STRATEGIC INFORMATION SYSTEMS PLANNING: A REVIEW OF ITS CONCEPT, DEFINITIONS AND STAGES OF DEVELOPMENT

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ABSTRACT

Business organizations, government agencies and educational institutions consider strategic information system planning (SISP) as an important element for improving their organizational performance. Over the years, SISP has seen much change not only in terms of its meaning but also its emphasis. More specifically, the literature indicates minimal emphasis on its evolution as a discipline of study and field of practice. Based on the literature and previous studies, this paper reviews the concept of SISP, its definitions and stages of development.

Keywords: Strategic information system planning (SISP), information system (IS), information technology (IT)

I. INTRODUCTION

The literature emphasizes on the importance of strategic information system planning (SISP) to organizations. SISP has gained much recognition and acceptance as an important management practice as well as process for improving organizational performance in business, government and educational organizations. Since its introduction, SISP has received much attention among practitioners, consultants and scholars. The focus and emphasis on SISP resulted from the strong notion that as a practice and process, it can help organizations to improve not only their performance but also their effectiveness, efficiency and productivity [15, 16, 17, 28, 29].

With regard to SISP, there seems to be agreement among practitioners, consultants and scholars that SISP focuses on four essential aspects in organizations. The four aspects include; coordinating information technology (IT) plans with business plans of organization, planning IT architecture for the organization so that users, applications, databases as well as networks can be integrated together, providing an efficient information system development and operational resources and finally planning application information in order to not only complete projects on time but also within budget in a specific function [1, 2, 19, 33, 53].

Since its introduction, SISP has attracted much attention. However, the literature indicates that there is little information about its evolution, particularly in terms of its concept, definitions and stages of development. This paper attempts to provide an insight into the evolution of SISP. For this purpose, the present paper is presented in five sections. Section Two begins by explaining briefly the concept of SISP. Following this, Section Three highlights the definitions of SISP. Next, Section Four discuss the development stages of SISP. A brief conclusion of the paper is presented in Section Five.

II. THE CONCEPT OF SISP

The planning of a development schedule for SISP is generally based on the user requirement and financial justification. This has been the practice since organizations adopted information technology for their benefits. Indeed, by the late 1970s, organizations were already using SISP to improve communication with information system (IS) users; encourage senior management support; forecast resource requirements; allocate resources, and to find opportunities for improving the performance of the IS departments [27, 30, 34].

The concept of SISP evolved during the 1980s. The most significant differences between SISP and the planning practices that pre-dated it were in terms of the explicit emphasis on strategic alignment and competitive impact. The other terms used to describe information strategy such as information system strategy (ISS), information system strategic planning (ISSP) are frequently related to SISP [8, 9, 10, 25, 48].

According to [50] SISP is a concept that resulted from the introduction of IS in organizations. Many organizations utilize technology in the form of an IS to perform daily activities to improve productivity and profitability. However, there are management difficulties in using IS as a way to improve business.

SISP is used to ensure the development of IS and IT as well as aligned with the objectives, policies and strategic planning in organizations. This dynamic and evolving activity revisits the usefulness of propositions for practices in organizations. The idea behind the concept of SISP is to provide technology to support the organization's business strategy and leveraging the existing infrastructure for effective deployment as well as to guide future acquisitions [4, 7, 22, 23, 32]. Having explained the concept of SISP, the following section presents the definitions of SISP as documented in the literature.

III. DEFINITIONS OF SISP

The term SISP has three important key words. The three words include; Information System, Planning and Strategy. IS and IT are objects of planning. IT strategy is not simply derived from the business strategy as the IT strategy is capable of influencing business strategy. Although comparison with business planning offers some insight, SISP as an ongoing activity still demands specialist's knowledge and repeated studies do not offer a smooth path to success [46]. The following section represents the formal definitions of SISP that have been presented in the literature since the 1980s.

SISP is defined as a process through which an organization identifies a portfolio of IT applications in order to achieve its organization objectives and as the process of identifying a portfolio of computer-based applications that will assist a corporation in executing its business plans and consequently realizing its business goals [25]. The scholar claimed that SISP in the early days that is concerned with integrating information systems considerations into the organization planning processes.

[11] mentions that SISP as that which involves information's strategy, IT strategy, information management (IM) strategy, management of change strategy, and human resource strategy. [39] referred to SISP as a continuous planning activity that ensures the implementation of Information and Communication Technology (ICT) in an organization and is aligned to business strategies, improves organizational process effectiveness, creates business opportunities and contributes to an organizational competitiveness.

