University of Macedonia
Department of Applied Informatics

Strategic Planning and Information Systems in Small-Medium Enterprises: Dimensions of Success and Performance

Doctoral Thesis
(Submitted for the fulfilment of the requirements of the Degree of Doctor of Philosophy in Applied Informatics)

Maria Kamariotou

Thessaloniki, July 2022

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The Doctoral Thesis was supported by the Hellenic Foundation for Research and Innovation (HFRI) under the HFRI PhD Fellowship grant (Fellowship Number: 188).

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Dedication

To Fotis,

John,

Kathrin, and

Vicky

Acknowledgements

I would like to express my gratitude to all the people who supported me during the implementation of my doctoral thesis. First of all, I would like to thank my supervisor, Professor Fotis Kitsios for his guidance and for sharing his knowledge and academic experience. I am honestly grateful for his valuable support and guidance during all these years and for the opportunity, he gave me to collaborate and explore new academic paths. I owe him a debt of gratitude for igniting my interest in this field of study.

My two advisors, Professor Maro Vlachopoulou and Professor Evangelos Grigoroudis have provided to me helpful feedback, support and collaboration in order to achieve this goal. In addition, I'd like to express my gratitude to the committee members who worked together to review and approve my doctoral thesis.

All of the managers who participated in the survey and provided their feedback and insights were greatly appreciated during the data collection process and the pre-testing of the instrument. Furthermore, I would like to acknowledge the significance contribution of Ms. Iro Tzormpatzaki from the Library of the University of Macedonia and the support of Ms. Arhondia Kotouli. Finally, I would like to thank my family and my friends for their support and understanding.

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List of Abbreviations

CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CIO	Chief Information Officer
CRM	Customer Relationship Management
DEA	Data Envelopment Analysis
df	degrees of freedom
ERP	Enterprise Resource Planning
H	Hypothesis
ICT	Information and Communication Technologies
IS	Information Systems
IT	Information Technology
KMO	Kaiser-Mayer-Olkin
MCDA	Multiple Criteria Decision Analysis
MUSA	MUlticriteria Satisfaction Analysis
OLS	Ordinary Least Squares
PLS	Partial Least Squares
RMR	Root Mean square Residual
ROA	Return on Assets
ROI	Return on Investment
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modeling
SISP	Strategic Information Systems Planning
SMEs	Small-Medium Sized Enterprises
TVE	Total Variance Explained
VIF	Variance Inflation Factor
X^2	Chi-square

Abstract

This thesis aims to (1) indicate the phases of Strategic Information Systems Planning (SISP); (2) indicate the phases that contribute to a greater extent of success; (3) indicate the phases that contribute to firm performance; and (4) investigate the effect of the use of SISP on Information Systems (IS) executives' satisfaction. All data was obtained in 294 Greek Small-Medium Enterprises (SMEs) from IS executives. Factor Analysis, Structural Equation Modeling, Ordinal Regression Analysis and Multiple Criteria Decision Analysis (MCDA) were used to analyze data.

This thesis has theoretical and practical contribution for both academics and IS executives. The findings of this survey lead to an understanding of IS strategic planning's use by executives. It is essential that they should be knowledgeable about it and that the tasks of IS strategic planning should not be ignored. It is possible that by understanding the process of IS strategy and its importance, IS executives will be helped not only concentrate on organizational goals but also realize that the planning process has the greatest importance to their business. Otherwise, there will be difficulties in achieving them both. The results show that Information Technology (IT) investment assists managers to set business strategy focusing on the improvement of organizational market share, flexibility in work and generation of opportunities for new product development. In this way, what SMEs should do is identify and communicate a culture of innovation and alignment with business strategy and IT goals in order to increase flexibility in work and opportunities for new product development.

IS planning and alignment are fields that include multiple conflicting objectives. Using methods such as Ordinal Regression Analysis or MCDA, decision makers can analyze alternatives and select the most appropriate for their problem during the implementation of IS strategic planning. IS planning should not be viewed solely through the lens of the periodic planning exercise. IS planning should also encompass the planning associated with IT investment decisions. By incorporating cooperation between business managers and IT managers in strategic IS planning, IT executives have the opportunity to examine the challenges in the implementation of IS projects and the impact of IS on the firm's performance. By examining IT executives' perceptions, they can identify the dimensions that should be improved during the implementation of IS projects and thus they can improve their satisfaction as well as their firm's performance. This wider collaboration in

IS planning can improve adaptability and increase congruence between IS planning and market needs.

Extended abstract

Small-Medium Enterprises (SMEs) are the main drivers of a country's economy and provide a rich research sample, accounting for more than 99 percent of companies in the European Union. What could help managers and entrepreneurs improve firm performance in SMEs is formal innovation processes regarding both strategic management and technology handling. In light of technological advances over the last ten years, scholars and practitioners have concluded that the greatest obstacle to the adoption of innovative technologies is a lack of Information Systems (IS) strategy. IS strategy must be aligned with the business strategy which involves an organizational strategy formulated and implemented to exploit the digital capital to achieve differential value.

Despite the fact that many SMEs adopted digital tools to continue operations and either moved to or increased their web-based sales, several SMEs experienced a decline in sales, on increase in value added, and faced numerous cash-flow issues. One cause of these challenges is the inappropriate development of digital tools. A process that can help managers make efforts in this direction is the use of Strategic Information Systems Planning (SISP).

Common amongst researchers paying attention at the challenges for SISP, strategizing and competitive positioning in the face of the inherent complexity, turbulence and dynamism of the competitive landscape, is the question of investigating how IS can contribute to competitive advantage. However, the more extensive the planning, the more efficient it would be, as it would allow planners to understand and respond better to environmental impact. On the other hand, when too much time is spent, many conflicts among team members may emerge which lead to the delay of the project. As a result, an important research question is "what are the dimensions for successful IS planning and what is the contribution of IS strategy to firm performance and how satisfied are IS executives with it?".

IS planning process evaluation is a decision-making problem where decision makers need to determine alternatives. In the existing literature about the effect of SISP process on success and firm performance, Multiple Criteria Decision Analysis (MCDA) methods have not been used for decision-making problems that are defined by the multidisciplinary or multi-criteria nature of the factors needing to be evaluated. During the different phases of IS planning, while managing these types of decision-making problems, assessment

methodologies have to be formulated in order to evaluate the objectives that have been set. IS planning and alignment are fields that include multiple conflicting objectives.

This thesis aims to (1) indicate the phases of SISP; (2) indicate the phases that contribute to a greater extent of success; (3) indicate the phases that contribute to firm performance; and (4) investigate the effect of the use of SISP on IS executives' satisfaction. All data was obtained in 294 Greek SMEs from IS executives. Factor Analysis was used to indicate the phases of SISP in order to answer the first research question. Then, Structural Equation Modeling was used to analyze the phases of SISP which contribute to a greater extent of success in order to answer the second research question. Next, Ordinal Regression Analysis was used to analyze the phases of SISP which contribute to firm performance in order to answer the third research question. Finally, MCDA was used to investigate the effect of the use of SISP on IS executives' satisfaction in order to answer the fourth research question.

The results show that Information Technology (IT) investment assists managers to set business strategy focusing on the improvement of organizational market share, flexibility in work and generation of opportunities for new product development. In this way, what SMEs should do is identify and communicate a culture of innovation and alignment with business strategy and IT goals in order to increase flexibility in work and opportunities for new product development. IT executives should be aware of IT issues because this can be an obstacle for the organization and will prevent them from achieving their planning goals and increasing the market share of the business. More often than not, the decisions taken do not focus on the objectives of IS department, a fact that can impede both SME's profitability and competitiveness of businesses. Therefore, a culture of innovation that can support IS is necessary if the benefits of SMEs can be increased through the process of strategic alignment.

Executives focus their efforts on the SISP process implementation but this phenomenon has significant barriers. Although less time may be spent for the implementation of the SISP process, the strategic goals of the company might not be aligned with IT goals. The results presented herein indicate that when executives concentrate on Analysis of internal environment, the agility of Strategy conception and Strategy implementation planning will be increased. Executives can analyze the existing business systems, the digital tools and both the organizational and the external technological environment to align IT strategy

with business strategy. Considering this analysis, the developed IT plan will be remarkably enhanced with the exception of required time and cost for the process. When managers are aware of the business environment, they can define crucial IS goals and opportunities to improve the company's effectiveness. Furthermore, they can assess these goals to identify high-level IS strategies during Strategy conception.

The findings of this survey lead to an understanding of IS strategic planning's use by executives. It is essential that they should be knowledgeable about it and that the tasks of IS strategic planning should not be ignored. It is possible that by understanding the process of IS strategy and its importance, IS executives will be helped not only concentrate on organizational goals but also realize that the planning process has the greatest importance to their business. Otherwise, there will be difficulties in achieving them both. Alignment may enable businesses to increase IS investments and to achieve harmony with the business strategies and plans. Thus, this leads to increased profitability and competitive advantage. Business-IT alignment helps IT executives acquire salient information about business initiatives and they are more likely to be knowledgeable about IT technologies and opportunities. As a result, IT plans have fewer problems, improved quality and the firm's performance is increased. These findings could help researchers understand how IS strategy supports the development of innovative technologies that incorporate opportunities to enhance business development, innovation and create a social impact through the challenges of COVID-19.

Another benefit from this thesis is the use of Ordinal Regression Analysis and MCDA. Ordinal Regression Analysis helps decision makers forecast effects or impacts of changes and predict trends and future values in order to improve the process of IS planning. MCDA is a decision making approach for performance evaluation. MCDA helps decision makers evaluate alternatives and make decisions about their problems. IS planning and alignment are fields that include multiple conflicting objectives. Using this method, decision makers can analyze alternatives and select the most appropriate for their problem during the implementation of IS strategic planning. IS planning should not be viewed solely through the lens of the periodic planning exercise. IS planning should also encompass the planning associated with IT investment decisions. By incorporating cooperation between business managers and IT managers in strategic IS planning, IT executives have the opportunity to examine the challenges in the implementation of IS projects and the impact of IS on the

firm's performance. By examining IT executives' perceptions, they can identify the dimensions that should be improved during the implementation of IS projects and thus they can improve their satisfaction as well as their firm's performance. This wider collaboration in IS planning can improve adaptability and increase congruence between IS planning and market needs.

