Sophisticated SISP process, which assumes high quality planning resources, succeeds only if the proposed information systems are significant for business (Raghunathan and Raghunathan, 1990; Premkumar and King, 1994). The business managers have to have considerable experience in SISP (Nolan, 1979; McLean and Soden, 1977, McFarlan, McKenney and Pyburn, 1983; Galliers and Sutherland, 1991). There are many factors that influence the objectives of SISP and hence the most suitable SISP planning process, such as:

- the complexity of the organization's IS (Pyburn, 1983; Sullivan, 1985; Boynton and Zmud, 1987),
- the number of stakeholders in SISP (Sambamurthy et al., 1994),
- the consensus about the mission of organization's IS (Sambamurthy et al., 1994; Sambamurthy, Venkatraman and DeScantis, 1993)

Resource prescriptions emphasize that effective SISP process should involve highly skilled people from various parts and different levels of the organization (Galliers, 1987; Boynton and Zmud, 1987; Goodhue et al., 1992; Premkumar and King, 1994).

Key people should also stay on the SISP study from its start to finish (Hoffer, Michaele and Carroll, 1989). In general, however, senior and middle level managers do not consider SISP so critical that they would use a lot of time in it. Inadequate participation is one of the major problems in SISP (Lederer and Sethi, 1988; Premkumar and King, 1994, Mentzas, 1997).

SISP project leaders do, however, have some control over the planning resources. They should ensure that senior managers perceive the issues in the planning agenda as important for the strategic goals of the organization (Ein-Dor and Segev, 1978; Goodhue et al., 1992). The process should not be so complex or technical that management is deterred from participating (Galliers, 1987). Planning should focus on short-term opportunities and problems, so that the analyses and discussions have direct implications for actions to be taken in the near future (Boynton and Zmud, 1987).

To encourage a continuous, if intermittent, planning process, an informal network of planning needs to be established and nurtured (Boynton and Zmud, 1987). IS planning should build commitment and support for the planning process (Boynton and Zmud, 1987). When implementing the IS plans, key coalitions must be regularly tapped to garner input into and support for the plan (Boynton and Zmud, 1987). Perhaps most importantly, however, the planning goals should be kept reasonable with respect to the time and resources available for planning (King, 1988).

Following the contingency and resource prescriptions does not ensure that the SISP process fulfills its goals. A recent comprehensive study identified three broad dimensions of SISP objectives: alignment, analysis and cooperation. Most of the general prescriptions given for the SISP process aim at ensuring that these goals are met.

The alignment prescriptions emphasize that there should be close linkage between IS strategy and business strategy (Segars and Grover, 1988). The IS strategy should be congruent with the organizations competitive needs rather than with existing patterns of usage within the organization (Bowman et al. 1983). To achieve this, there should be a strong linkage between the business planning process and the information systems planning process (McLean and Soden, 1977; Galliers, 1987; King, 1988). IS strategy and plans should be based on business strategy and plans (King, 1988, p. 104). In addition to the strategic plan, SISP should embody the analysis of organization's current and future business environments, critical success factors, strengths and weaknesses, and programs of the organization (King, 1988; Henderson and Sifonis, 1988; Lederer and Mendelow, 1990; Raghunathan and Raghunathan, 1991).

Because IS strategy can sometimes influence business strategy, the relationship between strategic business planning and information systems planning should be seen as an iterative process rather than a simple top-down exercise (Henderson and Sifonis, 1988). The SISP process should also allow for continuous review, since business objectives and strategies are temporal in nature (Land, 1982; Galliers, 1987). Hence, plans should be formulated so that information systems implications of changed circumstances/ strategies can be easily identified by reference to the plan (Cash et al, 1992, Galliers, 1987).

The analysis prescriptions emphasize that an important outcome of SISP is the improved understanding of issues surrounding information systems and their development. It should enable managers to better evaluate their current IS investment and its risks posture, resource capacities and constraints under which the information system's function operates (Boynton and Zmud, 1987; Earl, 1988). This

understanding also implies an identification of current and future information needs of the organization (Ward & Griffith, 1996). SISP process should also incorporate the tracking of key developments in technology to enable the managers to spot opportunities, which can give them a competitive advantage (Boynton and Zmud, 1987; Earl, 1988). The need for formal analyses increases as systems become more complex; require longer to develop; utilize common databases; involve multiple functions, departments, operating companies, and/or countries of the world (McLean and Soden, 1977). The use of a number of forms, written documents, and a formal planning structure make it much easier to integrate across complex systems activities (Pyburn, 1983; Raghunathan and Raghunathan, 1991).

