STRATEGIC INFORMATION SYSTEM PLANNING
(Concepts & Issues in the New Millennium)

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Abstract

This paper will describe The Concepts & Issues in the New Millennium in Strategic of Information System Planning (SISP) perspective.

The paper will discuss about the meaning of Strategy, Systems and types of planning, which is Strategic, Tactical and Operational Planning and continue by the concept of SISP. Understanding about the meaning of topic above is very important before going further.

At the second part explanation about the issues or problems will faced up. Articles will limit to the new millennium era situation. All data and facts written here are referring to the journals and survey or research made by SISP expertise such as Lederer and Ward.

SISP also was establishing a rational and flexibility of organization for future in making decision. And plays a main role to plan theirs facilities such as infrastructure (i.e IT facilities), budgeting and time. Almost an organization plan theirs activities in medium range planning, it's about 3 to 5 years.

The need of knowledge of SISP will gives us opportunities to develop our organization and bring nation to the competitive stage in the world.

Keywords:
Information Systems (IS), Information Technology (IT), SISP, Strategy, Planning.

1.0 INTRODUCTION

Within the competitiveness of New Millennium, information has become a key resource for increasing competitiveness by changing the nature or conduct of organization's business. Accordingly, organization is now seeking a method or conceptual ideas for Information Systems planning to maximize their strategic effectiveness

Strategic Information System Planning or better known SISP is referred to the process of creating *a portfolio* for the implementation and use of Information System to maximize the effectiveness and efficiency of an organization.

Information Systems portfolio is contains all plan/projects of a functional region, such as a department or a business process. The functional region (i.e. the department head or the process owner) has to steer the projects, means to judge targets and consequences, to set priorities, and to allocate resources.

1.1 'Strategy' and 'Systems'

Before continuing more detail about above topic, the definitions of strategy and system should be determined; *'Strategy'* is defined as the creating a vision of the future and the means and policies which will enable the organization to reach the vision, which is Information Systems Planning.

This is the creation of *strategy* or direction for the procurement and use of information systems within an organization to ensure performance of the organization.

The *'System'* described as the process of generating 'output' when 'input' is supplied. (Refer *Figure 1*)

1.2 The Planning

There are three types of planning:

- Strategic Planning
- Tactical Planning
- Operational Planning

Strategic Planning

Strategic planning is a management tool, period. As with any management tool, it is used for one purpose only: to help an organization do a better job - to focus its energy, to ensure

Figure 1, The Concept of 'System'

those members of the organization are working toward the same goals, mission, policies and strategies, to assess and adjust the organization's direction in response to a changing environment. In short, strategic planning is a disciplined effort to produce fundamental decisions and actions that

shape and guide what an organization is, what it does, and why it does it, with a focus on the future.
(Adapted from Bryson's Strategic Planning in Public and Nonprofit Organizations)

Tactical Planning

The process of developing detailed, short-term decisions about what is to be done, who is to do it, and how it is to be done. *Tactical Planning* involves design of tactics, setting of objectives and development of procedures, rules, schedules and budget.

Operational Planning

Operational planning is setting out clearly the implementation of the strategic plan against specific objectives. In the case of the IT manager, this task normally requires the implementation of part of or an IT the whole process. Like the *strategic planning*, the *operational plan* should be simple, easily understood by all the members and leave all members knowing what activities they have to undertake and the time scale by which these have to be finished.

2.0 BACKGROUND

Strategic Information Systems Planning (SISP) is to develop innovative strategy toward achieving the organization's goal. Understanding the current situation and analyze information requirements will give an innovative idea to benefit an organization.

There are two elements should be contrasted, the Information System (IS) and Information Technology (IT) used. These two elements have to align with organization goals, to create advantages in New Millennium decade among competitors. Meaning that is to ensure Information System (IS) & Information Technology (IT) provision matches the business needs in what it does (context), how it does it (process) and when it does it (timing).

The SISP helps to convert improvement potential of current and foreseeable developments into competitive advantages for an organization. A main goal of SISP is to identify that information and communication technologies which best contribute to a long-term success.