1. Introduction

1.1. Research motivation

The current changes in external environment such as increase of digital transformation, financial crisis, and COVID-19 pandemic crisis have created a novel, complicated situation involving increased uncertainty and challenging market features. This new environment may cause difficulties in the financial dimension of firms and particularly for Small-Medium Sized Enterprises (SMEs), which may lead to lack of administrative, technical and human capabilities which, in effect, may constrain the capacity to deal with the crisis (Ardito et al., 2021; Bourletidis and Triantafyllopoulos, 2014; Cowling et al., 2020; Giannacourou et al., 2015; Papadopoulos, et al., 2020; Sabherwal et al., 2019). SMEs are the main drivers of a country's economy and provide a rich research sample, accounting for more than 99 percent of companies in the European Union (Afolayan et al., 2015; Becker and Schmid, 2020; Garzoni et al., 2020).

What could help managers and entrepreneurs improve firm performance in SMEs is formal innovation processes regarding both strategic management and technology handling. Investment in Information Technology (IT) enables managers to develop business strategies that are focused on the improvement of organizational performance because it influences business development (Becker and Schmid, 2020; Drechsler and Weißschädel, 2018; Garzoni et al., 2020; Lee et al., 2014; Queiroz et al., 2020; Ullah and Lai, 2013). Based on the results of the Annual Report on European SMEs 2020/2021 (European Commission, 2021), the most common reason given by SMEs for not using Information and Communication Technologies (ICT) was that ICT was not suitable for the enterprise (59% of SMEs do not use ICT). Other, relatively less important, factors reported by SMEs were that the costs of ICT systems outweighed the benefits (34%) and a lack of internal ICT skills (30%).

As a result, the implementation of Information Systems (IS) strategic planning has become a critical problem for managers in order to invest in IS projects. Companies should develop structured processes in dynamic environments and should use consistent rules and procedures to achieve mitigating environmental sustainability as well as maintaining economic efficiency (Becker and Schmid, 2020; Drechsler and Weißschädel, 2018; Garzoni et al., 2020; Queiroz et al., 2020). In light of technological advances over the last ten years, scholars and practitioners have concluded that the greatest obstacle to the

adoption of innovative technologies is a lack of IS strategy. IS strategy must be aligned with the business strategy which involves an organizational strategy formulated and implemented to exploit the digital capital to achieve differential value (Arvidsson et al., 2014; Eller et al., 2020). However, there is a lack of findings on the impact of IS strategy on business value. IT executives did not discuss the impact of IS strategy on business value or how satisfied they are with firm performance. As a result, an important research question is "what is the contribution of IS strategy to firm performance and how satisfied are IT executives with it?".

IS strategy is a critical dimension of innovation and competitive advantage for SMEs. The formulation and implementation of IS strategy have significant benefits for SMEs. These processes improve organizational structure because firms can incorporate agility into their structure and they increase the development of new products and services as well as their launch to the market (Devece et al., 2017). Any important growth is likely to require SMEs to introduce new products, strategic processes or IT practices, all of which can be viewed as innovative activities. The improvement of decision making supports the prosperity of SMEs and the sustainability of entrepreneurial opportunities (De Waal and Knott, 2019). A significant challenge for entrepreneurs managing SMEs is the reduced life cycle of small firms. The rate of entrepreneurial development is high but SMEs cannot achieve sustainable competitive advantage (Mazzarol and Reboud, 2006). Thus, SMEs need a guide for effective decision making in the IT field.

Unfortunately, IS strategy is a subject that has been studied as homogenous, so that, in particular, current studies failed to define the effective actions and strategies based on the firm's capabilities pursued by leaders at a time of crisis (Ardito et al., 2021; Papadopoulos et al., 2020). However, there is a distinct class of firms in which both firm size and resource limitations provide a significant effect on both alignment factors and business performance (Becker and Schmid, 2020). As seen in management literature (Street et al., 2017; Xu et al., 2019), developments in IT lead to higher rates of acceptance and usage in SMEs, as well as further moving technology into the processes and operations of these businesses. It is important that both practitioners and academics are aware of the effect of alignment between business and IS strategies on firm outcomes.

Appropriate systems and support staff ought to be in a location at the level of SMEs to ensure that infrastructure is always accessible, to ensure that all business operations run

smoothly (using SMEs digital platforms). Post-Covid-19 SMEs need to (re-)consider how to revitalize their strategies involving crisis scenarios and business continuity plans using alternative/ additional distribution channels in order to increase their revenues. Practically, retaining consumers virtually is a complicated process since it would irreversibly hurt businesses by delivering a low quality service. Owing to the various difficulties and uncertainties faced by COVID-19 organizations, multiple scenarios for future strategic actions must be established by organizational actors. According to the findings of the Annual Report on European SMEs 2020/2021 (European Commission, 2021), despite the fact that many SMEs adopted digital tools to continue operations and either moved to or increased their web-based sales, several SMEs experienced a decline in sales, on increase in value added, and faced numerous cash-flow issues. One cause of these challenges is the inappropriate development of digital tools. A process that can help managers make efforts in this direction is the use of Strategic Information Systems Planning (SISP).

Previous studies analyzing the impact of SISP phases on success concluded that IS managers concentrated their actions on the phase of strategy conception (Arvidsson et al., 2014; Newkirk and Lederer, 2006b; Newkirk et al., 2003). Strategy conception, when combined with opportunities identification and evaluation, may provide more realistic alternatives. Recognizing IT goals can make it possible for the firm to set future IT and organizational goals while better options and choices can sustain the plan to have improved results. The absence of top management participation and the inability to create successful action strategies to execute the IS are the two most critical issues that arose during the SISP process. If IT project development is not supported by managers, team members are not dedicated to the plans and will face challenges in the execution of IS strategy. Otherwise, IS are failed, incomplete or inadequate regarding their strategic context. Thus, managers should set priorities that would enable their IS strategy to be better implemented and their goals achieved (Arvidsson et al., 2014; Newkirk and Lederer, 2006b; Newkirk et al., 2003). The continuous growth of IS and its widespread use in organizations makes it a strategic business tool as well as a competitive weapon. Thus, IS executives and practitioners need to know how to manage this resource if their firms are to be competitive. SISP has become a significant aspect of management responsibility because of the widespread effect of IS on an organizational efficiency, sustainability, market structure, and survivability (Karanja and Patel, 2012). Common amongst researchers paying attention at the challenges for SISP, strategizing and competitive positioning in the face of the

inherent complexity, turbulence and dynamism of the competitive landscape, is the question of investigating how IS can contribute to competitive advantage (Merali et al., 2012). As a result, an important research question is "what are the dimensions for successful IS planning and what is the contribution of IS strategy to firm performance and how satisfied are IT executives with it?".

Researchers argue that SMEs can use various means to achieve a high degree of alignment, depending on their strengths and market position (Chatzoglou et al., 2011; Street et al., 2017; Wolf and Floyd, 2017). However, the more extensive the planning, the more efficient it would be, as it would allow planners to understand and respond better to environmental impact. Managers should take into consideration that continued increases in effort may raise conflicts among team members. As a consequence, these conflicts may cause delays in the process. On the other hand, when too much time is spent, many conflicts among team members may emerge which lead to the delay of the project. Thus, process evaluation is a decision-making problem where decision makers need to determine alternatives. It is therefore of great significance, as it allows managers to reduce these unsatisfactory results (Kappelman et al., 2019; Yoshikuni and Albertin, 2018). As a result, it is important to look at both the effect of the SISP phases on success as well as how the SISP process affects firm performance and how satisfied IT executives are with the process implementation.

In the existing literature about the effect of SISP process on success and firm performance, Multiple Criteria Decision Analysis (MCDA) methods have not been used for decision-making problems that are defined by the multidisciplinary or multi-criteria nature of the factors needing to be evaluated. Researchers concluded the results using Factor Analysis or Structural Equation Modeling (SEM) that are popular in social sciences and management studies. During the different phases of IS planning, while managing these types of decision-making problems, assessment methodologies have to be formulated in order to evaluate the objectives that have been set. IS planning and alignment are fields that include multiple conflicting objectives. Managers and IT executives define different objectives such as planning duration, resources, planning team etc. (Corrente et al., 2013; Greco et al., 2012; Silva et al., 2019). MCDA methods can impact on the efficiency of the procedure. Moreover, these methods affect the proper formulation of the decisions that need to be

made. MCDA methods help decision makers evaluate alternatives and make decisions about their problems.

1.2. Purpose-Research questions

For all the aforementioned reasons, this thesis aims to (1) indicate the phases of SISP; (2) indicate the phases that contribute to a greater extent of success; (3) indicate the phases that contribute to firm performance; and (4) investigate the effect of the use of SISP on IT executives' satisfaction. The following research questions are defined:

1. Research Question 1 (RQ1): During the development of an Information System, what are the phases of Strategic Information Systems Planning?
2. Research Question 2 (RQ2): What are the phases of Strategic Information Systems Planning that contribute to a greater extent of success?
3. Research Question 3 (RQ3): What are the phases of Strategic Information Systems Planning that contribute to firm performance?
4. Research Question 4 (RQ4): To what extent are IT executives satisfied with the implementation of the Strategic Information Systems Planning process?

Based on the purpose of this thesis and the research questions, the following research model was developed to show the variables used in this survey and the relationships between them.