The cooperation prescriptions emphasize that SISP should reduce the potential for conflict that might jeopardize the implementation of strategic IS plans (Segars and Grover, 1998). To achieve this, the SISP process should allow ample opportunity for debate and airing of different views prior to consensus being reached (Checkland, 1981; Galliers, 1987). Organizational implications of implementing the IS plan should be included in the plan (Galliers, 1987). The planning should also create shared assumptions or at least clarify and perhaps reduce conflict that revolves around uncertain assumptions (Henderson and Sifonis, 1988). It should create a common language between senior management, IS management, and user management (Ruohonen, 1991). SISP should also determine a uniform basis for prioritizing projects (Lederer & Sethi, 1992) and conduct a risk portfolio (Cash et al, 1992). In essence, SISP process should ensure organizational support for IS decisions and a firm commitment of resources to implement those decisions (McLean and Soden, 1977).

The improvement prescriptions emphasize that SISP process should also lead improved capabilities within the planning process itself. The process itself should be continually evaluated and updated to ensure that the organization approaches its planning in an appropriate way (Baker, 1995). The managers should monitor the implementation of plans, not only to revise the plans but also to evaluate whether the goals, resources, analyses, processes and outputs of the IS planning itself are appropriate (King, 1988). Sometimes an informal situation appraisal of the planning process at the beginning of a new planning cycle is adequate (Dyson and Foster, 1980; Baker, 1995). A more formal assessment could involve diagnostic feedback mechanisms which support evaluation based on both internal and external standards (King, 1988).

External standards refer to whether the IS planning process is done according to ‘good planning practice’, i.e., whether generally accepted prescriptions are followed. Internal checks could also be made about the adequacy of planning resources relative to the planning goals and whether IS planning accomplishes its principal task, i.e., identifies the IS required to help achieve the organization’s objectives. If the IS identified do not satisfy this requirement, then the IS planning system may be deemed as being responsible (Baker, 1995; King, 1988). In essence, the SISP process and the feedback mechanisms should allow managers to continuously improve their IS planning effort (McLean and Soden, 1977; Baker, 1995).

Strategic Planning and Strategic Thinking?

Strategic planning is said to be programmatic, analytical and mainly content oriented. Strategic thinking is said to be creative, divergent and mainly process oriented. Like entity and relation, object and process, data and transaction one does not seem to go without the other. Or as Heracleous (1998) put it: “the essential point is that strategic thinking and strategic planning are both necessary and none is adequate without the other”. “The real purpose of effective planning is not to make plans but to change the microcosm, the mental models that these decision makers carry in their head”(Geus, 1988). Wilson (1994) combines both views: “the purpose of strategic thinking is to discover novel, imaginative strategies which can write the rules of the competitive game; and to envision potential futures significantly different from the present and the purpose of strategic planning is to operationalize the strategies developed through strategic thinking, and to support the strategic thinking process”.

Results from surveys measuring realized information systems strategy (Chan et al., 1998) show another distinction which is well recognized in the corporate strategy planning (Mintzberg, 1994). They differentiate between intended strategy and realized strategy. Unfortunately, not all intended strategy is realized and fortunately, much unintended strategy is realized.

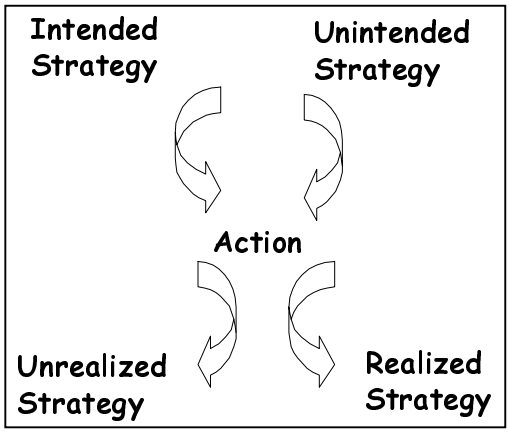

Figure 1 – strategy intention and realization

It seems unwise to throw away premises and assumptions, to be found in most SIS models (Ciborra, 1994), such as Critical success factors, Value Chain, Strategic thrusts and the Sustainability analysis. We can use Nonaka’s learning dynamics (Nonaka, 1994) to internalize the explicit strategic planning models stated above and to externalize tacit strategic thinking ideas.

Thompson (1996) distinguishes three different ways to formulate strategies:

1. incremental and linear planning systems
2. entrepreneurial planning
3. adaptive planning.

Corporate strategies can be systematically and rationally planned, both linear and incremental. A visionary strategic leader can create them or managers throughout the organization can adapt competitive and functional strategies to environmental changes. The environment plays a dominant role in all three modes of planning as the main driver of change but the (human and structural) resources can also be identified as a critical part in the planning process. Thompson (1996) recognizes strategic

resources from senior management (vision) and structural and cultural resources from middle management.

