Strategic Information Systems Planning : A Brief Review

Fahad N. Al-Aboud
King Saud University, Riyadh
Kingdom of Saudi Arabia

ABSTRACT
Strategic information systems planning (SISP) is one of the important management issue. The use of Information Technology associated with proper planning would increase business success within the organization. SISP is considered to be the best mechanism that would support the organization to assure that IT activities are attuned with those of the rest of the organizational needs.
The paper will focus on such factors that will assist the organizations to success in the strategic information systems planning. Many organizations had applied SISP methodologies to their plans but failed to achieve the maximum benefits of it. The paper has addressed some reasons of failure and critical success factors along with the selection of best practice model for the Strategic Information Systems Planning.
Keywords: SISP, Planning, CSF, Processes, Organization.

1. Introduction

Since the 1980s, Strategic Information Systems Planning (SISP) has been recognized for its contribution to organizations and has become a very challenging subject for scientists and practitioners in the recent years. SISP is necessary to help organizations succeed in today's highly competitive global marketplace. Numerous studies have been performed on the strategic information systems planning (SISP) to assist in making the implementation and effectiveness easier and more profitable.
Measuring the effectiveness of planning system success is a theoretical challenge across many fields of organizational research. Many studies have been conducted to guide success to organizations using SISP, but the challenge even after two decades still is present. Early SISP researchers employed single dimension measures of SISP success. More recently multidimensional, multi-item measures of SISP success have been proposed [1].The way SISP approach is used, the SISP objectives of organizations and key dimensions of the SISP context relate together with SISP success. Critical success factors need to be applied efficiently to reach best results. Achieving the objectives of SISP process will guide the organization to accomplish competitiveness.
A successful organization should have a well organized strategic plan (business strategy) that would drive the strategic information systems planning. Planning information systems strategically aligned with the business planning would help the organization reach the competitive advantage it's aiming for.
The paper will cover strategic information system and will focus on critical success factors of Strategic Information System Planning implementation. Later on the paper will propose the best practice model in Strategic Information System Planning.

2. A Brief Overview

Improving performance has always been top management's concern. This would be best achieved by aligning of information technology (IT) to a firm's strategic planning [2, 3]. The organization aims to achieve the maximum benefit from its resources and reduce the risk as much as possible. It works best to use all of its resources efficiently, effectively, and competitively [4]
"The whole process which takes in strategic business planning to create a company's vision and goals and strategic use of IS/IT to help realizing these goals, can be considered as strategic information systems planning" [5].
Since 1990s, SISP has been identified as a critical management issue and still ranked high as a critical issue today among key issues in IS management. With the pervasiveness of IT in the 2000s and increasing pressure on firms to leverage their IT assets, the importance of SISP has increased [6].
Strategic information systems planning (SISP) consists of many stages. An organization has to ensure proper implementation in every stage, but if one stage is ignored

Manuscript received May 5, 2011
Manuscript revised May 20, 2011

or not implemented correctly that would cause issues within the organization [7].

3. Purpose of strategic information system planning

The strategic information systems planning process is intended to ensure that technology activities are properly aligned with the growing needs and strategies of the organization [8].
The objectives of Strategic Information Systems Planning are wide and cover all aspects necessary to smooth the running of organizations. These objectives includes: aligning IT with the business, gaining competitive advantage, identifying new and higher payback applications, increasing top management commitment, improving communication with users, forecasting IT resource requirements, allocating IT resources, developing information architecture and increasing visibility of IT [9].
The importance of strategic information systems planning has increased because of the popularity of IS in today's organizations together with the increased pressure to control IT assets. [8] Also because organizations look to obtain the maximum benefit from their resources and reduce risk as much as possible [4]. Importance of SISP arises to produce a strategic plan that addresses the future needs for IT/IS resources in accordance with the business objectives [11].

4. CRITICAL SUCCESS FACTORS IN SISP

The influence of IS planning on SISP success has been investigated through some general list of organizational characteristics, such as the need to conduct comprehensive planning in an unstable environment, the external IT and business environment, environmental analysis, or the impact of the role of IS in the organization [6].
SISP success or effectiveness needs to be measured dimensionally due to its complexity [12]. Most of the past studies on SISP success viewed two measures of success: "goal-centered judgment", which seeks to assess the degree of attainment in relation to targets, and "improvement judgment", which seeks to assess hoe the planning system improved overtime in supporting organizational planning needs. [12] rationalized that these perspective represent the 'end' (the output of the planning system) and 'means' (adaptability of the process) view for evaluating SISP benefits.
In another words, [13] identified two dimensions of SISP success fulfillment of IS planning systems and IS planning systems capability.
Meanwhile [12] conceptualized SISP success in terms of four interrelated dimensions that are: alignment, analysis, cooperation, and capability. The first three constructs represent 'goals' for SISP while the last construct represents 'improvement' in SISP over time [12, 13]. Most of the recent researches on SISP success are related to the influence of environmental factors, managerial factors and organizational factors [13].