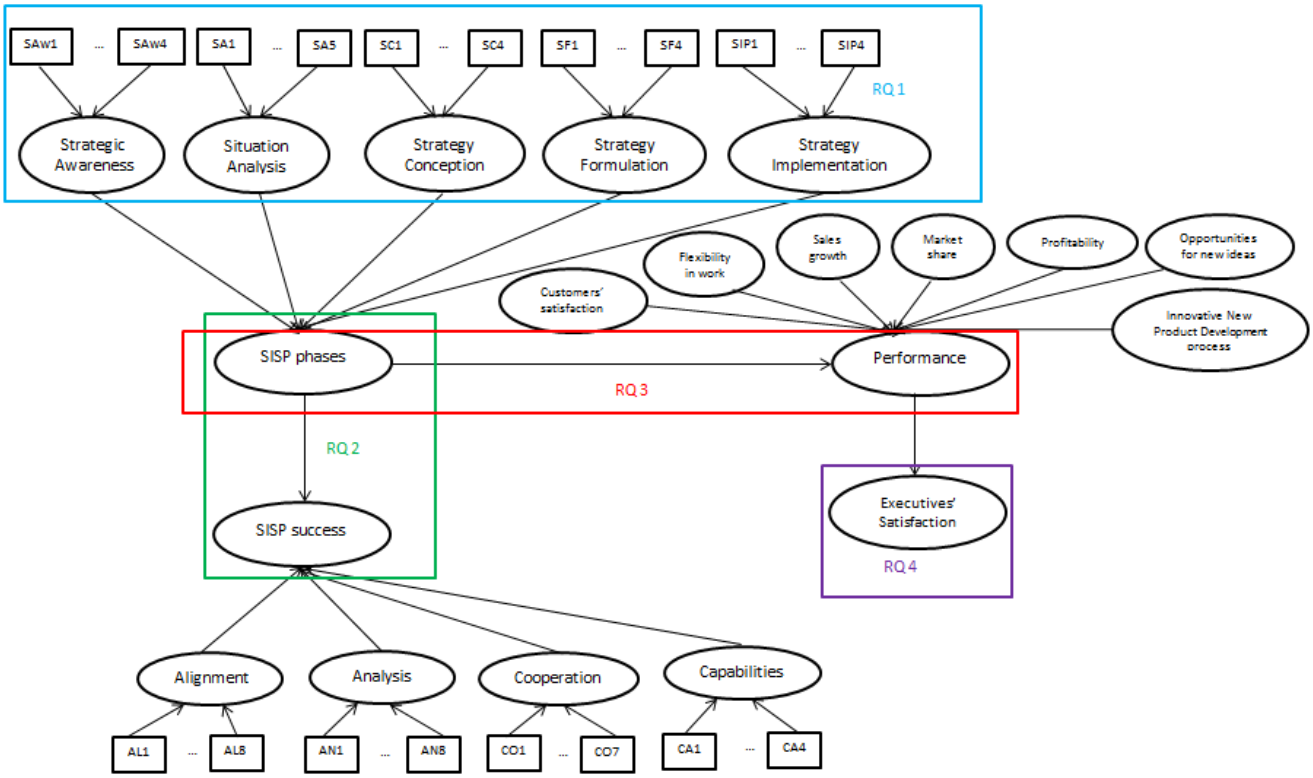

Figure 1.1. Research model

All data was obtained in 294 Greek SMEs from IS executives. Factor Analysis was used to indicate the phases of SISP in order to answer the first research question. Then, SEM was used to analyze the phases of SISP which contribute to a greater extent of success in order to answer the second research question. Next, Ordinal Regression Analysis was used to analyze the phases of SISP which contribute to firm performance in order to answer the third research question. Finally, MCDA was used to investigate the effect of the use of SISP on IT executives' satisfaction in order to answer the fourth research question.

1.3. Structure

That thesis's structure is arranged as shows. First, a brief introduction to the field is presented in Chapter 1. Chapter 2 has two sections. The first section of this chapter explains how the existing literature in this field was collected and analyzed using a literature review methodology. Analysis and synthesis of previous studies on SISP phases and success, business alignment, and critical success factors are presented in the second section of the chapter. Chapter 3 describes the methodology used for this survey. It presents research hypotheses, the sample size, and the questionnaire used. Finally it describes the main principles for each one of the methods used for statistical analysis. Chapter 4 presents the findings of the survey and makes comparisons with the results of

previous studies. Chapter 5 presents the theoretical and practical contribution of this thesis and provides limitations and avenues for future research. Figure 1.2 presents the structure of this thesis.

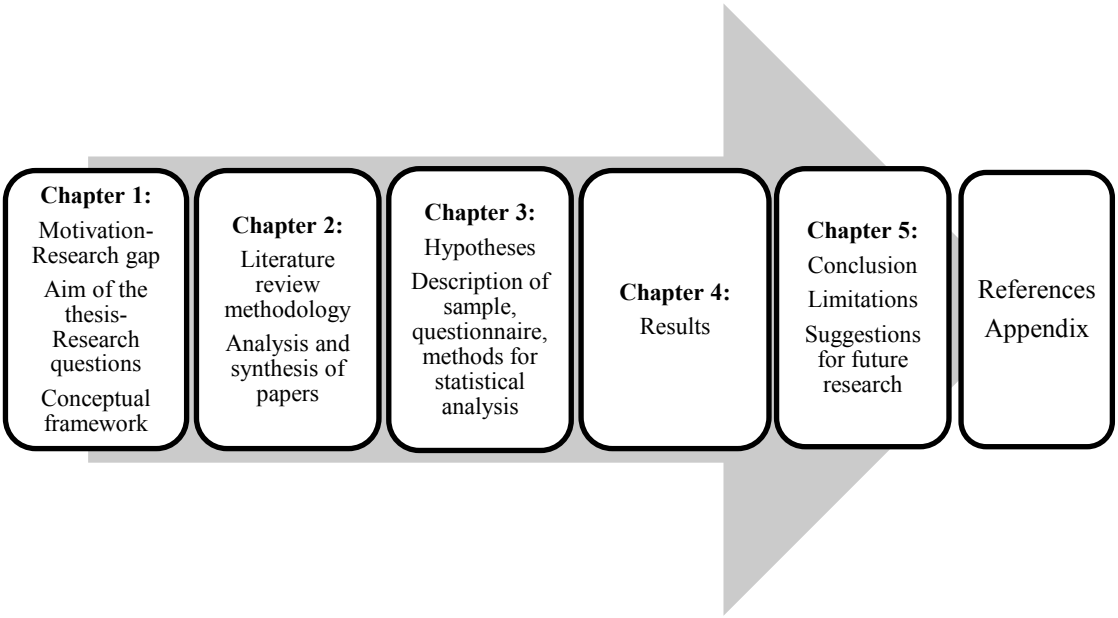

Figure 1.2. Structure of the thesis

2. Theoretical background

Researchers use literature reviews to identify the most important information in their field, as well as any gaps that need filling in further investigation. The purpose of this literature review is to examine the relationship between SISP, business-IT alignment and their impact on business performance. A key objective is to highlight the number of studies over the years, the scientific journals or conferences in which they were published, the authors involved, and the methodologies most commonly used for filling research gaps. A theoretical framework was developed based on the analysis of the literature review, according to which the empirical research was conducted.

This chapter has two parts. The first part describes the literature review methodology which used in this study. Furthermore, it presents the implementation of each step of the literature review methodology for the field of SISP. Also, it explains how the search was conducted and what criteria were used to identify relevant studies. The second part represents an analysis and synthesis of the selected papers. Moreover, it presents a bibliometric analysis of the selected papers.

2.1. Literature Review Methodology

Papers have been discovered utilizing a literature review methodology including three stages, which was recommended by Webster and Watson (2002), and has been recently utilized in Strategic Management and IS research (Abdel-Karim et al., 2021; Chu et al., 2019; Collins et al., 2021). Initially, the current literature reviews were searched to choose the databases and keywords of the basic search. Afterwards, the backward search was executed to look at the references of the chosen articles and in the end the forward search to inspect the citations of the chosen articles in order to increase their sum. After the choice of the articles, these were classified by their content using a concept-matrix approach.

2.1.1. Previous literature reviews

The current literature review articles are introduced in order to present the latest literature on current knowledge of the area of SISP and to analyze the existing knowledge of this territory just as to examine the distinguished research questions dependent on the outcomes of past papers. Likewise, current literature review papers provide an outline of the methodologies adopted by authors and feature their significance and research gaps in their usage. Table 2.1 displays an outline of the current literature review papers in this area.

Table 2.1. Previous literature reviews

Citation	Methodology	Results
Brown (2004)	Empirical papers published in peer-reviewed journals Papers focused on the SISP process	Classification of papers based on: methods, planning practice, key perceptions and success factors, construct development, and hypothesis testing
Karanja and Patel (2012)	Papers published between 1990 and 2005 in three IS journals Combination of keywords such as strategy, strategic planning, ISS, strategic information systems, strategic information systems planning, IT strategy and technology strategy	Classification of papers based on: context, research topic, research-method, and the unit of analysis
Amrollahi et al. (2014)	The literature review was based on Kitchenham's (2004) methodology 9 databases Combination of keywords such as "strategic information systems plan*", "information systems plan*", "information management plan*", "information technology plan*", SISP	A generic seven-phase framework was developed covering activities introduced in the literature Classification of approaches that facilitated SISP

Brown (2004) analyzed 137 articles that focus on the SISP process from a research perspective. They focused on empirical papers published in peer-reviewed journals. They classified papers based on methods, planning practice, key perceptions and success factors, construct development, and hypothesis testing. Their analysis is focused on the effect of the planning process on outcomes.

Then, Karanja and Patel (2012) examined four aspects of recent SISP research, namely, research context, research subtopic, research method, and the unit of analysis by examining 132 papers from three well-known IS journals specifically, Information Systems Research, MISQ, and Journal of Management Information Systems. The findings indicated that the most frequent research context was single-organizational, the most common research topic was alignment of IT and business plans, the most widely used research-method was empirical, and the most frequent unit-of-analysis was the top management.

Later, Amrollahi et al. (2014) conducted a literature review which focuses directly on SISP development. They analyzed 85 papers to compare the steps proposed in different processes and the relevant approaches for each step. In addition, an in-depth analysis of development processes produced a framework including activities introduced in the literature. Their paper also classified approaches that implemented SISP and concluded with recommendations for managers and scholars.

2.1.2. Article selection process

The search was carried out in Scopus, ScienceDirect, and Web of Science databases using The following terms were used and the search was limited to titles depending on the services offered by the relevant search engines: “strategic information systems plan*”, “information systems plan*” and strateg*, SISP, ISP and strateg*. Relevant articles were chosen for their focus on SISP development methods and methodologies. References to SISP development should include either a process for SISP development or an approach to help SISP development in the sources used for the analysis. Articles were published in peer-reviewed journals, book chapters and conference proceedings. These were chosen without restricting them to a particular period. Books, technical reports and working papers were excluded. Finally, published papers focused on the field of Business Management and were only in English. Figure 2.1 presents the article selection process.