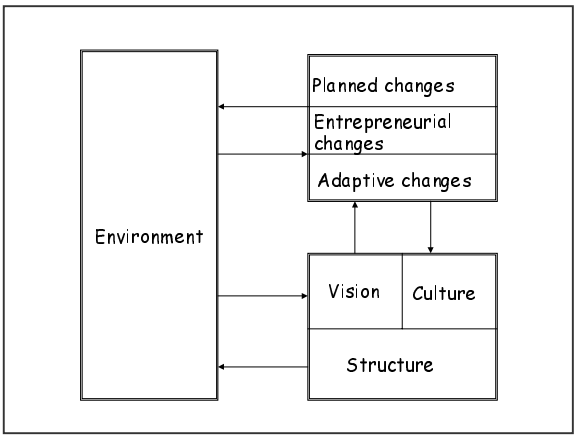

Figure 2–Strategy formulation (Thompson, 1996)

Finally, the objective of any strategic effort is to reach a business performance (King, 1988). Rampersad (1997) defines performance as a mathematical formula: norms input/real input * norms output/realized output. Given the fact that we have limited resources and long term planning objectives will always give a rather limited business performance. In the next section we try to rationalize both the business resources and the planning objectives to improve the overall business performance of the information systems strategy. But as King (1988) noted “the value of IS planning is not solely business performance”. The learning process and the knowledge dissemination from IS management to senior and middle management and visa versa can be more valuable than the (direct) business performance.

Toward a dynamic theory of IS Strategy

In the preceding sections is argued that there is a need for a more dynamic approach of IS strategy. In this section we introduce a year cycle which follows both ideas of strategic planning and strategic thinking. Each month sessions with main stakeholders have to lead to directions of IS and agreements on IS Strategy. The prescriptions of section can serve two purposes:

- the stakeholders can choose which prescriptions have to be met in the planning process
- The prescriptions can be used as instruments of environment adaptation, resource planning, alignment, analysis, cooperation and improvement.

Mar	Selection of a group of participants
Apr	Improve the IS strategy process
May	Create reasonable planning objectives
Jun	Alignment Key session
Jul	Creative alternative generation
Aug	Strategic Choices
Sep	Process Requirements session
Oct	Value management
Nov	Change and Collaboration
Dec	Portfolio session
Jan	Risk management
Feb	Control and Creation of capabilities

Table 1 – a dynamic IS Strategy year cycle

In each season we can go through a strategic cycle which represents ethos, pathos and logos. Ethos stands for awareness, pathos for common perceptions and logos for a decision or formalization (Covey, 1991).

Spring sessions (contingency and resources prescriptions)

March - Selection of a group of participants (ethos)
As shown in the first and second section, participation is one of the critical success factors of IS strategy success (Galliers, 1987, Lederer and Sethi, 1992). Mentzas (1998) illustrates the importance of a team approach but makes the assumption of unlimited resources. In this these three months we have to use both the contingency prescriptions and the resources prescriptions to create a team that can deliver a maximum IS strategy output with a minimum of resources.

Stakeholders are any group or individual who can effect, or is affected by, the performance of the organization (Freeman, 1984). The selection of participants has three sources of stakeholders: senior management, user management and IS management (Ruohonen, 1991). The IS strategy initiative can be located at senior management level or at the IS management function (Lederer & Sethi, 1988, Sääksjärvi, 1988). Both parties have to understand the role of IS in the organization and carefully select a mixture of people with experience, skills, leadership and commitment. A network analysis can be performed to analyze if the informal network of planners covers the most important areas of the organization.

April - Improve the IS Strategy Process (pathos)
When a team is formed the next step is to learn from former experience, to assess former IS strategy implementation and improve the IS strategy process by education of new prescriptions and the selection of the right existing prescriptions. Main goal of this step is to create a consensus on the mission of the project and to create respect among the team members.

May - Create reasonable planning objectives (logos)
At the end of spring decisions can be made about the scope of the project, the resources have to be set free and the planning objectives should be stated formally. Special attention should be given to the feasibility of these goals and the complexity of the IS strategy process should be reduced as much as possible. Normal project management control instruments can be used to integrate the project with the

organization (Cash et al, 1992).

Summer sessions (alignment prescriptions)
June - Alignment Key session (ethos)
In this time of the year we have to look for (external) opportunities and competitive advantages that can be gained with IS. Most of these opportunities and advantages can be extracted from the strategic plan of the organization if existent. The higher the role of IS in the organization, the more integrated the IS strategy has to be with business strategy. The planning system can use the strategic grid (Cash et al., 1992), determine the role of information in the organization and use the value chain (Porter & Millar, 1985). The entrepreneur can launch her or his visionary ideas and middle management can formulate the necessary adaptations.

