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Maria Kamariotou

University of Macedonia, mkamariotou@uom.edu.gr

Fotis Kitsios

University of Macedonia, kitsios@uom.gr

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Strategic alignment and Information Systems success: Towards an evaluation model for firm performance

Maria Kamariotou and Fotis Kitsios

Department of Applied Informatics, University of Macedonia, Thessaloniki, Greece
mkamariotou@uom.edu.gr; kitsios@uom.gr

Abstract

There are several models about the development of a successful Information Systems Planning process, while very little research has focused on the contribution of the Strategic Information Systems Planning (SISP) process to firm performance. The assessment of the process is a decision problem and managers should evaluate alternatives so that it could be solved. Both executives and researchers need to be aware of how the alignment of business and IS strategies impact firm performance. The purpose of this paper is to propose a conceptual model of the determinants of the SISP process and success in Small-Medium Enterprises (SMEs) to assess the contribution of these two variables to firm performance. Understanding those phases may help IS executives concentrate their efforts on organizations' objectives and recognize the greatest value of the planning process in their firms. This paper contributes to IS executives in Greek SMEs who do not concentrate on strategic planning during the development of IS and they focus only on the technical issues. As a result, they should understand the significance of the SISP process in order to formulate and implement IS strategy which will be aligned with business objectives and increase the success of SMEs.

Keywords: Information Systems Strategy, Success, Alignment, SMEs, Firm performance

1.0 Introduction

In order to stay competitive in today's uncertain and complex business environment, managers must not only develop Information Systems (IS) that support business strategy but also develop IS that facilitate decision-making in order to improve both their performance and their competitive advantage (Al-Ammary et al., 2019; Arvidsson et al., 2014; Drechsler and Weißschädel, 2018; Merali et al., 2012; Queiroz, 2017; Rathnam et al., 2005; Ullah and Lai, 2013; Zubovic et al., 2014). Firms need to re-examine their strategy in light of the increasing complexity of the business environment, which has created new requirements and competitive challenges. However, IS strategy must be aligned with the company's overall business strategy to create a long-term competitive advantage. As a result, many businesses have committed resources to improve their competitive position by analyzing their internal processes (Chatzoglou et al., 2011; Gable, 2010; Johnson and Lederer, 2013;

van de Wetering et al., 2018; Wolf and Floyd, 2019; Yoshikuni and Albertin, 2018). This is a critical issue for all businesses, but it is especially so for Small and Medium-sized Enterprises (SMEs) (Kamariotou and Kitsios 2022; Kitsios and Kamariotou, 2021).

A new complex financial environment involving increase of uncertainty has been created by the financial crisis which has challenged market characteristics, many of which have already acted given the fact that they have negatively been affected by this (Kitsios and Kamariotou, 2021). This new environment can lead to difficulties in business financial aspects and these can lead to lack of managerial, technological and human capabilities. All these can limit business ability to bowl over that very same financial crisis, creating a vicious circle (Bourletidis and Triantafyllopoulos, 2014; Giannacourou et al., 2015; Kitsios and Kamariotou, 2021). Formal processes related with strategic management and information handling is what can help managers focus on strategies, structures and processes that aim to enhance firm performance. As Information Technology (IT) investment not only influences business performance but also helps executives align business strategy and organizational performance, IT investment has been of the most importance (Chatzoglou et al., 2011). Consequently if the environment is complex and managers have to take multiple decisions for their organizations, businesses can develop formal processes by using standardized rules and procedures that lead to minimization of environmental uncertainty and can manage economic consistency (Drechsler and Weißschädel, 2018; Lee et al., 2014; Queiroz, 2017; Ullah and Lai, 2013).

Alignment is traditionally conceptualized as the extent of fit between the IS strategy and the business. What has been showed by several studies is that the relationship between alignment and performance is positive (Chatzoglou et al., 2011; Queiroz, 2017; Siakas et al., 2014; Street et al., 2017). Researchers argue, though, that different paths can be used by SMEs so that a great extent of alignment depending on their capabilities and their market position can be achieved. Thus, the more extensive the planning, the more effective that would be and it could help executives not only understand the impact of the environment but also respond better to it (Newkirk et al., 2003). IS plan can be inefficient when managers avoid investing much time on the process since then more often than not its goals cannot be achieved. Investing too much time, though, can raise many conflicts between the team members, a fact that can lead to the process being delayed. As a result, the assessment of the process is a

decision problem and decision makers should evaluate alternatives so that it could be solved. Such an evaluation could allow managers to reduce unsatisfactory results, therefore it considered to be of great importance (Kappelman et al., 2019).