[40] defined SISP as a means of supporting and influencing the strategic direction of the firm through the identification of value-adding computerized information system, integrating and coordinating various organizational technologies through the development of

holistic information architectures, and developing general strategies for successful systems applications.

[6] described SISP as the process of identifying a portfolio of computer-based applications to be implemented, which is both highly aligned with corporate strategy as well as having the ability to create an advantage over competitors. [36] defined SISP as the analysis of a corporation's information and process using the business information models together with the evaluation of risk, current needs and requirements. SISP is an exercise or an ongoing activity that enables an organization to develop priorities for the development of the IS.

[41] designated SISP as the process of identifying the computer-based applications that will assist organizations in executing its business and realizing its business goals. SISP is the process of strategic thinking that identifies the most desirable IS via which the firm can implement and enforce its long-term IT activities and policies. It is a mechanism for assuring that IT activities are aligned with the organizations evolving needs and strategies [42]. [43] viewed SISP as the process of identifying a portfolio of computer-based applications that may serve an organization best.

[52] note that SISP as the process of deciding upon the direction, development and policies for an organization's use and the management of information and networking technologies. [38] defined SISP as the continuous review for the need of preparation, acquisition, transfer, storage, retrieval, access, presentation and manipulation of information in all forms (analogue or digital, wire or wireless, text, graphics, image, data, voice, and video, manual or computer-based).

As [27] defined Public information system (PIS) as an organized combination of people, hardware, software, communication network, and data resources that collects, transforms and disseminates information for public use. According to [3], SISP was defined as the process of strategic thinking that identifies the most desirable IS on which the firm can implement and enforce its long-term IS activities and policies.

The study by [20] viewed SISP as the process of identifying a portfolio of computer-based applications that can be put into practice and in which it can positively align with corporate strategy. In another study, [12] defined that organizations used the SISP process to help develop the information systems that may be aligned with the organizational objectives, policies and strategic planning. SISP pertains to the process of creating plans for the deployment of information systems to fulfill corporate strategic objectives [29].

In general, many of the definitions presented in the literature tend to describe SISP as a management practice and process that helps organizations identify as well as select suitable computer-based applications for developing strategic plans and for improving their organizational performance. Accordingly, the section below presents the development stages of SISP as recorded form the literature.

IV.   DEVELOPMENT OF SISP

Traditionally, IT has been used to reduce costs in organizations by automating organizational processes. This role has changed significantly over time. [49, 59] discuss the evolution from the Data Processing (DP) era with its emphasis on efficiency, to management information system (MIS) era, with emphasis on effectiveness, to the Strategic Information System (SIS) with its emphasis on competitiveness. These authors not only accepted this as a very simplified manner of viewing the evolution of IS/IT, but also argue that it is certainly a convenient model that is often used to give an overview of the subject.

The evolution of ISP can be somewhat related to the delivery and development of computer-based information on the IS in organizations. Evolution of IS in organizations are based during the era of the four models [51]. According to this model there are four distinct, though overlapping, IS era, dating back to the 60's.

While the initial implementation of a clear focus on the automation of IT tasks and repetitive scholar, a proactive search was conducted on the opportunity to use IT to gain business from the end of the 1970s until 2000s. Indeed, it was widely accepted that the evolution of IT in the organization to date can be categorized as; data processing (DP), management information systems (MIS), and strategic information systems (SIS) [45].

Each era displays different characteristics of the IT and has a different purpose although the purpose of the DP era and MIS is part of the SIS for the purpose of improving competitiveness. Even now, many investments are made in the IT sector for competitive advantage, but not for reasons of efficiency and effectiveness. While the three perspectives are easy to criticize as an era of over-simple, it has not only proved popular amongst the researchers, but the theory and practice of the frame itself [21, 33, 37].

A.   The 1st Period (1960s)

The first is data processing (DP) era, dated back to the 1960s, in which the main emphasis is on automating the basic business transaction and therefore the achievement of efficiency gains for the organization. Typically, the process automation functions take place by the functions, and thus the idea of planning is based primarily on the basis of the project [50], the system was based on economic criteria with some of the other related systems [45].

During this early period of computerization, the preoccupation was with managing the activity-operations, programming, and data collection. It has been suggested that the early writings of SISP principally focused attention on improving the efficiency of computers and computer management problems in general. SISP is seen as a problem for the IS function, are relatively isolated from direct business organization [11].

The relationship of IT and strategic planning is essentially developed from the two tendencies, which occurred in the 1960s and the 1970s. The first of these trends began in the early 1960s by pushing a single integrated approach to MIS, which can be used throughout the organization.