2.1 SISP defined

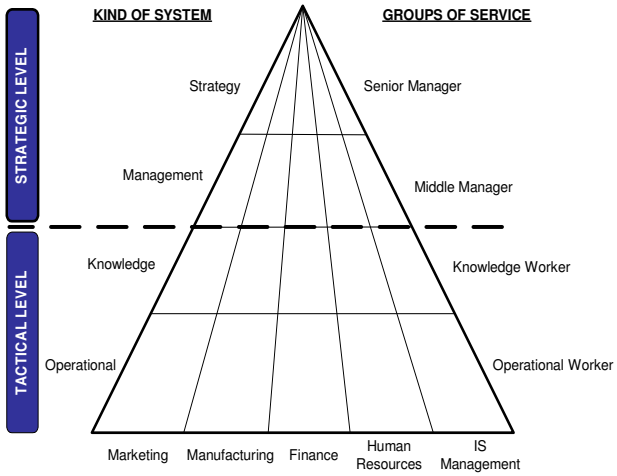
Lederer & Gardiner, (1992) define SISP as, "The process to identifying a portfolio of computer-based applications that will assists an organization executing its business plans and realising its business goals. It is sensitive to the dynamic politics and culture of the organization or communities and is aware of the sociological environmental changes" and,

2.2 Current (New Millennium) SISP defined

Mc Bride, (1998) said, "The continuous review of computer technology, applications and management structure to ensure that current anticipated information and process needs of the organization are met in a way that provides an acceptable return of investment (ROI), is sensitive to the dynamic politics and culture of the organization and is aware of the sociological environment within which the organization exists."

3.0 THE TYPES OF INFORMATION SYSTEMS

Figure 2 explain about the types of information system planning hierarchy, shown in Pyramid's Model. The strategy and management are on the top, which is in *Strategic Level* and the bottom part is the knowledge and operational is on the *Tactical Level*. All Information Systems planning involved these systems and will be discussing below.



Fiure 2, Type of Information System (in Businesses)[5]

3.1 MAJOR TYPES OF THE SYSTEMS[5]

Six types or categories of information systems provide organization with appropriate information for making decisions:

- Executive Support Systems (ESS)
- Management Information Systems (MIS)
- Decision Support Systems (DSS)
- Knowledge Work Systems (KWS)/ Expert System (ES)
- Office Automation Systems (OAS)
- Transaction Processing Systems (TPS)

All types of the systems are referring to the *'Lederer & Gardiner, (1992)* definition.

3.1.1 Executive Support System (ESS)

Definition: Also called an *Executive Information System (EIS);* ESS made especially for top management level that specifically supports strategic decision making. It draws on data both from internal and external the organization (for example, news services, market-research databases). Why it's important: *The ESS includes capabilities for analyzing data and doing "what if" scenarios.*

3.1.2 Management Information systems (MIS)

Definition: Computer-based information system that derives data from all an organization's departments and produces *summary, exception, periodic,* and *on-demand* reports of the organization's performance. Why it's important: *A MIS principally assists middle managers, helping them make tactical decisions—spotting trends and getting an overview of current business activities.*

3.1.3 Decision Support Systems (DSS)

Definition: Computer-based information system that helps organization with non-routine decision-making tasks. Inputs consist of some summarized reports, some processed transaction data, and other internal data. They also include data from sources outside the organization—for example; data may be produced by trade associations, marketing research firms, and government agencies. The outputs are flexible, on-demand reports from which a top manager can make decisions about unstructured problems. Why it's important: *A DSS is installed to help top management and middle management make strategic decisions—decisions about unstructured problems, those involving events and trends outside the organization (for example, rising interest rates). The key attribute of a DSS is that it uses* models. *The DSS database, which draws on the TPS and MIS files, as well as outside data, is accessed through DSS software.*
Decision Support Systems began in the late 1960s.

3.1.4 Knowledge Worker Systems (KWS) / Expert Systems

Definition: Set of computer programs that perform a task at the level of a human expert. Why it's important: *KWS are used by management and non-management level personnel to solve sophisticated problems.*
KWS is interfaces with the business process as a tool kit that integrates processes and software applications to execute work, and as a mechanism to capture organizational knowledge, promote productivity and improve quality.
The peoples who were creating, processing information systems & disseminate organization's paperwork including building data information also design products or services or create new knowledge for organization. The example of KWS is Scientific Analysis.

3.1.5 Office Automation Systems (OAS)

Definition: Computer information system that combines various technologies to reduce the manual labor needed to operate an organization efficiently; used at all levels of an organization. Why it's important: *An OAS uses a network to integrate such technologies as fax, voice mail, e-mail, scheduling software, word processing, and desktop publishing and make them available throughout the organization.*
OAS diagram, please refer to Appendix A.