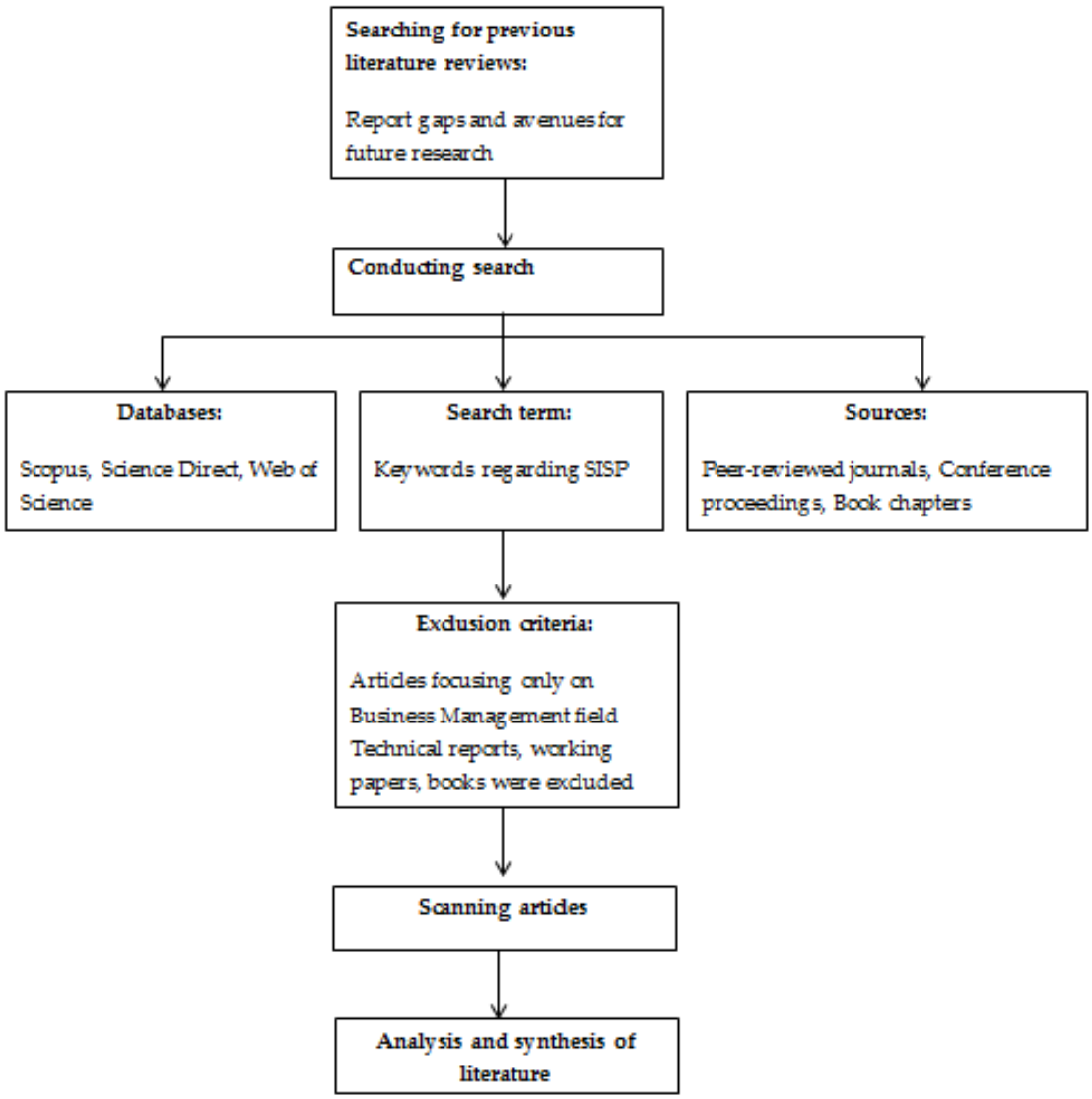

Figure 2.1. Article selection process

Overall, 774 articles were assembled utilizing keywords in all databases. As per the limitations of language, the subject field, and the source of publication, papers decreased in 406. Filtering their titles, 326 papers were found relevant with the goal of this study. Subsequent, looking at their abstract, 289 were accepted. Titles and abstracts were checked for the appropriate utilization of search strings. Next the content of the remaining articles was filtered and only articles esteemed “fit for purpose”, regarding adding to responding to the research questions, were viewed relevant and thusly included. Therefore, 244 papers were found relevant with the goal of this study. Various of articles were excluded on the ground that their full content was not accessible. These papers have been published in conference proceedings or book chapters. Duplicate papers have been removed and 88 articles have been incorporated.

26 of the 'backward search' are added to these 88 papers. In addition, 37 papers from the 'forward search' were added and as a result an entire of 151 papers were examined. Figure 2.2 presents the scanning of papers.

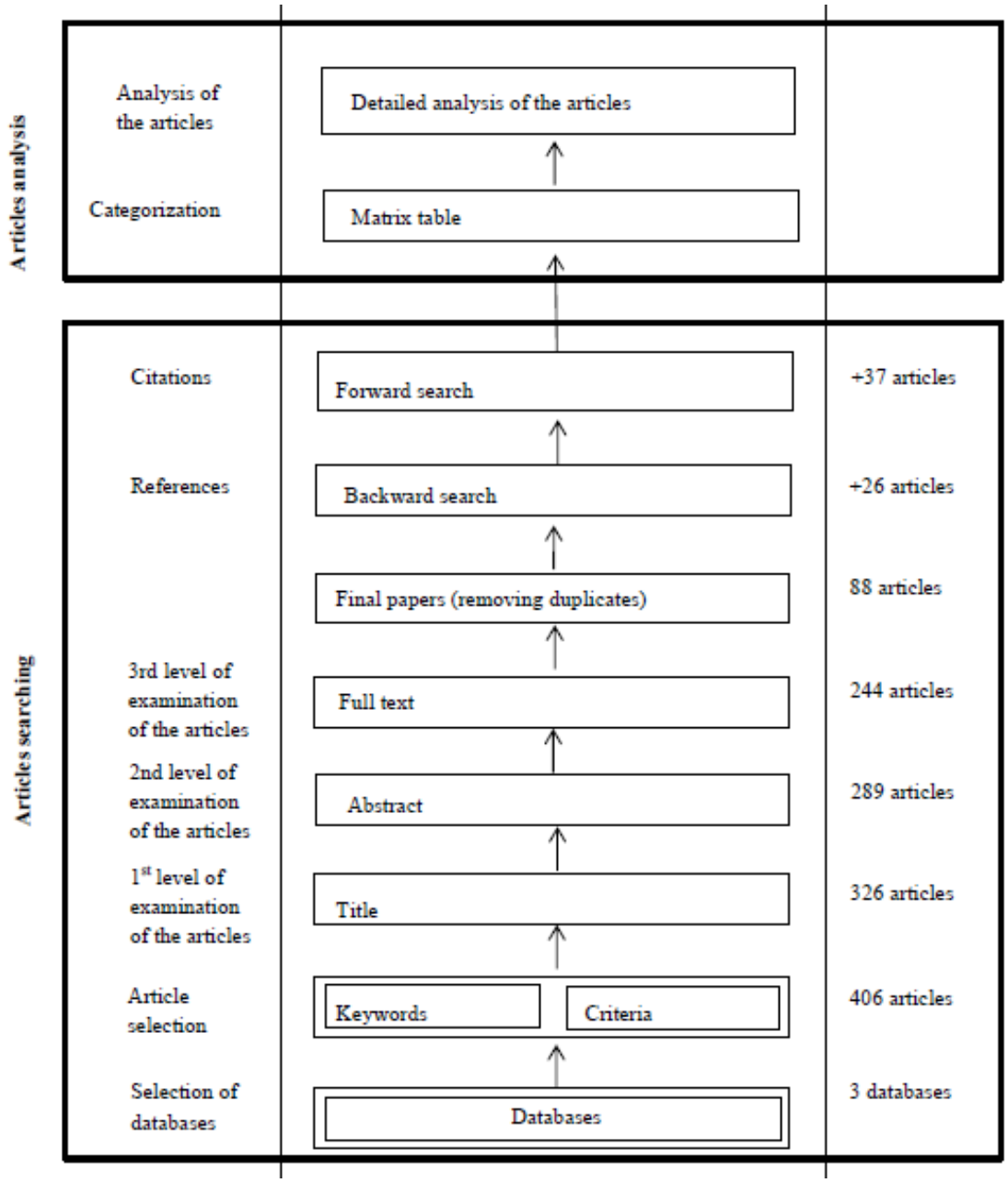

Figure 2.2. Scanning of papers

Search was finished when it came to common papers from all databases and various combinations of keywords. Thus, it was reasoned that the critical amount of relevant literature sources had been gathered (Webster and Watson, 2002). Table 2.2 provides a description of articles.

Table 2.2. Description of papers

No.	Authors	Year	Title	Source of publication
1.	Yaokumah et al.	2022	Critical success factors of strategic information systems planning: a Delphi approach	Kybernetes
2.	Hughes and McDonagh	2021	SISP as practice: De-isolating SISP activity across multiple levels	The Journal of Strategic Information Systems
3.	Yin et al.	2020	Does it pay to align a firm's competitive strategy with its industry IT strategic role?	Information & Management
4.	Queiroz	2020	Aligning the IT portfolio with business strategy: Evidence for complementarity of corporate and business unit alignment	The Journal of Strategic Information Systems
5.	Puspitasari and Jie	2020	Making the information technology-business alignment works: a framework of IT-based competitive strategy	International Journal of Business Information Systems
6.	Moeini et al.	2020	Theory borrowing in IT-rich contexts: Lessons from IS strategy research	Journal of Information Technology
7.	Ilmudeen and Bao	2020	IT strategy and business strategy mediate the effect of managing IT on firm performance: empirical analysis	Journal of Enterprise Information Management
8.	Xu et al.	2019	Do strategy and timing in IT security investments matter? An empirical investigation of the alignment effect	Information Systems Frontiers
9.	Tai et al.	2019	A study of IS assets, IS ambidexterity, and IS alignment: the dynamic managerial capability perspective	Information & Management
10.	Steelman et al.	2019	Performance consequences of information technology investments: Implications of emphasizing new or current information technologies	Information systems research
11.	Shimada et al.	2019	Exploring the impact of IS function maturity and IS planning process on IS planning success: an ACE analysis	European Journal of Information Systems
12.	Sabherwal et al.	2019	How does strategic alignment affect firm performance? The roles of information technology investment and environmental uncertainty	MIS quarterly
13.	Reichstein	2019	Strategic IT management: how companies can benefit from an increasing IT influence	Journal of enterprise information management
14.	McCardle et al.	2019	The effects of strategic alignment and competitive priorities on operational performance: The role of cultural context	Operations Management Research
15.	Kim and Kishore	2019	Do we fully understand information systems failure? An exploratory study of the cognitive schema of IS professionals	Information Systems Frontiers
16.	Kappelman et al.	2019	A study of information systems issues, practices, and leadership in Europe	European Journal of Information Systems
17.	Ilmudeen et al.	2019	How does business-IT strategic alignment dimension impact on organizational performance measures: conjecture and empirical analysis	Journal of Enterprise Information Management
18.	Chtourou Ben Amar and Ben Romdhane	2019	Organizational culture and information systems strategic alignment: Exploring the influence through an empirical study from Tunisia	Journal of Enterprise Information Management
19.	Al-Ammary et al.	2019	Strategic information systems planning in Kingdom of Bahrain: Factors and impact of adoption	International Journal of Business Information Systems
20.	Yoshikuni and Albertin	2018	Effects of strategic information systems on competitive strategy and performance	International Journal of Productivity and Performance Management
21.	Lee et al.	2018	What drives firms to explore new technological fields? An	IEEE Transactions on

