A Strategic Information System Planning and Strategy-As-Practice Perspective

Subjects: Management
Contributor: Sehoon Kim

Strategic information system planning (SISP) is a central process that enables organizations to identify the strategic alignment of their IT portfolio to achieve their business needs and objectives. The extant SISP literature has focused on theoretical and processual aspects and has left methodological ambiguity about how SISP is practiced. Strategic information system planning (SISP) becomes central for any business when an organization faces an inflection point concerning its information system.

causal layered analysis | critical success factors | mission-critical system | multi-criteria decision-making | strategic information system planning | strategy-as-practice

1. Introduction

A firm's information systems (IS) significantly affect business results in the modern management environment. The information systems substantially shape the way the organizations work, and their performance is embodied and realized through those systems [1]. The rapid penetration of information technology has resulted in considerable attention on digitized data and business intelligence [2], and the enabled digital connectivity has changed how businesses and people work, expediting the proliferation of business information systems to increase efficiency, value, and innovation opportunities [3][4]. Therefore, modern businesses actively aim at improving their performance through adequate information systems [1] as an innovative and core means to secure competitive advantage [5][6][7], and an undoubtable de facto element of success [8].

However, contrary to the expectations, the introduction of all information systems does not necessarily lead to desired performance. The information systems consist of infrastructure, data, applications, and, most importantly, the people who embrace the technology services within the organization [9][10]. IT assets, such as a newly adopted mission-critical system whose usage is often mandated, may lead to dissatisfactory results if the system design is not aligned with the strategic direction or fails to meet the requirements of its users [11][12][13][14]. Furthermore, businesses undergo unprecedented technological changes with their information systems under COVID-19 [15]. Business systems face new technological challenges, such as infrastructure that enables remote work, virtual meetings, contactless commerce, privacy protection, cybersecurity, data analytics, and data-driven decision-making processes [16]. Therefore, it becomes imperative for firms to entrench the new system in the desired organizational practices and processes, while achieving continued system usage from the employees [14][17][18] in the "New Normal," the post-COVID-19 era.

Strategic information system planning (SISP) becomes central for any business when an organization faces an inflection point concerning its information system. Overall, SISP is a process through which an organization identifies its IT applications portfolio to achieve its organizational objectives and to help execute its business plans [7]. Changing environments enforce organizations to entail significant investments from their revenue and R&D budgets to develop strategic information systems [10][19][20]. Estimating the effectiveness of the investments has been the primary purpose of strategic planning for IS/IT decision-makers [21][22], and the proliferation of new IT technologies since the 1990s has further strengthened the value and contribution of the SISP practice in organizations [20][23]. IS long-term planning that is well-aligned with business strategy has been one of the top management concerns for decades [24].

Moreover, desired performance generated from the information systems in which all the resources are shared and interconnected with the users is crucial for firms [20]. Hence, today's organizations include SISP as an essential process to improve their performance in designing the elements in information system development, seeking the best effectiveness and efficiency available [7]. As a result, it is understood that aligning the firm's strategy with the core business system based on a SISP perspective becomes critical for organizations.

A firm's management can consider various methodological approaches to identify and evaluate the priorities in developing an information system, and one of the vital issues in the SISP is to choose the best-suited method for the stakeholders [25]. In exploring the business needs for IS, various analytical frameworks and techniques may help managers find insight into maximizing organizational effectiveness. The critical success factors (CSFs) approach [26] is widely utilized in implementing the SISP process. Rockart [26] defined CSFs as the crucial areas of business activities that require constant and careful attention from top management. Identifying the CSFs is substantial to businesses [27][28]; the approach has been broadly accepted in the IS literature for a long time [29][30], and is believed to be a valid research methodology to make sense of finding latent elements for competitive advantage [27][31][32].

After analyzing the organizational goals and objectives and the stakeholders having extracted the key CSFs, prioritizing those dimensions would be an issue of significance [31]. Then, a multi-criteria decision-making (MCDM) model can be considered to evaluate the factors drawn [33]. MCDM has helped to overcome the choice problem in various research fields [33][34]. MCDM methodologies support the decision-makers in resolving problems in situations where multiple conflicting criteria exist that need coordination. It is of practical value, capable of being utilized under certain or uncertain situations, and enables stakeholders to scientifically make critical decisions, in line with quantitative and qualitative analyses [34]. Among the various MCDM methods available, AHP [35] has been chosen as a viable technique, proving its compatibility with other methods [33]. In a general sense, a synthesis of methodologies can help researchers to overcome the limitations of a single method and enable a better understanding of a phenomenon, e.g., [25][36][37][38].