Unfortunately, though, IS strategy has been studied as a homogenous topic, so far and there have been limited studies delving into comparing the state of relevance across planning or alignment (JADDA et al., 2021). Nevertheless, what SMEs represent is a distinct grouping of firms in which both firm size and resource constrains have a noticeable impact on alignment factors as well as on outcomes (Kitsios and Kamariotou, 2019c; Street et al., 2017). A significant challenge for entrepreneurs managing Greek SMEs is the reduced life cycle of small firms. The rate of entrepreneurial development is high but Greek SMEs cannot achieve sustainable competitive advantage (Mazzarol and Reboud, 2006). Thus, SMEs need a guide for effective decision making in the IT field. It has been showed by the management literature that advances in IT lead to increasing levels of its adoption and use in SMEs and that technology is pushed further into their processes and operations. Both executives and researchers need to be aware of how the alignment of business and IS strategies impact firm performance (Spinelli et al., 2013; Street et al., 2017).

Therefore, the purpose of this paper is to propose a conceptual model of the determinants of the Strategic Information Systems Planning (SISP) process and success in SMEs to assess the contribution of these two variables to firm performance. The structure of this paper is as following: after a brief introduction to this field, the next section includes the theoretical background regarding the, the SISP process, the IS planning success and the relationship between alignment and firm performance. Section 3 presents the proposed conceptual model. Finally, Section 4 provides limitations and suggestions for future research.

2.0 Theoretical background

2.1 Strategic Information Systems Planning phases

The concept of SISP has been associated with the ability to formulate business strategy using IS, techniques and methodologies which were used to support organizations in identifying potential opportunities to develop IS with greater competitiveness (Kamariotou and Kitsios, 2019a; Mentzas, 1997; Peppard and Ward, 2004). SISP has been considered as an integrated process which contains specific

phases. These phases represent the components of the planning process such as the identification of the key planning issues, the analysis of internal and external environment, the analysis of strategy alternatives, the formulation and the implementation of strategic planning.

SISP phases and the relative activities are presented in Table 1.

Phases	Activities	References
Strategic Awareness	SAw1: Determining key planning issues SAw2: Determining planning objectives SAw3: Organizing the planning team SAw4: Obtaining top management commitment	(Brown, 2010; 2004; Kitsios and Kamariotou, 2019b; Maharaj and Brown, 2015; Mentzas, 1997; Mirchandani and Lederer, 2012; Newkirk et al., 2003)
Situation Analysis	SA1: Analyzing current business systems SA2: Analyzing current organizational systems SA3: Analyzing current information systems SA4: Analyzing the current external business environment SA5: Analyzing the current external IT environment	
Strategy Conception	SC1: Identifying major IT objectives SC2: Identifying opportunities for improvement SC3: Evaluating opportunities for improvement SC4: Identifying high level IT strategies	
Strategy Formulation	SF1: Identifying new business processes SF2: Identifying new IT architectures SF3: Identifying specific new projects SF4: Identifying priorities for new projects	
Strategy Implementation Planning	SIP1: Defining change management approaches SIP2: Defining action plans SIP3: Evaluating action plans SIP4: Defining follow-up and control procedures	

Table 1. SISP phases and activities.

Management literature has shown results on the concentration of senior executives on Strategy Conception and Strategy Implementation. IT managers do not invest time on Strategic Awareness and Situation Analysis, as a result the implemented plans are not effective, successful and they do not meet business objectives (Brown, 2010; Kitsios and Kamariotou, 2019a; Newkirk and Lederer, 2006; Newkirk et al., 2003). Furthermore, managers who only concentrate on the implementation of the process can achieve shorter SISP horizons but they cannot align strategic goals with IT ones. Senior executives do not pay attention to strategic objectives how IS can increase business value because they focus on the horizon of the project and on decrease of cost due to limited IT budget (Brown, 2010).

Strategic Awareness concentrates on the planning process on gaining appropriate knowledge about competitors, resources, customers and regulators. The understanding of that knowledge could be achieved through careful organizing of the teams. Top management commitment provides greater organizational confidence and continued financial support for the process (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006; Newkirk et al., 2003).

Situation Analysis focuses on the analysis of the business, organization and IS and help practitioners be knowledgeable about the organization's requirements. The analysis of external business and IT environments would help them provide a better foundation for the plan, making it more possible to produce better results (Kitsios and Kamariotou, 2016; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006; Newkirk et al., 2003; Tallon et al., 2019).