B.   The 2nd Period (1970s)

The SISP models developed during this period [13, 35] were based on hierarchical application portfolio model introduced by (Anthony, 1985). The model was deficient in guidelines for identifying or explaining SISP opportunities and concentrated too much on the issues of the day, rather than on future goals or concerns.

By the late 1970's, an approach that integrated separate but interrelated information systems throughout the organization became the norm, especially for larger organizations. These approaches develop into a second trend, which still exists in organizations today, that is the information system which is interwoven into the management processes of the organization.

C.   The 3rd Period (1980s and 1990s)

Researchers agreed that the 1980s were the beginning of what is widely defined as the strategic information system (SIS) era, which was characterized by use of desktop computing and SISP that promoted delivery of competitive advantage [51].

In the mid to late 1980's came calls for the adoption of new methods [7, 18, 24] as the IT environment changed in many ways. Furthermore, as computer-based information systems played a more important role in the organization's business strategies, the links formed between business planning and IT planning tightened. However, IT planning activities remained somewhat reactive with regards to organizational strategic determination processes.

The 1990's was characterized by the realities of the digital world: super high speed networking, instant messaging, real time communications, digital meetings, and constant technological progress, thus accelerating transformation in the organizations, starting with their vision, mission, business and IT strategies, structures and workforce characteristics [5, 26, 36]. With the critical dependency on IT/IS, organizations are responded toward pronounced need of strategic planning of IT/IS resources.

The mid and late 1990's are characterized by the use of powerful system to acquire enormous amounts of data, analyze history and present them for the management to be able to 'predict the future'. It is frequently reported that businesses were under sustained pressure and critically dependent on their investment in IT/IS for their success [50]. This decade, in particular the late 1990's, was characterized by an IT/IS 'boom', and seen as an open and application integrated, information sharing, and network oriented era. The internet and globalization have far-reaching effects on the way entrepreneurs think, plan and execute business. Thus, SIS era has completed the links between computer system and the business strategy [48].

Business re-engineering theory emerged in the 1990's [14] and an innovating approach to SISP had become imperative. Thus, strategic IS planning process was more flexible, ready for more frequent updates to reinforce the benefits which it can offer as 'success in the past has no implication for success in the. In that sense, SISP has become the most critical element in meeting short-to-medium-term needs [50].

D.   The 4th Period (2000s)

In the fourth period, IS capability is launched as the 'Fourth Era' which goes beyond seeking alignment or searching out for competitive opportunities from IS/IT. The IS capability is expressed in three dimensions: working in harmony, being flexible and reusable IT platform, and an effective use process and fusing business knowledge and IS knowledge.

Computer Information system (CIS) goes beyond the element of seeking an alignment or searching out for competitive opportunities from IS or IT. Basically CIS has three centers of dimensions fusing knowledge and business knowledge, a flexible infrastructure and reusable IT and an effective process to resume the use of IS / IT [48].

Later, when an organization was able to cope with various of types of applications, over an extended life cycle during which technology could change significantly, the 'departments' were managed as a coordinated set of resources, which were planned to meet expected future requirements [50]. Through the experience of IS managers, there is concern among the management to know whether SISP's able to handle business problems or issues

they paced. Concerns have been caused by reactive IS planning and focus on top-down planning [31].

V.   DISCUSSION AND CONCLUSIONS

Based on the literature and past studies, this paper reviews the evolution of SISP. The review of the literature indicates that from a concept, SISP has evolved into a discipline of study and has become an important field of practice. The literature also reveals that there is no one universally accepted definition of strategic information systems planning (SISP). Different practitioners, consultants and scholars used different definitions to describe SISP. In general, however, many of the definitions presented in the literature tend to describe SISP as a management practice and process that helps organizations to identify as well as select suitable computer-based applications for the purpose of developing their strategic plan and for improving their organizational performance.

With regard to the development of SISP, the literature indicates that since SISP was introduced in the 1960s, it has evolved through four different stages. At each different stage, the scope and focus of SISP not only changed but also the SISP models in each period differ from each other.

In conclusion, SISP need to be defined precisely and appropriately. A precise and appropriate definition help the Business, government and educational organizations identify the requirement of planning and implementation the SISP. A definition that is accurate and applicable is vital and beneficial to improve not only their performance but also their effectiveness, efficiency and productivity. The absence of a more precise and consistent definition of SISP may have resulted from various factors such as the complexity and scope of SISP, the difficulties in obtaining accurate information on SISP in organizations, the unavailability of information on SISP, limited experience related to SISP and the lack of knowledge in this field of study. It is hoped that this paper has provided some insights and contributions towards the development and advancement of more useful and rigorous research on SISP.

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