

Strategic Information Systems Planning

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Abstract

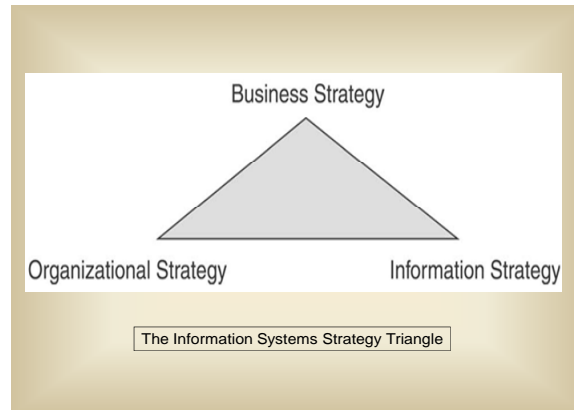
Strategic Information Systems Planning has been a topic of considerable importance and interest to IS professionals in both the business and academic communities since the 1970's. Planning is recognized as a critical competitiveness issue. Today, because information systems serve as the driver of many organizational transformations, there is increased pressure on organizations to leverage their investments in technology and information systems. Success usually occurs when an organization is able to achieve congruence between IS and organizational planning, and this is achieved when the technical and general managers of an organization work collaboratively. The strategic information systems planning process is intended to ensure that technology activities are properly aligned with the evolving needs and strategies of the organization. This paper will examine the research on this ever-important topic and suggest a process that will assist in the achievement of planning success.

Introduction

Over the years, many organizations have made technology decisions and acquisitions that impact organizational information systems (IS) on the basis of what they believe or recommendations from vendors or colleagues from other organizations. The end result of this approach toward decision making and expenditure of funds has been quite unpredictable. The pervasive nature of IS in today's organizations coupled with increased pressure to leverage technology assets has dramatically increased the importance of strategic information systems planning (Bechor, Neuman, Zviran and Glezer, 2009). Today, most organizations insist that technology and IS-related decisions be made with a clear understanding of business and organization strategy and direction.

Hoque, Sambamurthy, Zmud, Trainer, and Wilson, (2005) in *Winning the 3 Legged Race* define alignment as "the situation in which a company's current and emerging business strategy is enabled, supported and unconstrained by technology." Piccoli (2008, p. 155) states that organizations "achieve a high degree of fit and consonance between priorities and activities of the IS function and the strategic direction of the firm" when they are able to achieve this so-called strategic alignment. Alignment has become one of the top issues and concerns of IS management executives (Gutierrez, Orozco, and Serrano, 2009).

A framework that helps to clarify the importance of information systems in today's organizations is the Information Systems Strategy Triangle. The message conveyed by the triangle is that it is - important for the three elements of the triangle, namely Business, Organizational and Information Systems strategies to align with and complement each other. It is important to note that Business Strategy resides at the top of the triangle. The triangle is depicted as follows (Pearlson and Saunders, 2010, p.23).



Pearlson and Saunders defined the three elements of the triangle as follows:

- Business strategy starts with a mission and is a coordinated set of actions to fulfill objectives, purpose and goals and serves to set limits on what business will seek to accomplish (p. 23).
- Organizational strategy deals with the people, work processes, structure, hiring practices and plan that allows for achievement of business goals (p. 380).
- Information systems strategy is the plan an organization uses in providing information services (p. 379).

The direct or implied suggestions about strategy that are derived from the framework include the following (Pearlson and Saunders, 2010, p.23):

- “Successful firms have an overriding business strategy that drives both organizational and information systems strategy.”
- “IS strategy can, itself, affect and is affected by changes in a firm’s business and organizational strategies. Changes in the IS strategy must be accompanied by changes in the organizational strategy and must accommodate the overall business strategy.”
- “IS strategy always involves consequences, intended or not, within business and organizational strategies.”

It is no coincidence that the emphasis on a more structured approach to planning for information systems occurred simultaneously with an increased emphasis on the role of the chief information officer (CIO). The CIO position evolved into prominence in the late 1980's when “technology grew from an expensive necessity to a strategic enabler” (Pearlson and Saunders, 2010, p. 220). The days of the CIO simply helping to control costs and reporting to the chief financial officer (CFO) evolved into a requirement to be aware of both the technical and business aspects of the -

organization, be on the same level as the CFO, and report directly to the top executive of the organization (p. 221). At the same time, organizations were entering an era where technology was also changing very rapidly, thus further complicating the strategic information systems planning process. “Strategic information and technology planning differs from planning that primarily focuses on user demand and financial justification. ...Strategic information systems and technology planning reflects a convergence of means and ends. As means, information systems and technology have become so important to achieving objectives, they must be weighed as part of the process of selecting objectives, not merely as a means to accomplishing objectives already identified” (Reed, 2001, p. 4).