Managers who pay attention to implementing Situational Analysis with greater meticulousness, they can apply Strategy Conception and Strategy Implementation Planning with greater agility rather than now (Kitsios and Kamariotou, 2019b). Executives could analyze their current business systems, organizational systems, IS, as well as the business environment and external IT environment in order to align IT strategy with business strategy. Thus, the output of the planning process can be significantly improved excluding the increased time and cost needed for the process. When executives understand the environment, they can determine important IT objectives and opportunities for improvement and they can evaluate them in order to define high-level IT strategies in their business' strategy conception (Mirchandani and Lederer, 2012).

Strategy conception includes different scenarios and their strategic and technological impacts are evaluated during this phase. Strategy formulation constitutes the fourth phase of SISP process. The main activities including in this phase are the identification of new business processes, new IT architectures in order to achieve IT goals, specific new IT projects and priorities for these projects. Finally, the last phase of the process named Strategy implementation planning includes the identification of change management approaches and action plans. Furthermore, in this phase IT managers evaluate the output of the process and whether the objectives of the first phase have been achieved (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006; Newkirk et al., 2003).

The most common problems which have been raised during the SISP process are the lack of participation and the failure to apply strategic IS plans (Zubovic et al., 2014). Executives cannot be committed to the plan, consequently the members of the team have difficulties to implement the IS strategy. Better prioritization would result in greater likelihood of implementation and greater chance of meeting objectives (Newkirk and Lederer, 2006; Newkirk et al., 2003). Moreover, results show that executives only focus on the implementation of IS strategy because they consider this process difficult and they ignore its formulation (Brown, 2004; Kitsios and Kamariotou, 2019b; Maharaj and Brown, 2015).

2.2 Strategic Information Systems Planning success

Relevant literature argued that IS planning success is “the degree to which the objectives of IS planning are achieved” (Pai, 2006). Traditionally, the concept of success has been viewed in four dimensions, namely alignment, analysis, cooperation and capabilities (Kamariotou and Kitsios, 2019c; Moeini et al., 2019; Newkirk and Lederer, 2006; Newkirk et al., 2003; Premkumar and King, 1994; 1991). The first one refers to the understanding of executives to use IS in order to support business strategy and to identify opportunities in order to support the strategic direction of the firm. Furthermore this dimension includes variables such as the alignment between IT strategy with the strategic plan of the organization, the education of top management regarding the importance of IT and the adaption of technology to strategic change. The second dimension is merely preoccupied with the generation of new ideas to reengineer business processes through IT. An important issue is the understanding of information needs through subunits, the understanding of the dispersion of data,

applications, and other technologies throughout the firm in order to develop a “blueprint” which will improve organizational processes. In this way managers can understand how the organization actually operates and evaluate internal business needs and the capability of IS to meet those needs. The third dimension refers to the ability of managers to develop clear guidelines of managerial responsibility for plan implementation, to identify potential sources of resistance to IS plans, to support open lines of communication with other departments in order to achieve a general level of agreement regarding the risks/tradeoffs among system projects and avoid the overlapping development of major systems. Finally, the last dimension includes a list of capabilities such as the ability to identify key problem areas, the ability to anticipate surprises and crises, the flexibility to adapt to unanticipated changes and the ability to gain cooperation among user groups for IS plans (Kamariotou and Kitsios, 2019c; Moeini et al., 2019; Newkirk and Lederer, 2006; Newkirk et al., 2003; Premkumar and King, 1994; 1991).

The dimensions of SISP success are presented in Table 2.

Dimensions	Items	References
Alignment	AL1: Maintaining a mutual understanding with top management on the role of IS in supporting strategy AL2: Understanding the strategic priorities of top management AL3: Identifying IT-related opportunities to support the strategic direction of the firm AL4: Aligning IS strategies with the strategic plan of the organization AL5: Adapting the goals/objectives of IS to changing goals/objectives of the organization AL6: Educating top management on the importance of IT AL7: Adapting technology to strategic change AL8: Assessing the strategic importance of emerging technologies	(Kamariotou and Kitsios, 2019b; Kitsios and Kamariotou, 2019c; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006)
Analysis	AN1: Identifying opportunities for internal improvement in business	