3.1.6 Transaction Processing Systems (TPS)

Definition: Computer-based information system that keeps track of the transactions needed to conduct business. Inputs are transaction data (for example, bills, orders, inventory levels, production output). Outputs are processed transactions (for example, bills, and paychecks). Each functional area of an organization—Research and Development, Production, Marketing, and Accounting and Finance—usually has its own TPS. Why it's important: *The TPS helps supervisory managers in making operational decisions. The database of transactions stored in a TPS is used to support a management information system and a decision support system.*

3.1.6.1 The Typical Task of Transaction Processing Systems (TPS)[5]

Divided by 4 applications areas:

i) Manufacturing and production systems:

Systems that supply data to operate,
monitor and control the production process.
Example; purchasing, receiving, shipping, process control, robotics, inventory systems, scheduling, engineering, operations, quality control, resource management etc.

Example; The systems in a factory that:

- gets information from measuring samples of products
- does statistical analysis of samples
- shows when operators should take corrective action

ii) Sales and Marketing systems:

Systems that support the sales and marketing function by facilitating the movement of goods and services from producers to customers.

Examples:

- sales support - keep customer records, follow-up
- telemarketing - use phone for selling
- order processing - process orders, produce invoices, supply data for sales analysis and inventory control
- point-of-sale - capture sales data at cash register often by scanner
- customer credit authorization - advise on credit to be allowed to customer.

  Example:
  A Store's Sales System would:
  - automatically record and total purchase transactions and prints out a packing list
  - improve customer service
  - maintain customer data

iii) Finance & Accounting Systems:

Systems that maintain records concerning the flow of funds in the firm and produce financial statements, such as balance sheets and income statements. e.g. for Budgeting; General Ledger; Billing: Cost Accounting, Accounts Receivable / Payable; Funds Management Systems, Payroll. They were among the earliest systems to be computerized.

Examples of financial systems:
cash management, loan management, check processing, securities trading.
Example:
Visa's Credit Card payment system.

iv) Human Resources System:

Systems that deal with recruitment, placement, performance evaluation, compensation, and career development of the firm's employees.

Examples:
personnel record keeping, applicant tracking, positions, training and skills, benefits.

3.1.6.2 The Major Characteristics of a TPS

a) Large amount of data are collected, stored, processed, and used in other types of information systems.
b) The sources of data are mostly internal, and the output is intended mainly for an internal audience.
c) They process information on a regular and repetitive basis.
d) A large amount of storage capacity is required.
e) High processing speed is required due to the high volume information.
f) Historical orientation is prevalent.
g) Input and output data conform to structured formats.
h) High levels of detail are featured, especially in input data but often in output as well.
i) Low computation complexity is usually evident in TPS.
j) High levels of accuracy, data integrity, and security are required.
k) A high level of reliability is required; the flow of TPS data is mission critical.
l) Inquiry processing is a must.

3.2 Relationship of IS to One Another in Millennium Era[d].

Different types of systems exist in organizations. Not all organizations have all of the types of systems described here. Many organizations may not have knowledge work systems (KWS), executive support systems (ESS) or decision support systems (DSS). But today most organizations make use of office automation systems (OAS) and have a portfolio of information system applications based on TPS and MIS (marketing systems, manufacturing systems, human resources systems). Some organizations have hybrid information systems that contain some of the characteristics of different types of systems.

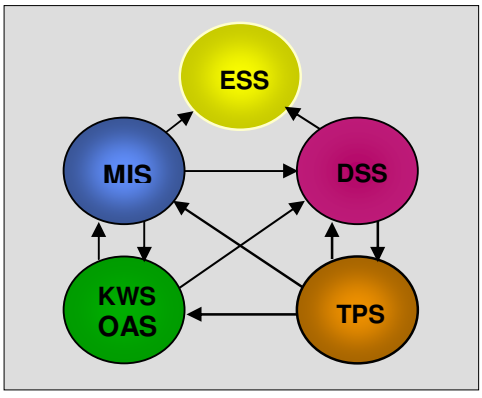


Figure 4, Interrelationship among Types of Information Systems.[5]

Figure 4 shows the interrelation among IS in an organization. All system has their duties which work together into achieving the organization's goals, which is explained above at 3.1. The information systems are integrated to other types (e.g. MIS having many of the features of ESS). Information Systems can be effective works, integration of IS and IT given better performance in an organization.

3.3 INFORMATION TECHNOLOGY (IT)

Definition by *San Diego State University* was includes all matters concerned with the furtherance (hardware and software) of computer science and communication infrastructure and with the design, development, installation, and implementation of information systems and applications of computer based in an organization.