The Planning Process

There are no shortcuts to the strategic planning process. Preparatory steps that ensure that business, organizational and information strategies are aligned in a complementary fashion, are extremely important. Internal and external assessments need to be addressed, and the overall role of technology and information systems within the organization must be determined. A sense of how much should be spent on technology initiatives is also mandated. The most important point to remember is that the planning process for technology must be part of the overall business plan.

Practically speaking, strategy states the direction we want to go and how we intend to get there, and a plan depicts a view of the future that guides current day decision making (McNurlin, Sprague, and Bui, 2009). Organizations need to develop a strategic plan in order to provide a context for decision making.

Deciding on the type of tools to use in the planning process is neither straightforward nor simple. The planning process is complex, there is not a single best approach, and arriving at a single best methodology for a specific organization is nearly impossible. As a result, many organizations utilize a combination of approaches.

The planning process can become a lengthy and rigorous ordeal. In analyzing the process, some feel that it unfolds in five phases. The overall five phase breakdown is as follows (Piccoli, 2008):

1. Strategic Business Planning – Prerequisite to systems planning and consists of mission, future direction, targets and strategy.
2. Information Systems Assessment – Evaluation of current IS resources and how well they are serving the organization.
3. Information Systems Vision – Ideal role that should be pursued for use of IS resources.
4. Information Systems Guidelines – Set of statements that articulate use of organization’s technical and IS resources.
5. Strategic Initiatives – Three to five year long-term proposals that stipulate new initiatives for IS organization.

The iterative strategic IS planning process can be summarized graphically as follows (Piccoli, 2008, p. 159):

Strategic IS Planning Process

- Strategic Business Planning
- IS Assessment
- IS Vision
- IS Guidelines
- Strategic Initiatives

An Iterative Process



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Strategic information systems planning was previously the work of technology and systems professionals. It has now changed to be a collaborative planning challenge of parties including top managers, business unit managers, technology and systems professionals, and sometimes external stakeholders such as customers and alliance partners (Ruohonen, 1996).

Thus, planning becomes a partnership among those with technical skills, the information systems group, and the general and functional managers of the organization. The planning process requires discussion, clarification, negotiation and the achievement of a mutual understanding (Piccoli, 2008; McNurlin, et al., 2009).

With today's rapidly evolving technology advances, along with the somewhat unpredictable emergence of new competitors brought about by the Internet, organizations do not have a year to develop a plan, several years to implement the plan, and a three to five year useful life for the plan. Everything that is technology-related moves at a rapid pace and change is inherent in the adoption of new technology and ISs. Due to the rapidly changing technology environment, many feel that a "sense and respond" approach to planning is appropriate. When apparent opportunities appear, organizations need to respond quickly in order to take advantage (McNurlin, et al., 2009). Some rapid responses may be viewed later as failed experiments, but that may prove to be better than a lost opportunity.

As mentioned earlier in this paper, many organizations have adopted a combination of planning techniques as they undertake their planning process. Eight popular planning techniques that have emerged include the following (McNurlin, et al., 2009):

1. Stages of Growth – Include early successes, contagion, control and integration stages and is helpful in determining where an organization resides on learning and development curve.
2. Critical Success Factors – Key areas, usually less than 10 for an organization, where things must go right for the organization to flourish.
3. Competitive Forces Model – Michael Porter's model advocates that we must contend with five competitive forces in the strategic use of IS. Forces include threat of new -
4. entrants, bargaining power of buyers and suppliers, threat of substitute products or services and rivalry among competitors.
5. Three Emerging Forces – Larry Downes emphasizes the critical role of IS and suggests consideration of three factors, namely increasing growth of digitalization, globalization of commerce, and deregulation of trade.

6. Value Chain Analysis – Porter’s Value Chain model suggests five primary activities that must be given attention in creating a product or service, getting it to buyers and servicing. Included are inbound logistics, operations, outbound logistics, marketing and sales and service.
7. E-Business Value Matrix – A portfolio management approach that creates four categories of projects, namely new fundamentals, operational excellence, rational experimentation and breakthrough strategy.
8. Linkage Analysis Planning – Examination of inter-organizational electronic links and identification of power relationships within suppliers, buyers and strategic partners.
9. Scenario Planning – Plan whereby there is speculation of what the future might be like and what actions must be taken as different futures begin to materialize.

In the preliminary planning preparation, those responsible for the planning process must decide which combination, if any, of the above planning techniques to employ as the process is designed. Generally as methodologies are developed, four elements for consideration emerge. They include an opinion of what needs to be solved, defined techniques on what has to be done and when to do it, advice on how to manage the quality of deliverables, and a tool kit to facilitate the process (Ishak and Alias, 2005).