	<p>processes through IT</p> <p>AN2: Maintaining an understanding of changing organizational processes and procedures</p> <p>AN3: Generating new ideas to reengineer business processes through IT</p> <p>AN4: Understanding the information needs through subunits</p> <p>AN5: Understanding the dispersion of data, applications, and other technologies throughout the firm</p> <p>AN6: Development of a “blueprint” which structures organizational processes</p> <p>AN7: Improved understanding of how the organization actually operates</p> <p>AN8: Monitoring of internal business needs and the capability of IS to meet those needs</p>	
Cooperation	<p>CO1: Developing clear guidelines of managerial responsibility for plan implementation</p> <p>CO2: Identifying and resolving potential sources of resistance to IS plans</p> <p>CO3: Maintaining open lines of communication with other departments</p> <p>CO4: Coordinating the development efforts of various organizational subunits</p> <p>CO5: Establishing a uniform basis for prioritizing projects</p> <p>CO6: Achieving a general level of agreement regarding the risks/tradeoffs among system projects</p> <p>CO7: Avoiding the overlapping development of major systems</p>	
Capabilities	<p>CA1: Ability to identify key problem areas</p> <p>CA2: Ability to anticipate surprises and crises</p> <p>CA3: Flexibility to adapt to</p>	

	unanticipated changes CA4: Ability to gain cooperation among user groups for IS plans	
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Table 2. Success dimensions.

Researchers who have examined the relationship of SISP phases and success concluded that IS executives focused their efforts on the Strategy Conception phase. Strategy Conception, with recognition and assessment of opportunities, would provide more realistic alternatives. Recognition of IT objectives would enable the organization to align future IT and business objectives. Better alternatives and choices would support the plan produce better results (Kitsios and Kamariotou, 2019b; Lederer and Sethi, 1996; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006; Newkirk et al., 2003; Zubovic et al., 2014). Although executives focus on this phase, they cannot identify the suitable alternative strategies. As a consequence, their efforts do not positively influence SISP success. So, they cannot achieve their objectives.

The following propositions can be defined based on the above analysis about the relationship between SISP phases and SISP success.

Proposition 1: Strategic Awareness positively affects SISP success.

Proposition 2: Situation Analysis positively affects SISP success.

Proposition 3: Strategy Conception positively affects SISP success.

Proposition 4: Strategy Formulation positively affects SISP success.

Proposition 5: Strategy Implementation positively affects SISP success.

2.3 Alignment and firm performance

Information Systems alignment is identified as the degree to which the mission, goals and plans included in the business strategy are distributed and contended by the Information Systems strategy to affect firm performance. Information Systems strategy cannot be aligned to the business strategy when the business fails in formal planning and the business strategy is not clearly identified (Chan et al., 2006).

As the use of IT enhances the competitiveness of the organization by securing rare resources and acting as a modulation factor against change, the productivity of internal processes is improved. Knowledge is important because it highlights the limitation of the cost coordination, increases internal control, improves the productivity of internal methods, and minimizes both the costs of functions and of data handling. In addition, the adoption of IT supports businesses to improve their

relationship with their customers by learning more about their needs and helps businesses reduce uncertainty, as it enables them to focus on rapidly changing customers' demands while reducing response times. Finally, it enables businesses to develop innovative products that meet the needs of the customers and provide more efficient services while offering their existing products. It is obvious that this leads to satisfied customers, which in effect leads to improved firm performance (Fairbank et al., 2006).

Alignment allows companies to efficiently recognize the position of IT effectively, an essential factor that can support business success. Moreover by strengthening the interaction between market aspects and technology, alignment as a mechanism helps companies expand their company reach and infrastructure (Chatzoglou et al., 2011). It is also stated that the present alignment models are more business-driven than IT-driven, which means that in order to decide the most suitable way in which technology can help the organizations concentrate more on IT. If businesses want their initiatives supported by IT, they must know their business strategy as well as state it clearly (Ullah and Lai, 2013; van de Wetering et al., 2018).

The result for businesses which have aligned strategy and structure is that they are less defenceless to external change and internal inadequacies and consequently they are able to perform more competitively (Bergeron et al., 2004). Researches support that alignment has a positive combination with firm performance. Previous surveys concluded that businesses with high strategic alignment of Information Systems were performing better (Cao and Schniederjans, 2004). Also, effective alignment of the Information Technology plan with the business plan can impact on competitive advantage (Chan and Reich, 2007). Despite the fact that more attention is given to strategic Information Technology alignment, it cannot influence the firm performance without the simultaneous implementation of both strategic and structural alignment (Chan and Reich, 2007). If the business delays according to its competitors, strategic advantage and competitive advantage can quickly become strategic and competitive need. New technologies offer new opportunities for competitive advantage and strategic advantage (Luftman et al., 1993). Researches have been implemented to demonstrate alignment between Information Systems and organizational objectives and several alignment levels have been suggested to impact organizational outcomes which refer to performance and competitive advantage (Benbya and McKelvey, 2006). The fact that the strategic importance of Information Technology in

organizations is increasing, most studies have focused on the alignment of Information Technology strategy with business strategy and examined the performance effects of the strategic alignment (Yayla and Hu, 2012).