Information Technology (IT) has also performed an important role in the functioning of organizations in this decade. IT concerns the automation of the information services in and between organizations.

The organization use of IT is to support of (Management) Information Systems and, which is development and use of information systems for the performance, management and support of organizational activities, as previous discussing.

New technology and improvements in knowledge enable newer and more advanced applications with better opportunities than before.

4.0 THE SISP'S ISSUES IN NEW MILLENNIUM.

Information Technology (IT) has evolved from a centralized mainframe in the 1960s to stand alone PCs in the 1980s, today's IT specialists are faced with the challenge of solving the problems of an issues.

The previous issues and current issues are no longer the same, but problems or issues we are facing today are come from previous and still relevance.

The followings are some issues; it is sometime relevance to my department.

4.1 Issues in Business Alignment[6]

Business Alignment is the most important in top-ten lists of IS/IT issues. It is one of the SISP's objectives which are supposed to be achieved for all competitiveness organization. Educating management level on technology's possibilities and limitations is so neither hard nor developing resources and skills, and integrating systems with organization's strategy. It's even tougher to keep business and IS/IT aligned as business strategies and technology evolve. There's no silver-bullet solution, but achieving alignment is possible. A decade of research has found that the key is building the right relationships and processes, and providing necessary training.

Professor Jerry Luftman conclude his paper on *Assessing Business Alignment Maturity Communications of AIS (Dec. 2000 Journal)*; he said *"Achieving and sustaining IT-business alignment continues to be a major issue. Experience shows that no single activity will enable a firm to attain and sustain alignment. There are too many variables. The technology and business environments are too dynamic"*.

Based on Luftman conclusion above, I am decided to gives the priority to this matter of issue. The followings are the most issues in business alignment.

a) Technical Experience for Qualified CIO.

The CIO role is essentially a technologist and a business leader. There is no perfect formula for the mix and personal skills and motivation are as important as business knowledge and experience. CIOs are being able to influence the other level executives in your organization and collaborate at the highest levels. If organization doesn't provide leadership then IT won't go forward in your organization.

There's no denying that experience is important and it is unlikely that someone from purely a technical background could do the job well. Some business experience could be useful, particularly in critical "front-office" areas such as sales or customer service. CIO must have a good rounded commercial perspective and be able to see IT (costs and benefits) in the context of the companies overall performance. The issue here is the challenge as CIO is that one has to cover all aspects of the business so experience in many different application projects (especially implementation) is likely to be as valuable as a year or two in one operating area.

b) ***Strategy of IT in an Organization.***

All know that IT is a means to an end but it is now an essential component of every business. Although costs and timescales have decreased, most IT investments are still financially significant and need to last several years. In today's fast-moving world this is a relatively long-term investment and it should be considered strategically.

It is undoubtedly true that technology-enabled processes are more critical to some businesses than others but that can easily change as businesses evolve and/or transform. **Those who neglect their IT today may find themselves significantly disadvantaged tomorrow.**

If an organization does not see IT as strategic, it either does not have a strategic business vision or it does not understand how IT can support that vision. Clearly both situations are challenges for CIOs of organization. It is possible that there is a strategic business vision but it has not been clearly articulated.

4.2 The Need to Build a "Collective Intelligence"

Our future will require "market- facing" network systems with vastly improved collaboration features. These "market-facing" systems will need to create a seamless merger among all sections of the business and its clients.

To remain competitive, an organization must maximize our organizational know-how, establish a new culture of information and discovery, and establish a culture of *knowledge management*. Knowledge management will demand that we reward information sharing, and perhaps

even penalize information hoarding.

4.3 The Changing Nature of Work

Work is still inherently a structured process and, as such, lends itself to being improved and made more efficient through IT. Today's technology allows organization staff to work effectively from any location, be it at the office, on vacation or at home, but business opportunities and options to conduct work at any location are greater where expertise is available competitively. Today we have a lot of broadband signal provider such as “Streamyx” (Telekom) and “Webbit” (Time). Web-based orientation will producing competitiveness environment.

Systems like e-mail are breaking up country-specific management structures and allowing globalization to take place. It is now standard to expect overnight replies to e-mails from any part of the world, but we have yet to learn how to lever the individual expertise of every employee worldwide into a digital repository of our collective intelligence.