July - Creative alternatives generation (pathos)
In this creative informative month the team members have to be open for new ideas. Mind Mapping (Buzan, 1995) can be used to create new thoughts about subjects. Mentzas (1997) synthesizes and structures strategic opportunities into coherent scenarios in this stage of the planning process. Simulating extremely good future situations and extremely bad future situations can create future scenarios. By doing that, useful alternatives can be created. Current and future IS investments can show what is feasible and not feasible.

August - Strategic Choices (consensus & commitment) (logos)
Significant information systems are identified and critical success factors or key activities give direction for future information systems. At this moment in the IS strategy process where not concerned yet with computer applications but more concerned with a consensus on a certain direction to go. Elaboration of the aforementioned scenarios can lead to the right directions

Autumn sessions (analysis prescriptions)

September - Organizational Requirements and Resources identification (ethos)
In this period the corporate wide needs have to be identified (Ward & Griffith, 1996). The organizational characteristics show important IS characteristics from a typological point of view. The stakeholders have to be careful not to go into too much detail at this stage. A complete formulation of the business and IS architecture (Mentzas, 1996) is a heavy burden for the limited resources. Then again the IS heritage determines for a great deal the constraints for new IS. A good knowledge of this heritage can help in this stage to throw away alternatives that are not feasible.

October - Value management (pathos)
New information systems and updates in current IS must lead to internal improvement of organizational processes. The ideas of value management (Stevens, 1998) are useful to perform a functional analysis. IS development techniques can be used to describe organizational processes and the interactions between departments.

Although many team members represent certain groups of the organization at this stage it is important that the “important few” information needs are found instead of all representatives bringing there own “trivial many”.

November - Change and create collaboration (logos)
It is time to make agreements of value management:

1. Concepts of IS objectives
2. Communication of the new directions
3. Create common perception and language
4. Consensus and shared assumptions.
5. Commitment

At this stage rules and norms for IS management can be changed and set and changes in the IS organization can be proposed. The responsibilities, authorities and tasks of IS management should be correctly placed in the organization with the budget and people appropriate to these decisions.

Winter sessions (cooperation and improvement prescriptions)

December - Portfolio session (ethos)
From current projects and future projects a portfolio must be made with a good balance in risks. Priorities should be given to the projects and resources have to be made available. One of the stakeholder groups has to be made responsible for each project.

Again, the team members have to debate to create consensus about the organizational implications of the proposals. The representatives have to seek for organizational support for the IS decisions. User groups have to be educated and informed about the new plans. Improve business understanding of IS personnel and improve IS understanding of (top) management.

January - Risk management (pathos)
The risks involved have to be managed to reduce conflict potential, the following steps can be taken (Stevens, 1997):

1. Identification and assessment
2. Risk Response planning (probability and impact)
3. Risk management implementation.

February - Control and creation of capabilities (logos)
Project control in the short term and functional integration in the long term is the focus in the last month of the yearly cycle. The project must not stop at this point but a plan has to be made to monitor the IS strategy implementations. Next spring an appraisal can be made which can be a good starting point for a new cycle.

Last but not least the team members have to reckon with changes in the planning environment. Although it is impossible to look into the future it is wise to be able to change priorities and stop projects if they do not create value in the organization.

Conclusions and future research

This paper can be seen, as a step toward creating a dynamic IS strategy. It describes the prescriptions of the IS strategy in the businesses and how they should evolve over time with a continuous IS strategy process.

The first research question “which prescriptions can be derived from SISP effectiveness research and how can we cluster them” is answered with six clusters of prescriptions that can be used as knowledge anchors of the IS organization. The first two, contingency and resources prescriptions emphasize an ever-changing environment and limited resources of the organization to deal wit these changes. The alignment, analyses and cooperation prescriptions have to create the capabilities of the organization to react properly on the environmental and internal changes. Last but not least, the improvement prescriptions emphasize the changing and learning organization.

What can we learn from strategic management is the second research question. We can learn from strategic management by creating a balance between strategic planning and strategic thinking and by using methodologies of strategic planning. Without losing useful planning models that have proved their value in the past we can use ideas of strategic thinking to create a better business performance and at the same time an IS learning process.

The third question is not yet fully answered. The dynamic IS strategy as proposed in this paper has to grow and has to be tested in practice. An action research method as described by Susman (1983) seems a good practical test for the dynamic IS Strategy. Baskerville and Wood-Harper (1997) describe this canonical method as a good method to advance our understanding about information systems. The action learning can contribute in two directions. It can help the host organizations to implement a continuous IS planning process and it can validate the prescriptions and IS strategy approach as proposed in this paper.

We did not have Greek on our schools but are in need for one more word, learning or improving, to close the cycle of ethos, pathos and logos.

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