Having already listed the contribution of alignment methodologies, it is important to explore the difficulties that hinder many businesses from aligning IT with their strategy. First of all, often IT decisions are taken by company members who are ignorant of it, which inevitably leads to a misalignment of the organization (Peppard and Ward, 2004). On the other hand, IT executives, not informed of the organizational goals, would be unable to understand the needs of business decisions (Piccoli and Ives, 2005). Last but not least, managers and IT executives are often at odds with each other and appear not to trust each other, a fact that has a negative impact not only on their relationship but also on their company's competence (Ullah and Lai, 2013).

The following proposition can be defined based on the above analysis about the relationship between SISP success and firm performance.

Proposition 6: SISP success promotes firm performance.

Performance dimensions are presented in Table 3.

Dimensions	References
PER1: Sales growth	(Chatzoglou et al., 2011; Ilmudeen and Bao, 2020; Kitsios and Grigoroudis, 2020; Kitsios and Kamariotou, 2021; 2018; Luftman et al., 2017; Yoshikuni and Albertin, 2018)
PER2: Profitability	
PER3: Market share	
PER4: Flexibility in work	
PER5: Opportunities for new ideas	
PER6: Innovative New Product Development process	
PER7: Customers' satisfaction	

Table 3. Performance dimensions.

3.0 Proposed framework and propositions

It is known that businesses frequently face changes in the environment, especially in terms of changes in consumer services, technologies and product lifecycles. In this environment of innovation and strong market competition businesses need Information Systems which meet the needs of the business according to the business' goals, which affects the process of business with Information Technology alignment. The development of successful Information Systems needs both understanding of

system requirements and business activities. Achieving alignment from the development of Information Systems including supports the organizational stakeholders to effectively meet business goals. Nevertheless, Information System developers face challenges in implementing systems that meet business goals which act in an ongoing changing environment, because businesses are misaligned. Despite the contribution of alignment methodologies some businesses fail to align business with Information Technology due to the following challenges (Kitsios and Kamariotou, 2021; 2019c).

First, many decisions which concern about Information Technology are driven by business executives who are not informed about Information Technology. This barrier leads to the company being misaligned. Another challenge refers to Information Technology executives who are not informed about the business goals and often they cannot understand the needs of business decisions. Finally, business and Information Technology executives contravene and they do not trust each other, which influences their relationship and consequently the business survival (Ullah and Lai, 2013).

There is variety of factors which negatively influence the process of alignment. These factors refer to the limited involvement of the Chief Executive Officer (CEO) and Chief Information Officer (CIO) in strategic planning, the frail relationship between business and Information Technology, the communication problems between business and Information Technology, the short-term planning between business and Information Technology, the lack of business and Information Technology capabilities, the turbulent organizational structure, the organizational culture which does not promote the use of Information Technology, the use of Information Technology not as an organizational tool, the informal business planning and the lack of Information Technology faith (Ullah and Lai, 2013).

Except for factors which negatively affect the process of alignment, there are inhibitors which hamper the process. These inhibitors are referred to be the facts that Information Technology does not prioritize well or fails to meet its obligations, it does not understand business objectives, it fails to succeed in strategic objectives and does not communicate effectively the business goals and vision. Also, Information Technology management does not provide leadership in the alignment process and managers do not support the use of Information Technology and resist. Last major factor is that Information Technology and business plans are not linked (Luftman and Brier, 1999).

Businesses are constantly looking out rapid changes in the business environment, especially changes related in consumer services, technologies and product lifecycles. Innovation and market competition has pressed businesses to improve their business strategies in a rapid way. The business investment in Information Technology and the speedy upgrading of business strategies has force top management to pay more attention to Information Systems and combine Information Systems planning at the strategic level of the business (Chatzoglou et al., 2011).