5. SISP Process

SISP has been described in terms of phases and the specific activities within them. The phases and activities represent the components of the planning process, each having its own objectives, participants, preconditions, products, and techniques [14].
Strategic awareness entails the organizing and initiating of the planning process in an organized manner with sufficient top management support. Situation analysis is the analyzing of the internal and external environments in which the planned information systems will be expected to contribute. Strategy conception is the imaging of various possible information systems that might be implemented. Strategy formulation is the choosing and prioritizing of the specific information systems that will be implemented. Strategy implementation planning is the planning of the activities necessary to ensure that the new information systems are actually placed into production and used [3].
They can form the basis for the assessment of SISP both because they reflect specific actions and because they represent the full range of the planning effort [16].
Another study described SISP in terms of process dimensions such as comprehensiveness, formalization, focus, flow, participation, and consistency. Those dimensions are useful in characterizing the activity of strategic planning [3, 12, 14].

6. SISP Techniques and Methodologies

One of the major issues on the IS planning agenda is choosing the right methodology to enable the IS team to plan its SISP activities. A methodology is generally a guideline for solving a problem. A SISP methodology is comprised of one or more techniques where each technique is defined by a set of practices, procedures, and rules. A SISP methodology can be viewed as an abstract system design that functions to transform organizational inputs into an IS Strategic Plan as an output [11, 17].
In order to create an effective methodology that can support management's plan, there should be a standard set of techniques and supportive tools to facilitate these projects. When an organization carries out a planning process, those responsible for the planning have to decide on a combination of techniques to adopt. Some of the popular planning techniques are:

Table 1: IS planning phases and tasks [15, 16]

Planning the IS planning process (i.e. strategic awareness)	Determining key planning issues Defining planning objectives Organizing the planning team(s) Obtaining top management commitment
Analyzing the current environment (i.e. situation analysis)	Analyzing current business systems Analyzing current organizational systems Analyzing current information systems Analyzing the current external business environment Analyzing the current external IT environment
Conceiving strategy alternatives (i.e. strategy conception)	Identifying major IT objectives Identifying opportunities for improvement Evaluating opportunities for improvement Identifying high level IT strategies
Selecting strategy (i.e. strategy formulation)	Identifying new business processes Identifying new IT architectures Identifying specific new projects Identifying priorities for new projects
Planning strategy implementation (i.e. strategy implementation planning)	Defining change management approach Defining action plan Evaluating action plan Defining follow-up and control procedure

Stages of Growth – Include early successes, control and integration stages and is helpful in determining where an organization exists in learning and development curve [8].

Critical Success Factors – Key areas usually less than 10 for an organization, where things must go right for the organization to flourish [3, 5, 8]. A technique is serving key decisions by providing information requirements and aligning techniques. Advantage of this technique is flexibility regarding organization needs and can be used as measurements and for a number of levels and a variety of purposes. While the disadvantage of it is the difficulty to reach information requirements by CSF alone, so it needs support of other techniques and skills of defining critical factors. Critical success factors as being 'for any business the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization [2, 4, 10].

Competitive Forces Model – Michael Porter's model advocates that we must contend with five competitive forces in the strategic use of IS. Forces include 1) threat of new entrants, bargaining power of 2) buyers and 3) suppliers, 4) threat of substitute products or services and 5) rivalry among competitors [5, 8].

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. Tan et al [5] defined it as "a diagnostic process for identifying and analyzing primary and support activities that add value to product or service".

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. It is useful to help predict future problems although it is difficult to deal with the environment changes in the long term [8].

SWOT– This analysis addresses the organization's internal strength and weaknesses, and external threats and opportunities, also strategy formulation, and specific goals along with tactical and operational plans for achieving the goals [5].

Generally, the use of more than one methodology is preferred. Methodology benefits managers by providing information to plan, review and control projects. Generally methodologies are comprised of the following four elements: providing an opinion of what needs to be solved, defining techniques on what has to be done and when to do it, advising on how to manage the quality of deliverables or products, as well as providing a toolkit to facilitate the process [17].

Criteria of selecting a methodology includes: resource availability, methodology/technique complexity, internal policy, historical reasons, a preferred supplier, familiarity, etc. The use of automated tools also helps planners to conduct SISP in a structured and more efficient way [11].

Table 2: Methodologies [2, 17, 5, 18]

Methodology	Description	Owner	Year
Business System Planning (BSP)	Combines top down planning with bottom up implementation and focuses on business processes which in turn are derived from an organization's business mission, objectives and goals.	IBM	1975
Critical Success Factor Analysis (CSF)	Used for understanding more clearly the objectives, tactics, and operational activities in terms of key information needs of an organization and its managers, and strengths and weaknesses of the organization's existing systems.	Rockart	1979
Information Engineering (IE)	Provides techniques for building enterprise, data and process models. These models combine to form a complete knowledge base which is used to create and maintain information systems	James Martin	1982
Value Chain Analysis	• A form of business activity analysis which decomposes an enterprise into its parts. Information systems are derived from this analysis. • Helps in formulating information systems which increase the overall profit available to a firm. • Focuses on value-adding business activities.	Michael Porter	1984
Method/1	Questioning potential clients about what needs to be done and what kinds of software and hardware should be used. It also offers strict guidelines for managing a project and estimating its costs.	Arthur Anderson	1985
Strategic Systems Planning (SSP) PRO planner	A business functional model that is defined by analyzing major functional areas of a business.	Robert Holland	1986

Pant and Hsu [2] classified SISP methodologies into alignment methodologies, which align IS objectives with organizational goals; and Impact methodologies, which help create and justify new uses of IT.