			investigation on the technological entry effect of CEO decision horizon and board governance	Engineering Management
22.	Drechsler and Weißschädel	2018	An IT strategy development framework for small and medium enterprises	Information Systems and e-Business Management
23.	Burgelman et al.	2018	Strategy processes and practices: Dialogues and intersections	Strategic management journal
24.	Balhareth	2018	The relationship between business-IT alignment and organisational performance: an empirical investigation from multilevel view	International Journal of Business Information Systems
25.	Wolf and Floyd	2017	Strategic planning research: Toward a theory-driven agenda	Journal of Management
26.	Street et al.	2017	Strategic alignment in SMEs: Strengthening theoretical foundations	Communications of the Association for Information Systems
27.	Shihab and Rahardian	2017	Comparing the approaches of small, medium, and large organisations in achieving IT and business alignment	International Journal of Business Information Systems
28.	Queiroz	2017	Mixed results in strategic IT alignment research: a synthesis and empirical study	European Journal of Information Systems
29.	Park et al.	2017	Alignment between internal and external IT governance and its effects on distinctive firm performance: An extended resource-based view	IEEE Transactions on Engineering Management
30.	Marabelli and Galliers	2017	A reflection on information systems strategizing: the role of power and everyday practices	Information Systems Journal
31.	Luftman et al.	2017	Enhancing the measurement of information technology (IT) business alignment and its influence on company performance	Journal of Information Technology
32.	Liang et al.	2017	Unraveling the alignment paradox: how does business—IT alignment shape organizational agility?	Information Systems Research
33.	Devece et al.	2017	Information systems strategy and its relationship with innovation differentiation and organizational performance	Information Systems Management
34.	Chen et al.	2017	Improving strategic flexibility with information technologies: insights for firm performance in an emerging economy	Journal of Information Technology
35.	Pekmez	2016	Key success factors for sustainable strategic information systems planning and information technology infrastructure	Journal of Economic and Social Studies
36.	Ebner et al.	2016	Assessing IT Management's Performance: A Design Theory for Strategic IT Benchmarking	IEEE Transactions on Engineering Management
37.	Ankrah	2016	Strategic Issues in Information Systems Planning from the Ghanaian Perspective	International Review of Management and Marketing
38.	Maharaj and Brown	2015	The impact of shared domain knowledge on strategic information systems planning and alignment	South African Journal of Information Management
39.	Krotov	2015	Bridging the CIO-CEO gap: It takes two to tango	Business Horizons
40.	Elysee	2015	An empirical examination of a mediated model of strategic information systems planning success	International Journal of Business Information Systems
41.	Yang and Pita	2014	Research instrument for the measurement of facilitators for enhancing SISP success and dynamic capabilities	Proceedings of 18th Pacific Asia Conference on Information Systems
42.	Whittington	2014	Information systems strategy and strategy-as-practice: a joint agenda	The Journal of Strategic Information Systems
43.	Quaadgras et al.	2014	Management commitments that maximize business impact from IT	Journal of Information Technology

44.	Kandjani et al.	2014	Classification and comparison of strategic information systems planning methodologies: a conceptual framework	International Journal of Enterprise Information Systems
45.	Arvidsson et al.	2014	Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use	The Journal of Strategic Information Systems
46.	Yang et al.	2013	A conceptual framework for assessing strategic information systems planning (SISP) success in the current dynamic environments	Proceedings of 24th Australasian Conference on Information Systems
47.	Ullah and Lai	2013	A systematic review of business and information technology alignment	ACM Transactions on Management Information Systems
48.	Suh et al.	2013	Effects of strategic alignment on IS success: the mediation role of IS investment in Korea	Information Technology and Management
49.	Silvius and Stoop	2013	The relationship between the process of strategic information systems planning and its success: An explorative study	Proceedings of the 46th Hawaii International Conference on System Sciences
50.	Hovelja et al.	2013	A model of influences of environmental stakeholders on strategic information systems planning success in an enterprise	Technological and economic development of economy
51.	Yayla and Hu	2012	The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation	European Journal of Information Systems
52.	Mirchandani and Lederer	2012	"Less is more:" information systems planning in an uncertain environment	Information Systems Management
53.	Merali et al.	2012	Information systems strategy: Past, present, future?	The Journal of Strategic Information Systems
54.	Leidner et al.	2011	An empirical investigation of the relationship of IS strategy with firm performance	The Journal of Strategic Information Systems
55.	Chatzoglou et al.	2011	Aligning IT, strategic orientation and organizational structure	Business Process Management Journal
56.	Bulchand-Gidumal and Melián-González	2011	Maximizing the positive influence of IT for improving organizational performance	The Journal of Strategic Information Systems
57.	Pita et al.	2010	Strategic information systems planning (SISP): an empirical evaluation of adoption of formal approaches to SISP in Australian organizations	International Journal of Strategic Decision Sciences
58.	Pan and Pan	2010	Transition to IS project de-escalation: An exploration into management executives' influence behaviors	IEEE Transactions on Engineering Management
59.	Hovelja et al.	2010	Measuring the success of the strategic information systems planning in enterprises in Slovenia	Management: journal of contemporary management issues
60.	Chen et al.	2010	Information systems strategy: reconceptualization, measurement, and implications	MIS quarterly
61.	Brown	2010	Strategic information systems planning: comparing espoused beliefs with practice	Proceedings of 18th European Conference on Information Systems (ECIS)
62.	Bechor et al.	2010	A contingency model for estimating success of strategic information systems planning	Information & Management
63.	Newkirk et al.	2008	Rapid business and IT change: drivers for strategic information systems planning?	European Journal of Information Systems

64.	Cohen	2008	Contextual determinants and performance implications of information systems strategy planning within South African firms	Information & Management
65.	Teubner	2007	Strategic information systems planning: A case study from the financial services industry	The Journal of Strategic Information Systems
66.	Pun et al.	2007	Towards formulating strategy and leveraging performance: a strategic information systems planning approach	International journal of computer applications in technology
67.	Oh and Pinsonneault	2007	On the assessment of the strategic value of information technologies: conceptual and analytical approaches	MIS quarterly
68.	Newkirk and Lederer	2007	The effectiveness of strategic information systems planning for technical resources, personnel resources, and data security in environments of heterogeneity and hostility	Journal of Computer Information Systems
69.	Kearns and Sabherwal	2007	Antecedents and consequences of information systems planning integration	IEEE Transactions on Engineering Management
70.	Duhan	2007	A capabilities based toolkit for strategic information systems planning in SMEs	International Journal of Information Management
71.	Chan and Reich	2007	IT alignment: what have we learned?	Journal of Information technology
72.	Tan and Gallupe	2006	Aligning business and information systems thinking: A cognitive approach	IEEE Transactions on Engineering Management
73.	Pai	2006	An empirical study of the relationship between knowledge sharing and IS/IT strategic planning (ISSP)	Management Decision
74.	Newkirk and Lederer	2006b	The effectiveness of strategic information systems planning under environmental uncertainty	Information & Management
75.	Newkirk and Lederer	2006a	Incremental and comprehensive strategic information systems planning in an uncertain environment	IEEE Transactions on Engineering Management
76.	Li et al.	2006	Innovative usage of information technology in Singapore organizations: Do CIO characteristics make a difference?	IEEE Transactions on Engineering Management
77.	Kearns	2006	The effect of top management support of SISP on strategic IS management: insights from the US electric power industry	Omega
78.	Fairbank et al.	2006	Information processing design choices, strategy, and risk management performance	Journal of Management Information Systems
79.	Duh et al.	2006	Strategy, IT applications for planning and control, and firm performance: The impact of impediments to IT implementation	Information & Management
80.	Chan et al.	2006	Antecedents and outcomes of strategic IS alignment: an empirical investigation	IEEE Transactions on engineering management
81.	Byrd et al.	2006	IS infrastructure: The influence of senior IT leadership and strategic information systems planning	Journal of computer information systems
82.	Bozarth	2006	ERP implementation efforts at three firms: integrating lessons from the SISP and IT-enabled change literature	International Journal of Operations & Production Management
83.	Benbya and McKelvey	2006	Using coevolutionary and complexity theories to improve IS alignment: a multi-level approach	Journal of Information technology
84.	Rathnam et al.	2005	Alignment of business strategy and IT strategy: a case study of a fortune 50 financial services company	Journal of Computer Information Systems
85.	Piccoli and Ives	2005	IT-dependent strategic initiatives and sustained competitive advantage: a review and synthesis of the literature	MIS quarterly
86.	Palanisamy	2005	Strategic information systems planning model for building flexibility and success	Industrial Management & Data Systems
87.	Grover and Segars	2005	An empirical evaluation of stages of strategic information	Information &

			systems planning: patterns of process design and effectiveness	Management
88.	Chi et al.	2005	Environmental assessment in strategic information systems planning	International Journal of Information Management
89.	Booth and Philip	2005	Information systems management: role of planning, alignment and leadership	Behaviour & Information Technology
90.	Ragu-Nathan et al.	2004	A path analytic study of the effect of top management support for information systems performance	Omega
91.	Cao and Schniederjans	2004	Empirical study of the relationship between operations strategy and information systems strategic orientation in an e-commerce environment	International Journal of Production Research
92.	Peppard and Ward	2004	Beyond strategic information systems: towards an IS capability	The Journal of Strategic Information Systems
93.	Bergeron et al.	2004	Ideal patterns of strategic alignment and business performance	Information & management
94.	Wang and Tai	2003	Factors affecting information systems planning effectiveness: organizational contexts and planning systems dimensions	Information & Management
95.	Newkirk et al.	2003	Strategic information systems planning: too little or too much?	The Journal of Strategic Information Systems
96.	Lee and Pai	2003	Effects of organizational context and inter-group behaviour on the success of strategic information systems planning: an empirical study	Behaviour & Information Technology
97.	Kearns and Lederer	2003	A resource-based view of strategic IT alignment: how knowledge sharing creates competitive advantage	Decision sciences
98.	Heo and Han	2003	Performance measure of information systems (IS) in evolving computing environments: an empirical investigation	Information & Management
99.	Hartono et al.	2003	Key predictors of the implementation of strategic information systems plans	ACM SIGMIS Database: the DATABASE for Advances in Information Systems
100.	Basu et al.	2002	The impact of organizational commitment, senior management involvement, and team involvement on strategic information systems planning	Information & Management
101.	Rawani and Gupta	2001	Flexible framework for strategic information systems planning: A case study from banking sector	Global Journal of Flexible Systems Management
102.	Croteau and Bergeron	2001	An information technology trilogy: business strategy, technological deployment and organizational performance	The journal of strategic information systems
103.	Bergeron et al.	2001	Fit in strategic information technology management research: an empirical comparison of perspectives	Omega
104.	Andersen	2001	Information technology, strategic decision making approaches and organizational performance in different industrial settings	The Journal of Strategic Information Systems
105.	Teo and Ang	2000	How useful are strategic plans for information systems?	Behaviour & Information Technology
106.	King and Teo	2000	Assessing the impact of proactive versus reactive modes of strategic information systems planning	Omega
107.	Segars and Grover	1999	Profiles of strategic information systems planning	Information systems research
108.	Sabherwal	1999	The relationship between information system planning sophistication and information system success: an empirical assessment	Decision Sciences