The participation of CEO and other top managers is a major factor for successful alignment. This participation is significant because it contributes to the competitive use of Information Technology and the successful implementation of Information Technology strategies. The CIO should devote to understanding business needs and the CEO should devote to investigating Information Technology opportunities. CIOs who participate in formulating business goals are more possible to understand business goals and to closely connect Information Technology strategies closely with organizational strategies. CEOs' participation contributes to the ability to CIOs to provide information about competitors' uses of Information Technology and to share knowledge about emerging opportunities (Kearns and Lederer, 2003).

Figure 1 presents the proposed conceptual model based on the above analysis about the relationship among SISP phases, SISP success and firm performance.

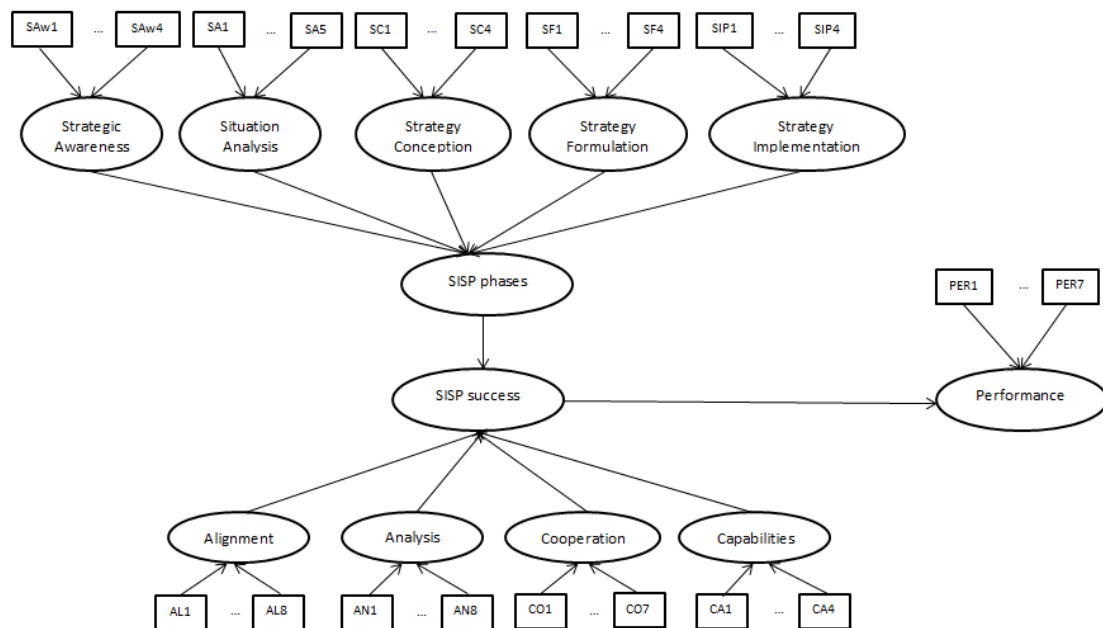


Figure 1. Proposed conceptual framework.

4.0 Conclusion

This paper presented a conceptual model including the determinants of the SISP process and SISP success to assess the contribution of these two variables to firm performance in SMEs. The literature about SISP phases and SISP success has been reviewed to identify the variables that evaluate the SISP process. The contribution of SISP success to firm performance is a question that is still fundamental in the field of IS. Therefore, a conceptual model has been developed to evaluate the impact of SISP phases and success on firm performance.

The contribution of this paper is twofold. First, regarding the theoretical implications of this study, understanding those phases may help IS executives concentrate their efforts on organizations' objectives and recognize the greatest value of the planning process in their firms. Second, this paper contributes to IS executives in Greek SMEs who do not concentrate on strategic planning during the development of IS and they focus only on the technical issues. As a result, they should understand the significance of the SISP process in order to formulate and implement IS strategy which will be aligned with business objectives and increase the success of SMEs.

A limitation of this paper is that the model has not been tested yet. Future researchers can evaluate the model using methods such as Structural Equation Modeling to identify the phases that mainly contribute to success. Another avenue for future research is to evaluate the factors that contribute to the failure of IS in SMEs or large firms, assessing the factors that hinder the SISP process in different types of organizations, and what might be the barriers to performance. To compare the differences in SISP application between firms from different industries, cluster analysis could be used for data analysis by potential researchers.

Another suggestion for future researchers is the implementation of semi-structured follow-up interviews with the business operating in different regions in order to find some meaningful insights. Particularly semi-structured interviews provide respondents with an opportunity to have an open discussion about the impact of IT and business strategy on business performance.

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