Most processes also include a situation analysis in the form of Strengths, Weaknesses, Opportunities and Threats (SWOT). This analysis addresses the organization’s internal and external influences, strategy formulation, and specific goals along with tactical and operational plans for achieving the goals (Semiawan and Middleton, 1999).

Key Questions and Outcomes from the Planning Process

In preparation for the strategic planning process, a wide range of topics must be taken into consideration. Many articles and books have addressed the issue of topics that should be considered. No list is all-inclusive, and the topics will vary according to organization structure and culture. A list of key questions has been adopted with minor modifications from Callon (1996) and is presented as Appendix A.

The intended result of the planning process is to arrive at an IS strategy. Galliers (1993) and Allen (1995) contend that the IS strategy has four distinct components: the Information Strategy, the Information Technology Strategy, the Information Management Strategy and the Change Management and Implementation Strategy. The Information Strategy answers the questions: what information is required and where is the information required to support the primary tasks, or key goals? The Information Technology Strategy is concerned with applications and platforms to provide the information. The Information Management Strategy is concerned with how the information services are organized for the different facets of the organization. The Change Management and Implementation Strategy will identify what organizational change will be needed for the information systems strategy to be successful, when it will be implemented and by whom.

The outcome document from this planning process should be a comprehensive report along with plans for the development of systems oriented to some future vision of the role of information systems within the organization (Allen, 1995). There is no standard format for this report.

However, in a general outline form, Appendix B presents a sample outline of the key ingredients that could be addressed in the report (McLeod and Schell, 2007).

A Technology-Based Approach to Planning

In recent years, online electronic tools have emerged to assist with the planning process. One tool that the author has experienced and endorses is offered by the Advanced Strategy Center of Scottsdale, Arizona (www.advancedstrategycenter.com). The Center offers on-site planning sessions in their Arizona Advanced Strategy Lab (ASL) or sessions can be conducted via the Internet through the Advanced Strategy Lab Online.

The online approach is particularly attractive, as participants can connect to a host website from their own facility and enjoy the same benefits as face-to-face sessions. The keys to success with the process are the quality of the front-end preparation and the quality of the skilled facilitators. Opened-ended questions and ranking of elements on matters such as organizational mission, values, current state of the organization, external environment, overall organizational alignment and future direction must be addressed. Normally, this is done through a series of appropriately stated questions and related items that request input by rank order. Facilitators become familiar with the organization and its issues prior to conducting the sessions.

The Advanced Strategy Lab employs software developed by GroupSystems.com. The software is specifically designed to support open group brainstorming and assessment sessions. A skilled facilitator, experienced in software collaboration technology and client subject issues guides the participants through a session. The sessions are designed to balance “high tech” and “high talk.” Computers and the GroupSystems software can gather rapid input on issues and strategies, and the facilitator can quickly prioritize those items deemed most important by the majority in the group. On the other hand, time to talk about the important issues and ensure there is buy-in and understanding of both positive and negative implications of implementation is also included under the direction of the facilitator (Advanced Strategy Center, 2010).

The following group of collaboration activities are made possible through the software provided by GroupSystems.com and the facilitation services provided by personnel from the Advanced Strategy Lab (Advanced Strategy Center, 2010):

- Open anonymous electronic brainstorming (all participant’s ideas are seen by all)
- Ability to rapidly categorize key ideas and themes
- Ability to electronically prioritize the key ideas and themes
- Electronic survey capability for perception surveys and concept testing
- Topic commentary to solicit open comments on a series of key issues and themes
- Project outlining capability to develop high level action plan and implementation

There are several significant advantages to be gained by this online process. All participants can immediately, but anonymously, see ideas generated by other participants. There is no longer a need for boards filled with post-it notes. As responses are received, the facilitator can immediately identify and list emerging common themes which can then be discussed. Since facilitators are very skillful, discussion can prove to be very valuable and enhancing. Finally,

there is a time-saving feature to the process. A two to three hour session might be equated to a full day planning session conducted using traditional manual processes.

Conclusion

Technology and information systems play an ever-increasing role in today's organizational environment. Because of the rapidly changing nature of technology developments, it is sometimes difficult to employ standard planning processes. The primary guideline for information systems planning is that the planning process must be designed and conducted in alignment with organizational and business plans. Most organizations now agree that IS is an important strategic organizational resource that can provide strategic advantage and boost business performance (Brown, 2004). As part of their plan, many organizations have adopted a sense and respond position with regard to opportunities that may present themselves. Often, a scenario development approach that looks to possible future developments is essential to help combat the rapid rate of technology change.

There are multiple planning tools available for the strategic information systems planning process. Choosing the tools that meet the needs of the organization and lend focus to the desired areas of emphasis is critical.

Finally, organizations should consider the introduction of technology-driven approaches to planning to help with speed, efficiency, flexibility and communications.

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APPENDIX A (Callon, 1996, pp. 296-298)

Strategic Planning Questions

Strategic Plan

Vision: Do we have a clear vision of where the organization is going?