109.	Pant and Hsu	1999	An integrated framework for strategic information systems planning and development	Information Resources Management Journal
110.	Min et al.	1999	An integrated approach toward strategic information systems planning	The Journal of Strategic Information Systems
111.	Gottschalk	1999b	Strategic information systems planning: the IT strategy implementation matrix	European Journal of Information Systems
112.	Gottschalk	1999a	Implementation predictors of strategic information systems plans	Information & Management
113.	Doherty et al.	1999	The relative success of alternative approaches to strategic information systems planning: an empirical analysis	The Journal of strategic information systems
114.	Segars et al.	1998	Strategic information systems planning: Planning system dimensions, internal coalignment, and implications for planning effectiveness	Decision Sciences
115.	Segars and Grover	1998	Strategic information systems planning success: an investigation of the construct and its measurement	MIS quarterly
116.	Teo et al.	1997	The state of strategic IS planning practices in Singapore	Information & Management
117.	Mentzas	1997	Implementing an IS strategy—a team approach	Long range planning
118.	Tukana and Weber	1996	An Empirical Test of the Strategic-Grid Model of Information Systems Planning	Decision Sciences
119.	Lederer and Sethi	1996	Key prescriptions for strategic information systems planning	Journal of Management Information Systems
120.	Lederer and Hannu	1996	Toward a theory of strategic information systems planning	The Journal of strategic information systems
121.	Falconer and Hodgett	1996	A survey of strategic information systems planning in Australian companies	Proceedings of 1996 Information Systems Conference of New Zealand
122.	Galliers et al.	1995	Strategic information systems planning: deriving comparative advantage from EDI	Journal of Information Technology
123.	Flynn and Arce	1995	Theoretical and practical in the use of strategic issues information systems planning (SISP) approaches to integrating business and IT in organisations	International Journal of Computer Applications in Technology
124.	Baker	1995	The role of feedback in assessing information systems planning effectiveness	The Journal of Strategic Information Systems
125.	Ang et al.	1995	Identifying strategic management information systems planning parameters using case studies	International Journal of Information Management
126.	Rogerson and Fidler	1994	Strategic information systems planning: Its adoption and use	Information Management & Computer Security
127.	Premkumar and King	1994	The evaluation of strategic information system planning	Information & Management
128.	Huysman et al.	1994	An organizational learning perspective on information systems planning	The Journal of Strategic Information Systems
129.	Galliers et al.	1994	Strategic information systems planning workshops: lessons from three cases	International Journal of Information Management
130.	Ernst et al.	1994	Strategic information systems planning: a management problem	Journal of Computer Information Systems
131.	O'Connor	1993	Successful strategic information systems planning	Information Systems Journal
132.	Luftman et al.	1993	Transforming the enterprise: The alignment of business and information technology strategies	IBM systems journal
133.	Lederer and	1993	Information systems planning and the challenge of shifting	Information &

	Mendelow		priorities	Management
134.	Gupta and Guimaraes	1993	Issues in management information systems planning	Technovation
135.	Flynn and Goleniewska	1993	A survey of the use of strategic information systems planning approaches in UK organizations	The Journal of Strategic Information Systems
136.	Earl	1993	Experiences in strategic information systems planning	MIS quarterly
137.	Lederer and Sethi	1992b	Root causes of strategic information systems planning implementation problems	Journal of Management Information Systems
138.	Lederer and Sethi	1992a	Meeting the challenges of information systems planning	Long Range Planning
139.	Ruohonen	1991	Stakeholders of strategic information systems planning: theoretical concepts and empirical examples	The Journal of Strategic Information Systems
140.	Raghunathan and Raghunathan	1991	Information systems planning and effectiveness: an empirical analysis	Omega
141.	Premkumar and King	1991	Assessing strategic information systems planning	Long range planning
142.	Mason	1991	The role of metaphors in strategic information systems planning	Journal of Management Information Systems
143.	Lederer and Sethi	1991	Critical dimensions of strategic information systems planning	Decision Sciences
144.	Gupta	1989	Management information systems planning: analysis and techniques	Technovation
145.	Raghunathan and King	1988	The impact of information systems planning on the organization	Omega
146.	Lederer and Sethi	1988	The implementation of strategic information systems planning methodologies	MIS quarterly
147.	Lederer and Mendelow	1988	Information systems planning: top management takes control	Business Horizons
148.	King	1988	How effective is your information systems planning?	Long range planning
149.	Emberton and Mann	1988	Methodology for effective information system planning	Information & Software Technology
150.	Hufnagel	1987	Information systems planning: lessons from strategic planning	Information & Management
151.	Lederer and Mendelow	1986	Issues in information systems planning	Information & Management

151 articles were analyzed dependent on a classification framework. These papers were classified on five wide concepts (Methodologies for Information Systems Planning, SISP Success, Critical success factors, Alignment, and Firm performance) which will provide a better comprehension of the SISP process and will likewise assist future academics with extending the information in this area. The classification of papers on concepts is presented in Table 2.3.

Table 2.3. Concept matrix table

			Concepts				
No.	**Authors**	**Year**	**Methodologies for Information Systems Planning**	**SISP Success**	**Critical success factors**	**Alignment**	**Firm performance**
1.	Yaokumah et al.	2022			x		
2.	Hughes and McDonagh	2021	x				
3.	Yin et al.	2020				x	x
4.	Queiroz	2020				x	
5.	Puspitasari and Jie	2020				x	
6.	Moeini et al.	2020	x				
7.	Ilmudeen and Bao	2020				x	x
8.	Xu et al.	2019				x	
9.	Tai et al.	2019				x	
10.	Steelman et al.	2019					x
11.	Shimada et al.	2019	x				
12.	Sabherwal et al.	2019				x	x
13.	Reichstein	2019	x				
14.	McCardle et al.	2019				x	x
15.	Kim and Kishore	2019		x			
16.	Kappelman et al.	2019			x		
17.	Ilmudeen et al.	2019				x	x
18.	Chtourou Ben Amar and Ben Romdhane	2019				x	
19.	Al-Ammary et al.	2019	x		x		
20.	Yoshikuni and Albertin	2018	x				x
21.	Lee et al.	2018			x		
22.	Drechsler and Weißschädel	2018	x				
23.	Burgelman et al.	2018	x				
24.	Balhareth	2018				x	x
25.	Wolf and Floyd	2017	x				
26.	Street et al.	2017				x	
27.	Shihab and Rahardian	2017				x	
28.	Queiroz	2017				x	
29.	Park et al.	2017				x	x
30.	Marabelli and Galliers	2017	x				
31.	Luftman et al.	2017				x	x
32.	Liang et al.	2017				x	
33.	Devece et al.	2017	x				x
34.	Chen et al.	2017					x
35.	Pekmez	2016			x		
36.	Ebner et al.	2016					x
37.	Ankrah	2016	x				
38.	Maharaj and Brown	2015	x			x	
39.	Krotov	2015			x		
40.	Elysee	2015	x	x			
41.	Yang and Pita	2014	x				

42.	Whittington	2014	x				
43.	Quaadgras et al.	2014			x		
44.	Kandjani et al.	2014	x				
45.	Arvidsson et al.	2014	x				
46.	Yang et al.	2013	x	x			
47.	Ullah and Lai	2013				x	
48.	Suh et al.	2013		x		x	
49.	Silvius and Stoop	2013	x	x			
50.	Hovelja et al.	2013	x	x			
51.	Yayla and Hu	2012				x	x
52.	Mirchandani and Lederer	2012	x	x			
53.	Merali et al.	2012	x				
54.	Leidner et al.	2011	x				x
55.	Chatzoglou et al.	2011				x	
56.	Bulchand-Gidumal and Melián-González	2011					x
57.	Pita et al.	2010	x				
58.	Pan and Pan	2010			x		
59.	Hovelja et al.	2010	x	x			
60.	Chen et al.	2010	x				
61.	Brown	2010	x				
62.	Bechor et al.	2010	x	x			
63.	Newkirk et al.	2008	x	x			
64.	Cohen	2008	x				x
65.	Teubner	2007	x				
66.	Pun et al.	2007	x				x
67.	Oh and Pinsonneault	2007					x
68.	Newkirk and Lederer	2007	x	x			
69.	Kearns and Sabherwal	2007	x				
70.	Duhan	2007	x				
71.	Chan and Reich	2007				x	
72.	Tan and Gallupe	2006				x	
73.	Pai	2006	x				
74.	Newkirk and Lederer	2006b	x	x			
75.	Newkirk and Lederer	2006a	x	x			
76.	Li et al.	2006			x		
77.	Kearns	2006	x		x		
78.	Fairbank et al.	2006	x				x
79.	Duh et al.	2006	x				x
80.	Chan et al.	2006				x	
81.	Byrd et al.	2006	x		x		
82.	Bozarth	2006	x				
83.	Benbya and McKelvey	2006				x	
84.	Rathnam et al.	2005				x	
85.	Piccoli and Ives	2005					x
86.	Palanisamy	2005	x	x			

87.	Grover and Segars	2005	x	x			
88.	Chi et al.	2005	x				
89.	Booth and Philip	2005	x			x	
90.	Ragu-Nathan et al.	2004			x		x
91.	Cao and Schniederjans	2004			x		
92.	Peppard and Ward	2004	x				
93.	Bergeron et al.	2004				x	x
94.	Wang and Tai	2003	x	x			
95.	Newkirk et al.	2003	x	x			
96.	Lee and Pai	2003	x	x			
97.	Kearns and Lederer	2003				x	x
98.	Heo and Han	2003					x
99.	Hartono et al.	2003	x				
100.	Basu et al.	2002	x		x		
101.	Rawani and Gupta	2001	x				
102.	Croteau and Bergeron	2001					x
103.	Bergeron et al.	2001				x	
104.	Andersen	2001					x
105.	Teo and Ang	2000	x				
106.	King and Teo	2000	x				
107.	Segars and Grover	1999	x				
108.	Sabherwal	1999	x	x			
109.	Pant and Hsu	1999	x				
110.	Min et al.	1999	x				
111.	Gottschalk	1999b	x				
112.	Gottschalk	1999a	x				
113.	Doherty et al.	1999	x	x			
114.	Segars et al.	1998	x	x			
115.	Segars and Grover	1998	x	x			
116.	Teo et al.	1997	x				
117.	Mentzas	1997	x		x		
118.	Tukana and Weber	1996	x				
119.	Lederer and Sethi	1996	x				
120.	Lederer and Hannu	1996	x				
121.	Falconer and Hodgett	1996	x				
122.	Galliers et al.	1995	x				x
123.	Flynn and Arce	1995	x				
124.	Baker	1995	x	x			
125.	Ang et al.	1995	x				
126.	Rogerson and Fidler	1994	x				
127.	Premkumar and King	1994	x	x			
128.	Huysman et al.	1994	x				
129.	Galliers et al.	1994	x				
130.	Ernst et al.	1994	x				
131.	O'Connor	1993	x	x			
132.	Luftman et al.	1993				x	

133.	Lederer and Mendelow	1993	x				
134.	Gupta and Guimaraes	1993	x				
135.	Flynn and Goleniewska	1993	x				
136.	Earl	1993	x				
137.	Lederer and Sethi	1992b	x				
138.	Lederer and Sethi	1992a	x				
139.	Ruohonen	1991	x				
140.	Raghunathan and Raghunathan	1991	x	x			
141.	Premkumar and King	1991	x				
142.	Mason	1991	x				
143.	Lederer and Sethi	1991	x		x		
144.	Gupta	1989	x	x			
145.	Raghunathan and King	1988	x				
146.	Lederer and Sethi	1988	x				
147.	Lederer and Mendelow	1988	x		x		
148.	King	1988	x	x			
149.	Emberton and Mann	1988	x	x			
150.	Hufnagel	1987	x				
151.	Lederer and Mendelow	1986	x				

The classification of empirical papers is presented in Table 2.4.