4.4 The Changing Nature of Business

Today, the speed of business is much faster than it used to be and there are the comments about speed and it is related to two facts:

- Speed is related to responsiveness.
- Early market leadership requires a fast pace and a link with market-leading IT.

The modern fact is that an organization can't afford to sit and wait and measure the feasibility of technology by watching the competitors use it and calculating their gains. No business can risk being left behind.

4.5 Keeping Pace with the Internet

The Internet is now available in just about every corporation so, undoubtedly it will influence the future business strategies. For example, view the Internet from a marketing perspective. Any corporate marketing information on the Internet is available globally 24 hours-a-day. It is live and up-to-date information that is available with no printing cost, little distribution cost and no limit on the quantity of information held, and it can be multilingual. Invariably in the past, placing marketing information in magazines was expensive and, hence, not all publications were selected for advertising. The cost of advertising space constricted what could be said, but the Internet provides massive opportunities in this area. Currently the Internet is being widely used in the area of "Brochure Ware" because of the benefits listed above.

The Internet also provides an organization with the ability to collaborate within projects, a function that is now beginning to be explored. Internet technology will improve and produce clear market benefits for its users. It provides us with a massive potential in creating a team of "virtual engineers."

5.0 FINDING & CONCLUSION

Strategic Information Systems Planning (SISP) is one of the Strategic Management concerns itself with the broad direction and long-term aims of a business. It aims to exploit the opportunities of tomorrow, in contrast to general management, which is concerned with day-to-day operations.

It is the job of Information Systems/Information Technology to deliver business benefits to an organization.

SISP involves understanding what the business goals are and identifying how Information Systems/Information Technology can support those goals by delivering benefits.

Business with excellent Information Systems which is support by Information Technology should be *align* with is a key concept, but perhaps there will be an *integration* among them to contributes the organization’s core competencies which may result in sustainable competitive advantage.

The long term planning of IS/IT cannot be considered as a one-off or simple planning. It is a continuous sustained process; there will be cooperation between the types of systems.

I entirely understood what is the conceptual of SISP as a planning for medium or long term for an organizational. Therefore, an organization must put these SISP into their management’s planning.

The issue which is discussed, it’s depending on business environments, in Millennium decade there will be many issues, after fine tuning from available journal, I am conclude above issues is the most popular in New Millennium.

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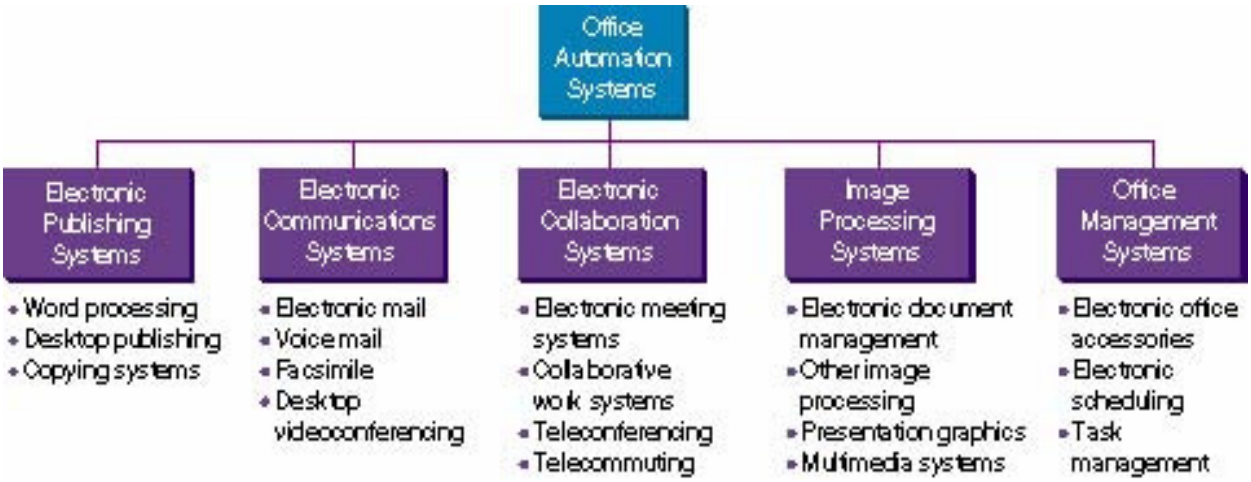
"I never stop trying to become qualified for the job".
(Darwin Smith, the CEO who built Kimberley-Clark)

Appendix A

The Office Automation Systems (OAS)



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