Pita et al [11] study ranked methodologies as most successful and most used. Their study showed that the most popular methodologies are not the most successful ones. The most popular methodologies are alignment methodologies. However, the most successful methodologies are impact methodologies. Most successful methodologies are Method/1, Inside-out planning style, Fuzzy Cognitive Maps and the Information Engineering methodology. These methodologies are not in much use.

To carry out SISP, an organization usually selects certain methodologies and then form committees of IS planners (top management), IT and business managers (middle management) and user manager (lower management), and carries out a procedure of several steps, that usually takes several months [13].

7. Conclusion

Good Planning drives organizations to success and staying ahead in a competitive environment. Top management awareness of the best process for Strategic information systems planning and their commitment and involvement in the process, along with other success factors, makes reaching success a dream come true.

Proper business planning along with the use of information technologies assists the organization to make best use of its resources and as a result reach its goals.

There is no best way of using SISP. Each organization can choose best methodology or model that suits it. Depending on the nature of the organization and the resources it has. The success of the organization would be measured by how good the organization uses the methodologies and techniques. Did apply success factors and avoid failure factors while planning and implementing. Answers of these questions help the organization measure to what extent will it reach its goals.

REFERENCES

[1] Warr, A. (2005), "A Study of the Relationships of Strategic IS Planning (SISP) Approaches, Objectives And Context With SISP Success In UK Organizations, ECIS 2005 Proceedings.

[2] Pant, S., & Hsu, C. (1995), "Strategic information system planning: A Review", International conference on Information Resource Management, Atlanta, Georgia.

[3] King, W. R. (2009), "Planning for Information Systems", Advances in Management Information Systems Ser New York: M.E, Sharpe, Inc

[4] Basahel, B., & Irani, Z. (2009), "EVALUATION OF STRATEGIC INFORMATION SYSTEMS PLANNING (SISP) TECHNIQUES: DRIVER PERSPECTIVE", European and Mediterranean Conference on Information Systems, pp 1-15.

[5] Tan, C. S., Poh, H. L., & Woo, L. Y. (1995), "Guidelines For Strategic Information Systems Planning in Small and Medium Enterprises", pp 121-129.

[6] Bechor, T., Neumann, S., ZViran, M., Glezer, C. (2009), "A contingency model for estimating success of strategic information systems", Journal of Information & Management, volume 47 issue 1, 17-29.

[7] Purchace, T. (2008), "Strategic information system planning", p. 13

[8] Pollack, T. (2010), "Strategic Information System Planning", ASCUE Proceedings, pp 47-58.

[9] Motari, F. A. (2009), "University of Missori, University of Missori: http://www.umsl.edu/~fam2n8/howenough.html, Accessed Date: 12/10/ 2010.

[10] Basahel, A. (2009), "A Framework for evaluation of Strategic information system planning (SISP) techniques", BBS Doctoral Symposium, pp 1-11.

[11] Pita, z., Cheong, F., & Corbitt, B. (2008, Dec 3-5), "Approaches and Methodologies for Strategic Information Systems Planning: An Empirical Study in Australia", Australasian Conference on Information Systems, pp 751-761.

[12] Segars, A. H., Grover, V., (1999), "Profiles of Strategic Information Systems Planning", Journal Information Systems research, Volume 10, Issue 3.

[13] Baker, F. A., Suhaimi, M. A., Hussain, H. (2009), "Conceptualization of Strategic Information Systems Planning (sisp) Success, Model in Public Sector: An Absorptive Capacity Approach", European and Mediterranean Conference on Information Systems, pp 1-12.

[14] Newkirk, H. E., & Lederer, A. L. (2007), "The Effectiveness of Strategic Information Systems Planning For Technical Resources, Personnel Resources, and Data Security in Environments of Heterogeneity and Hostility", the Journal of Computer Information Systems.

[15] Newkirk, H. E., Lederer, A. L., & Srinivasan, C. (2003), "Strategic Information Systems Planning: too little or too much", Journal of Strategic Information Systems, Volume 12, pp 201-228.

[16] Newerik, H. E., Lederer, A. L., & Johnson, A. M. (2008), "Rapid business and IT change: drivers for strategic information systems planning", European Journal of Information Systems, volume 17, pp 198-218.

[17] Ishak, I. S., alias, R. A. (2005), "Designing a strategic information system planning methodology for Malaysian institutes of higher learning", Issues in Information Systems Volume VI, No. 1, pp 325-331.

[18] Lederer, A. l., & sethi, v. (1996), "Key Prescriptions for Strategic Information Systems Planning", Journal of Management Information Systems, Vol. 13 No. 1, pp. 35 – 62.