Table 2.4. Analysis of empirical papers

No.	Authors	Year	Research method	Type of organization	Sample	Country	Method for data analysis
1.	Yaokumah et al.	2022	Qualitative	IT sector	40 experts	Africa	Kendall's coefficient of concordance and chi-square
2.	Yin et al.	2020	Observations	Different sectors	926 SMEs	China	Regression Analysis
3.	Queiroz	2020	Quantitative	Different sectors	141 CIOs in Multi-business organizations	Australia and Germany	MANOVA
4.	Puspitasari and Jie	2020	Qualitative	Different sectors	8 experts	Indonesia	-
5.	Ilmudeen and Bao	2020	Quantitative	-	194 senior and IT managers	China	Regression Analysis SEM
6.	Tai et al.	2019	Quantitative	Different sectors	206 IS managers in large companies and SMEs	China	PLS
7.	Shimada et al.	2019	Quantitative	-	109 IS executives in large companies	Singapore	Factor Analysis ACE algorithm
8.	Yin et al.	2020	Observations	-	242 firms	USA	Econometric models
9.	Reichstein	2019	Quantitative	Different sectors	124 IT managers in large companies and SMEs	China	PLS-SEM

10.	Kappelman et al.	2019	Quantitative	-	276 IT managers in multi-national organizations	USA Asia Middle East	Descriptive statistics
11.	Ilmudeen et al.	2019	Quantitative	Different sectors	161 IT and business managers in large companies	China	SEM
12.	Chtourou Ben Amar and Ben Romdhane	2019	Quantitative	-	160 business managers in 53 companies	Tunisia	PLS
13.	Al-Ammary et al.	2019	Quantitative	Different sectors	270 CEOs and CIOs in companies	Kingdom of Bahrain	PLS
14.	Yoshikuni and Albertin	2018	Quantitative	-	387 CEOs in large companies and SMES	Brazil	SEM
15.	Lee et al.	2018	Observations	Semiconductor and optoelectronics sectors	156 firms	Taiwan	OLS
16.	Balhareth	2018	Quantitative	Education	8 universities	Saudi Arabia	PLS
17.	Shihab and Rahardian	2017	Quantitative	Different sectors	107 senior level managers in large companies and SMEs	-	ANOVA
18.	Queiroz	2017	Quantitative	-	120 CIOs in firms	USA Germany Australia	PLS
19.	Park et al.	2017	Quantitative	-	213 CIOs in large companies and SMEs	Korea	Regression Analysis
20.	Luftman et al.	2017	Quantitative	Different sectors	400 CEOs and CIOs in companies	Many countries	PLS
21.	Liang et al.	2017	Quantitative	Shipbuilding industry	429 business and IT executives	China	SEM
22.	Devece et al.	2017	Quantitative	Food industry	184 managers in companies	Spain	PLS
23.	Chen et al.	2017	Quantitative	Manufacturing industry	148 IT and business executives in large companies and SMEs	China	SEM
24.	Ankrah	2016	Quantitative	Banking sector	248 responses from the staff	Ghana	Chi-square test
25.	Elysee	2015	Quantitative	Different sectors	57 IS executives	USA	PLS-SEM
26.	Yang and Pita	2014	Quantitative	Different sectors	1000 IT managers in large companies	South Korea	SEM
27.	Quaadgras et al.	2014	Quantitative	Different sectors	221 IT managers in firms	-	OLS
28.	Suh et al.	2013	Quantitative	Different sectors	273 CEOs and CIOs in large	South Korea	SEM

					companies and SMES		
29.	Silvius and Stoop	2013	Qualitative	Different sectors	16 firms	Netherlands	-
30.	Hovelja et al.	2013	Quantitative	-	94 IT managers	Slovenia	t-test
31.	Yayla and Hu	2012	Quantitative	Different sectors	169 business managers in SMEs	Turkey	Regression Analysis
32.	Mirchandani and Lederer	2012	Quantitative	Manufacturing industry	234 CIOs and non-senior managers in large companies	USA	PLS
33.	Leidner et al.	2011	Quantitative	-	263 CEOs in large companies	USA	PLS
34.	Chatzoglou et al	2011	Quantitative	Different sectors	295 CEOs in large companies	Greece	SEM
35.	Bulchand-Gidumal and Melián-González	2011	Quantitative	Education	59 CIOs in universities	Spain	PLS
36.	Hovelja et al.	2010	Quantitative	IT sector	94 IT managers in large companies	Slovenia	t-test
37.	Bechor et al.	2010	Quantitative	Different sectors	172 CIOs in large companies	USA	Regression Analysis
38.	Newkirk et al.	2008	Quantitative	Different sectors	161 IS executives in large companies	USA	SEM
39.	Cohen	2008	Quantitative	Different sectors	116 IS executives in large companies	South Africa	PLS
40.	Oh and Pinsonneault	2007	Quantitative	Manufacturing sector	110 CIOs and CEOs in SMEs	Canada	ANOVA
41.	Newkirk and Lederer	2007	Quantitative	Different sectors	161 IS executives in large companies	USA	PLS
42.	Kearns and Sabherwal	2007	Quantitative	Different sectors	274 CIOs in large companies and SMEs	USA	SEM
43.	Tan and Gallupe	2006	Qualitative	Different sectors	80 business managers	New Zealand	-
44.	Pai	2006	Quantitative	Different sectors	805 IS executives in large companies	Taiwan	Factor Analysis
45.	Newkirk and Lederer	2006b	Quantitative	Different sectors	161 IS executives in large companies	USA	PLS
46.	Newkirk and Lederer	2006a	Quantitative	Different sectors	161 IS executives in large companies	USA	PLS
47.	Li et al.	2006	Quantitative	Different sectors	89 CIOs in large companies and SMEs	-	PLS
48.	Kearns	2006	Quantitative	Electric sector	161 IS executives	USA	Regression Analysis
49.	Fairbank et al.	2006	Quantitative	Health-Insurance industry	197 CIOs and business managers	USA	DEA

50.	Duh et al.	2006	Quantitative	-	296 CFOs in large companies and SMEs	Taiwan	ANOVA
51.	Chan et al.	2006	Quantitative	Different sectors	226 CEOs in large companies	USA Canada	SEM
52.	Byrd et al.	2006	Quantitative	Different sectors	150 CIOs in large companies	USA	chi-square test
53.	Rathnam et al.	2005	Qualitative	Financial sector	50 senior executives in large companies	-	-
54.	Palanisamy	2005	Quantitative	Different sectors	296 users and planners in large companies and SMEs	India	chi-square test
55.	Grover and Segars	2005	Quantitative	Different sectors	253 CEOs in large companies	-	Tukey's Studentized range (HSD) tests
56.	Chi et al.	2005	Quantitative	Different sectors	105 IS planners in large companies	-	Regression Analysis
57.	Ragu-Nathan et al.	2004	Quantitative	Different sectors	231 IS executives	USA	SEM
58.	Cao and Schniederjans	2004	Quantitative	Different sectors	166 top managers in large companies	-	CFA F-test
59.	Bergeron et al.	2004	Quantitative	Manufacturing sector	110 CEOs in SMEs	-	ANOVA
60.	Wang and Tai	2003	Quantitative	Manufacturing sector	156 SMEs and large companies	-	CFA chi-square test
61.	Newkirk et al.	2003	Quantitative	Different sectors	161 IS executives in large companies	USA	PLS
62.	Lee and Pai	2003	Quantitative	Different sectors	239 IS executives in large companies and SMEs	Taiwan	SEM
63.	Kearns and Lederer	2003	Quantitative	Different sectors	161 CIOs	USA	SEM
64.	Heo and Han	2003	Quantitative	Different sectors	154 middle-level and low-level managers in large companies and SMEs	Korea	ANOVA
65.	Hartono et al.	2003	Quantitative	-	105 planners in large companies	USA	Regression Analysis
66.	Basu et al.	2002	Quantitative	-	105 planners in large companies	USA	Regression Analysis
67.	Croteau and Bergeron	2001	Quantitative	-	223 CIOs	Canada	PLS
68.	Bergeron et al.	2001	Quantitative	Different sectors	110 CEOs in SMEs	-	CFA
69.	Andersen	2001	Quantitative	Different sectors	185 firms	USA	Multiple regression
70.	Teo and Ang	2000	Quantitative	Different sectors	136 IS executives in large companies and SMEs	Singapore	Descriptive statistics