Decisions: Do we make major decisions based on our vision and strategies?

Innovations: Do the values and goals of the organization call for innovation?

Risk Taking: Does the reward system support employee and management risk taking?

Change: Do we respond quickly to changes that affect our organization?

Customer Segments: Have we identified and do we understand the needs and each type of customer and how they define products and service value?

Competitors: Are our strategies based on market intelligence and competitive information?

External Factors: Do we regularly review the economic, social and demographic trends that can affect our performance?

Management Teamwork: Are our interactions characterized by openness, candor and teamwork?

Quality: Do we emphasize and measure quality throughout the organization?

Business Processes and Organization

Culture: Does the company have a strong sense of mission and shared values?

Productivity: Is productivity measured and are ambitious but achievable goals established?

Empowering People: Are employees encouraged to get involved in multiple aspects of the business and do they readily accept accountability?

Management Support: Does management openly and enthusiastically support the ideas and efforts of our employees?

Structure: Does the current organizational structure logically and effectively support the business strategies?

Bureaucracy and Complacency: Are unnecessary overhead and bottlenecks being eliminated while being careful not to take things for granted because of past success?

Operational Systems: Are the best possible systems in place to address operational needs?

Decision Support Systems: Do existing systems effectively support multiple levels of decision making?

Communication: Do people openly communicate across the organization, or is a “chain of command” adhered to in most cases?

Experimentation: Does management encourage new ideas, provide funding for trying new things and tolerate mistakes and failures?

Information Systems Architecture and Organization

Existing Information Systems: How critical are existing information systems to our operation?

APPENDIX A (continued)

End-User Support: Does the information systems organization provide a broad range of services and support to end-users with every major function of the company?

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Information (Data) Access: Is data available and easily accessible when users need it?

Network: Are information services delivered on a common network to those with a need to have it where and when they need it? (This includes customers, suppliers, business partners and employees). Are Internet services adequate?

Charges: Are users charged fairly for information systems support?

Relationships: Does the information systems organization see itself as an enabling resource with the users viewed as the driving force?

Information Systems Management: Is information systems run like a business within a business, benefiting the entire organization?

Information Systems Role: Is information systems focused and positioned as a competitive resource within the organization?

Strategic Planning Process: Does the strategic planning process ensure that the right things are being supported by information systems?

Distributed Systems: Have the appropriate resources been moved to where they make the most sense from a financial, management and technical standpoint?

Information Technology Opportunities

Industry Impact: Does our industry depend heavily on information technologies to achieve business success?

Competition: Do our competitors frequently use information systems to differentiate their products and services?

Education: Is our management familiar with the potential opportunities for information technology within our industry and company?

Customer Expectations: Do our customers react well to innovative approaches with information technology and will they pay for its added value?

Strategic Impact: Are our business plans directly influenced by potential new uses of information technology?

Opportunity Window: Would we be likely to lose market share if a competitor announced new systems-based services?

Vendors: Do we have a good working relationship with information technology vendors to aid in our planning for potential use of new systems?

Prototypes: Is it likely that we would authorize the building of an information systems prototype to prove operational and/or competitive feasibility?

Joint Development: Are users actively involved with information systems to reduce the risk of failure of new information technology use?

Visualization: Is anyone charged with the responsibility to make sure that time is devoted to brainstorming how the organization might look in the future considering the impact of information technology?

APPENDIX B (Mcleod, Schell, 2007, pp. 40-41)

A Sample Strategic Plan Outline for Information Systems

Executive Summary

The Strategic Plan for Information Systems (SPIS) has been developed to support the Strategic Business Plan by assembling and applying the information resources that are necessary to achieve the strategic objectives. The SPIS is organized into four sections.

- Information Technology Mission Statement
- Information Technology Goals
- Scope of Information Technology Services
- Information Technology Work Plan

Information Systems Mission Statement

The Mission of ...

Information Technology Goals

The information technology mission will be accomplished by pursuing the following goals:

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Scope of Information Technology Services

Information technology services consist of the following: (Sample list follows)

Administrative Services

- Budgeting and fiscal review
- Human resources
- Management reporting
- Stakeholder relations

Engineering Services

- Strategic planning and implementation
- Capacity planning
- Network design, maintenance, troubleshooting, and administration
- Server installations
- Contingency planning and backup

APPENDIX B (continued)

Technology Services

- Technical support in the form of help desk and call management services
- User education and training
- Database management services
- Document management services
- System development and support
- World Wide Web access
- Computer graphics
- Hardware troubleshooting, upgrading, and replacement
- Antivirus and firewall services
- Systems administration and maintenance
- Systems audits

Information Technology Work Plan

(Number) key projects have been identified to be completed during the next 3 year period and include

Project	Project Manager(s)	Estimated Person-Months
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