Although the extant literature has dealt with SISP as a research topic, most have focused on theorizing SISP in an academic sense and focused on the literature research. There is an information asymmetry in the IS literature on how SISP can occur in reality [39][40], leaving methodological ambiguity. Despite the large pool of literature dealing

with SISP, many studies are concerned with its general processual characteristics, i.e., [41], leaving the detailed procedures of how SISP is practiced out of focus, loosening the links between the SISP process and underexplored macro-level contexts. Moreover, there is a strong need for IS researchers to consider connecting SISP with largely uncertain societal factors [42]. Therefore, this entry embraces a strategy-as-practice (SAP) method, e.g., [43][44][45], as a theoretical lens to explore SISP through an empirical case study. SAP allows scholars to shift their strategic focus from a mere concentration on effects to organizational performance, while enabling a more comprehensive, in-depth analysis of the real-world details of strategy formulation, planning, and implementation. Ultimately, this entry seeks to find a theoretical contribution to the existing literature, providing a practical and comprehensive case of SISP and a novel framework labeled CSF-MCDM. Relatively few academic efforts have been made to present the managerial benefits of a SISP based on the integrative and practical framework as presented in this entry. With this gap in mind, to theoretically contribute to the current knowledge, the primary objective of this entry is twofold. First, the entry aims to discover the CSFs in SISP practices that will enhance the suitability and effectiveness of the business core system required in the post-COVID-19 era. Second, the entry attempts to encapsulate the identified CSFs with a novel framework based on an MCDM model that would help businesses to acquire strategic alignment within the internal needs and existing resources to respond to the rapidly changing business environment, sustaining successful business results stemming from the newly developed information systems.

2. Strategic Information System Planning (SISP)

Strategic information system planning (SISP) has been a vital concept and interest for information systems managers since the 1980s [20], and the advent of new technologies such as internet-based computing further promoted IS/IT strategic planning in the 1990s, expediting the value of SISP practice [20][23]. Many scholars and the relevant literature have proposed various definitions of SISP. However, it can be generally defined as a process of identifying a computer-based portfolio/applications aligned with a firm's strategy, which ultimately create a competitive advantage or help the organizations to perform their business by realizing their objectives, e.g., [6][7][46][47][48][49].

The concept of SISP arose with the unavoidable investment pressure to develop strategic information systems [10][19][20], with requirements for the evaluation of the investments becoming the primary drivers of strategic planning for IS/IT assets [21][22][50]. Therefore, SISP has gained considerable recognition and acceptance as an essential management practice and process for improving organizational performance in various fields [7]. Previous scholars stated a that focus and emphasis on SISP could help organizations to enhance their performance, productivity, efficiency, and effectiveness [7][51][52][53].

A large body of the literature has dealt with SISP, providing slightly different definitions from each author. However, some substantial elements are commonly found at its core throughout the research stream, highlighting SISP's significance. SISP is an integrative and continuous planning activity, a review [20][54][55][56], or an analytical, evaluating exercise [57], which integrates technological elements [54][58], such as a computer-based portfolio/applications [5][6][7][46][47]. SISP is strategic thinking, planning, or deciding a direction for desirable

information management and policies [59][60][61][62], which aligns, supports, and influences the business strategy for competitive advantage [53][54][55][58][63], benefiting organizations with superior IS/IT evaluation [25]. From the above, it can be understood that the following common elements are crucial in the SISP process; (a) identification of IS/IT elements, (b) alignment with strategy, (c) decision, review, and process for long-term planning, and (d) being based on the business' needs and requirements. SISP's definitions in the literature are presented as follows (see **Table 1**).

Table 1. SISP definitions in the literature.

No.	Description	Author
1	An integrative process that includes a firm's various strategies such as IT, information management, change management, and human resources	[54]
2	A continuous planning activity, ensuring the implementation of information and communication technology (ICT) in an organization, aligning to business strategies, improving organizational process effectiveness, creating business opportunities, and contributing to an organizational competitiveness	[55]
3	A way of supporting and influencing a firm's strategic direction that identifies value-adding information systems and integrates organizational technologies through holistic information architecture development for successful systems applications	[58]
4	An analysis or an exercise of the corporate process using the business information models with the evaluation regarding risk, needs, and organizational requirements, enabling organizations to develop IS development priorities	[57]
5	A process of deciding the direction for development and policies regarding the organization's information use, management, and networking technologies	[60]
6	A continuous review of the need to prepare, acquire, transfer, store, retrieve, access, present, and manipulate information in all forms	[56]
7	A strategic thinking process or a mechanism that identifies the most desirable IS development through which a firm implements its long-term IT activities and policies, aligning the evolving organizational needs and strategies	[48][61][62]
8	A process that helps to develop the information systems aligned with the organization's strategic planning, including objectives and policies	[63]
9	A process to create IS deployment plans to fulfill a firm's strategic objectives	[53]
10	A process of identifying a computer-based portfolio/applications aligned with corporate strategy, which is capable of creating a competitive advantage or helping organizations to execute their business, realizing their business goals	[5][6][7][46][47]

Source: Author's elaboration.

The existing SISP literature pool has proposed numerous methodologies to help organizations with strategic plans for information systems [20]. Often, the typical SISP process engages the following five stages; (a) strategic business planning, (b) setting the information systems' mission and vision, (c) current information system assessment, (d) resource guidelines for the new information system, and (e) long-term strategic proposal [49]. The overall planning process should ensure that technology-related elements are well-aligned with the organization's

needs and strategy [25]. The success of SISP depends on the developers' ability to ensure a proper alignment among the relevant components [49]. Moreover, as a critical part, the SISP process should define the planning objectives and environmental analysis that connects to the new strategy for the business systems [25][64][65].

3. Critical Success Factor (CSF)

Identifying critical success factors is substantial for businesses [27][28]. It is required for the top management to identify the performance factors and priorities in the information systems development strategy to stay competitive. Rockart [26] defines the critical success factors (CSFs) as the limited number of activity areas that must receive continuous and persistent attention from management and may ensure the organization's successful competitive performance when satisfactory. The author argues that CSFs are substantial performance factors that would bring a competitive advantage to firms. Identifying CSFs allows management to determine the direction of the business focus, develop adequate measurements, and decide the scope of the required business data [26]. Daniel [66] first suggested the CSF concept, which was then further developed by Rockart [26], adding its value to business practices. Usually, the CSF is identified by four major factors; industry, environmental, strategic, and temporal factors.

Choosing an appropriate methodology is one of the vital issues for IS project managers before entering the SISP activities [25]. In implementing SISP to develop the information systems, researchers can consider various methodological options, such as the competitive forces model, value chain analysis, or the scenario planning method [25], to provide a long-term and integrative perspective. However, the CSF method is one of the most widely utilized methods for the SISP process. In particular, the CSF approach has been broadly accepted and utilized as a methodology in the IS/IT literature, has proved itself legitimate for a long time [29][30], and remains valid for the sense-making of a problem based in identifying potential factors for business success [27][31][67]. The CSF method has practical value and influence that enables project managers to integrate sustainability exploration into projects [32][68].

4. Multi-Criteria Decision-Making (MCDM)

Multi-criteria decision-making (MCDM) is a line of research methodology that enables decision-makers to resolve complex problems with multiple conflicting criteria that need to be prioritized based on evaluation values, e.g., [33][34]. It is a powerful and practical tool that can be applied to decision situations where both certainties and uncertainties prevail, and can be incorporated with other quantitative and qualitative methods to provide more scientific rigor [34]. Despite the differences in choosing the methodologies, in the recent literature, there have been efforts to embrace the MCDM approach to prioritize CSFs in other domains [69][70][71][72].

In general, a decision-making process based on MCDM engages the following three stages [73][74][75]; (a) structure the decision problem, (b) choose the best MCDM model, and (c) review the final result with prioritization pointing at preferable alternative orders, decided by the weighted scores. The literature has proposed multiple MCDM

methods surrounding the complexity in decision problems. AHP (analytic hierarchy process) [76][77], the ELECTRE (Elimination Et Choix Traduisant la Realité) method [78][79] and its variants (e.g., ELECTRE I, II, III, IV, and Tri), PROMETHEE (preference ranking organization method for enrichment evaluation) [80][81] and its variations, TOPSIS (technique for order of preference by similarity to ideal solution) proposed by Hwang and Yoon [82], and the WASPAS (weighted aggregated sum product assessment) method suggested by Zavadskas et al. [83] are all among the prominent ways that are applicable to the solving of decision problems.

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