71.	King and Teo	2000	Quantitative	Different sectors	157 IS and business planners in large companies	USA	t-test
72.	Segars and Grover	1999	Quantitative	Different sectors	253 CEOs in large companies	USA	Cluster Analysis
73.	Sabherwal	1999	Quantitative	Education	236 managers in large companies	USA	SEM
74.	Gottschalk	1999b	Quantitative	-	471 CIOs	Norway	Regression Analysis
75.	Gottschalk	1999a	Quantitative	-	471 CIOs	Norway	Factor Analysis
76.	Doherty et al.	1999	Quantitative	Different sectors	267 IT directors in large firms	UK	Cluster Analysis
77.	Segars et al.	1998	Quantitative	Different sectors	253 CIOs in large companies	USA	SEM
78.	Segars and Grover	1998	Quantitative	Different sectors	253 CIOs in large companies	USA	SEM
79.	Teo et al.	1997	Quantitative	Different sectors	92 IS executives	South-East Asia	chi-square
80.	Tukana and Weber	1996	Quantitative	Different sectors	49 planners in large companies and SMEs	Australia	Regression Analysis
81.	Lederer and Sethi	1996	Quantitative	-	105 planners in large companies	-	Descriptive statistics
82.	Falconer and Hodgett	1996	Quantitative	Different sectors	251 planners in large companies and SMEs	Australia	Descriptive statistics
83.	Premkumar and King	1994	Quantitative	Different sectors	230 CIO in large companies	USA	Regression Analysis
84.	Lederer and Mendelow	1993	Qualitative	Different sectors	20 IS executives	USA	-
85.	Gupta and Guimaraes	1993	Quantitative	Different sectors	131 large companies	-	Descriptive statistics
86.	Flynn and Goleniewska	1993	Quantitative	Different sectors	18 IT managers in large companies	UK	Descriptive statistics
87.	Earl	1993	Qualitative	-	27 CEOs and CIOs	-	-
88.	Lederer and Sethi	1992b	Quantitative	Different sectors	163 managers in large companies	-	SEM
89.	Lederer and Sethi	1992a	Quantitative	Different sectors	163 managers in large companies	-	-
90.	Raghunathan and Raghunathan	1991	Quantitative	Different sectors	192 IS executives in large companies and SMEs	-	Discriminant Analysis
91.	Lederer and Sethi	1991	Quantitative	Different sectors	80 IS planners in large companies	-	Factor Analysis Multiple Discriminant Analysis
92.	Raghunathan and King	1988	Quantitative	Different sectors	140 IS executives	-	Pearson correlation
93.	Lederer and	1988	Quantitative	Different	80 IS planners	-	Factor Analysis

	Sethi			sectors	in large companies		
94.	Lederer and Mendelow	1986	Qualitative	Different sectors	51 managers and IT executives in large companies	-	-

2.2. Analysis and synthesis of papers

Figure 2.3 presents the number of papers published each year. Although researchers in SISP area conducted studies many decades ago, the majority of the papers have only been published in the last 15 years. Especially, in the early 2000s, the awareness of IS strategy into IS planning was found to be very high as the majority of researchers focused on managerial aspects of IS planning and its value for firm performance. The strong practice of SISP came into existence around 2006, when researchers realized the significance of the integration business strategy and IS strategy and started examined drivers that affect IS planning with decision making techniques. Such a finding highlights both the importance of the field and its continuous development.

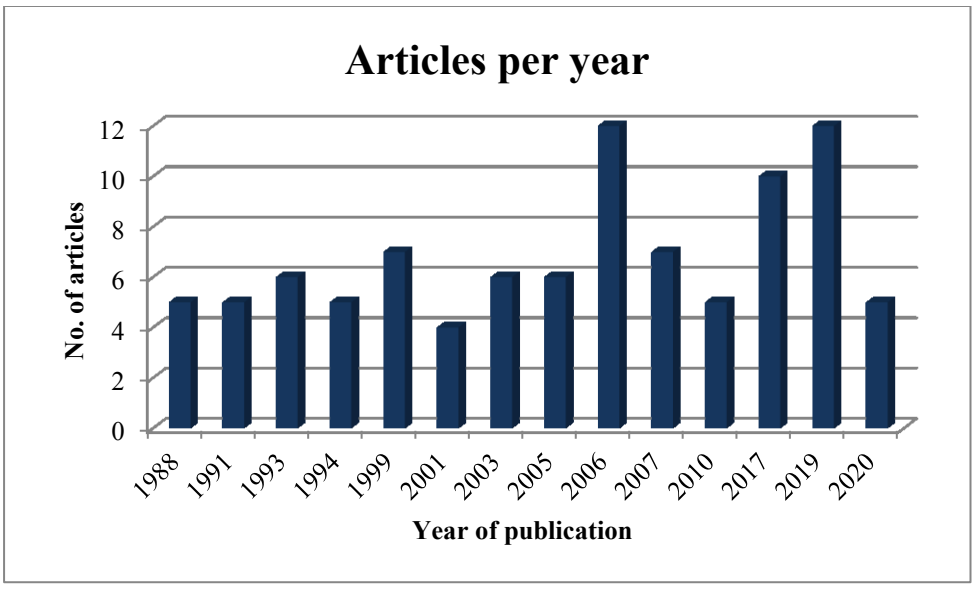

Figure 2.3. Articles per year

Based on the classification of papers that was presented in Table 2.3, Figure 2.4 shows the percentage of articles per concept. The majority of papers (66.89%) refer to methodologies for IS planning. 21.19% of papers are related to IT-business alignment. 19.87% of papers combine the concept of SISP with the concept of success. 19.21% of papers combine the concepts of performance with the previous concepts. Only 11.26% of papers refer to

critical success factors during the SISP process confirming researchers who claim that more research is required in order to examine the effectiveness of SISP process.

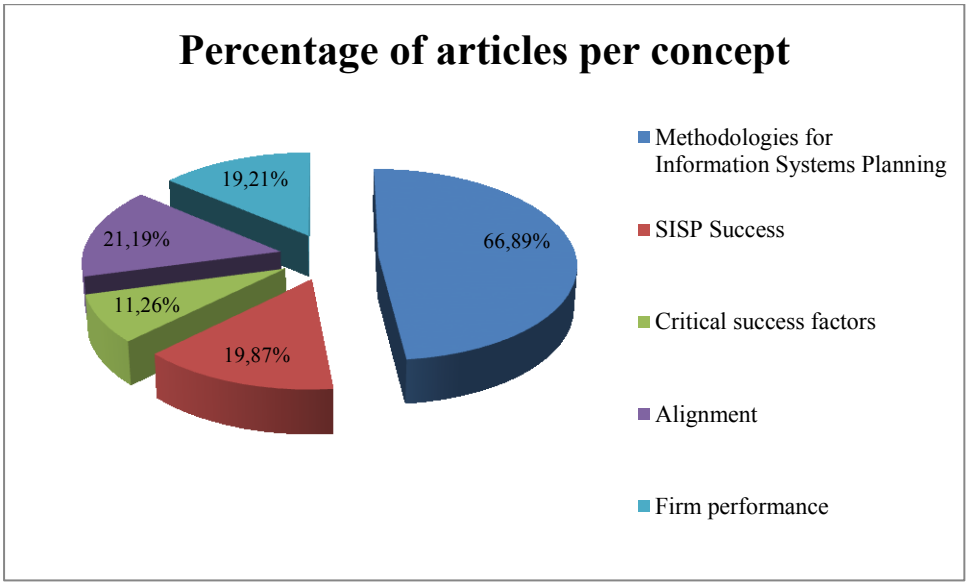

Figure 2.4. Articles per concept

VOSviewer identified 18 clusters in SISP co-occurrence, which are indicated using colors in the visualization shown in Figures 2.5 and 2.6. Each circle in the visualizations presented in Figures 2.5–2.6 represents a factor. The size of a circle reflects the number of times the factor has been studied and published.

Of the four larger clusters, the blue one consists mainly of the concept of "alignment", "business strategy", and "performance". The green cluster consists of "SISP", "IS projects", and "IT adoption" as the key research areas. The red-colored cluster has keywords such as "strategy", "understanding", "evaluation", "strategic approach", "strategic framework", and "advantage". The purple color covers "strategic alignment", "phases", "strategic priority", "profitability", "communication", and "post implementation".

The predominant areas in the blue-colored cluster are "efficiency", "competitive strategy", "business unit", "CIO", and "strategic information systems". In the green cluster, the dominant areas are "strategic planning", "utilization", "adoption", and "availability". The predominant areas in the red-colored cluster are "evaluation", "usefulness", and "sustainable competitive advantage". Finally, in the purple cluster, the dominant areas are "resources", "benefits", "value", "profitability", "phases", and "post implementation".

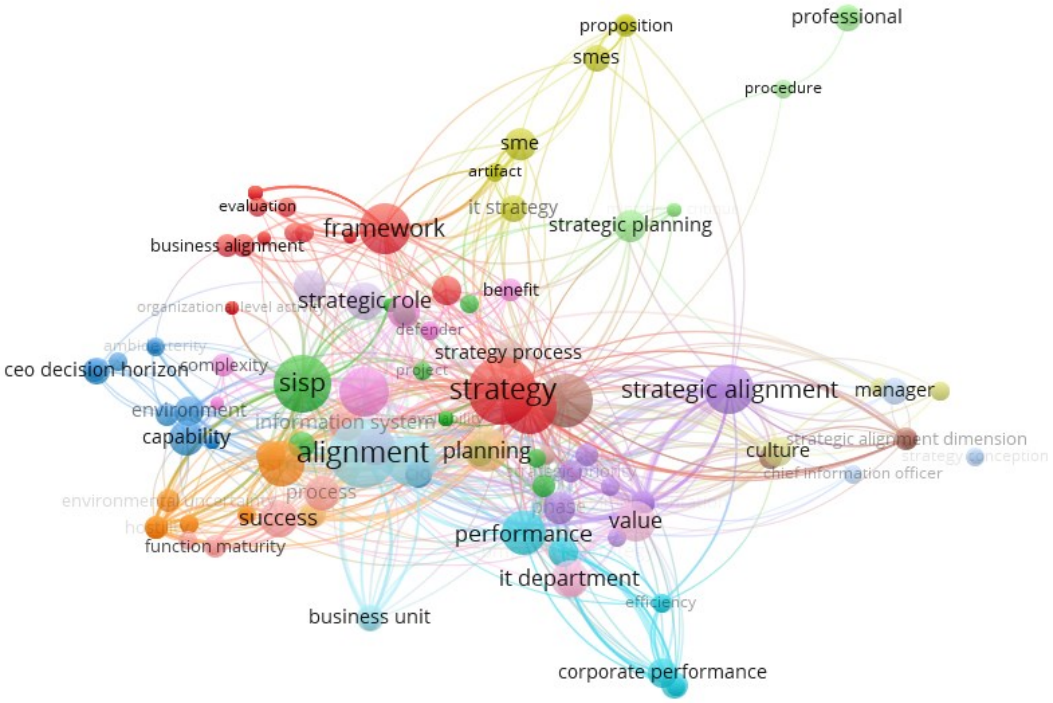

Figure 2.5. Network visualization

VOSviewer identified the main clusters that include the most developed areas (Figure 2.6). “Alignment” and “strategy” are the most developed areas, followed by “strategy process” and “Information systems”. “Success”, “performance”, “value”, and “evaluation” have been well developed or predominant. Areas such as “SMEs”, “environmental dynamism”, and “IT strategy” are emerging.

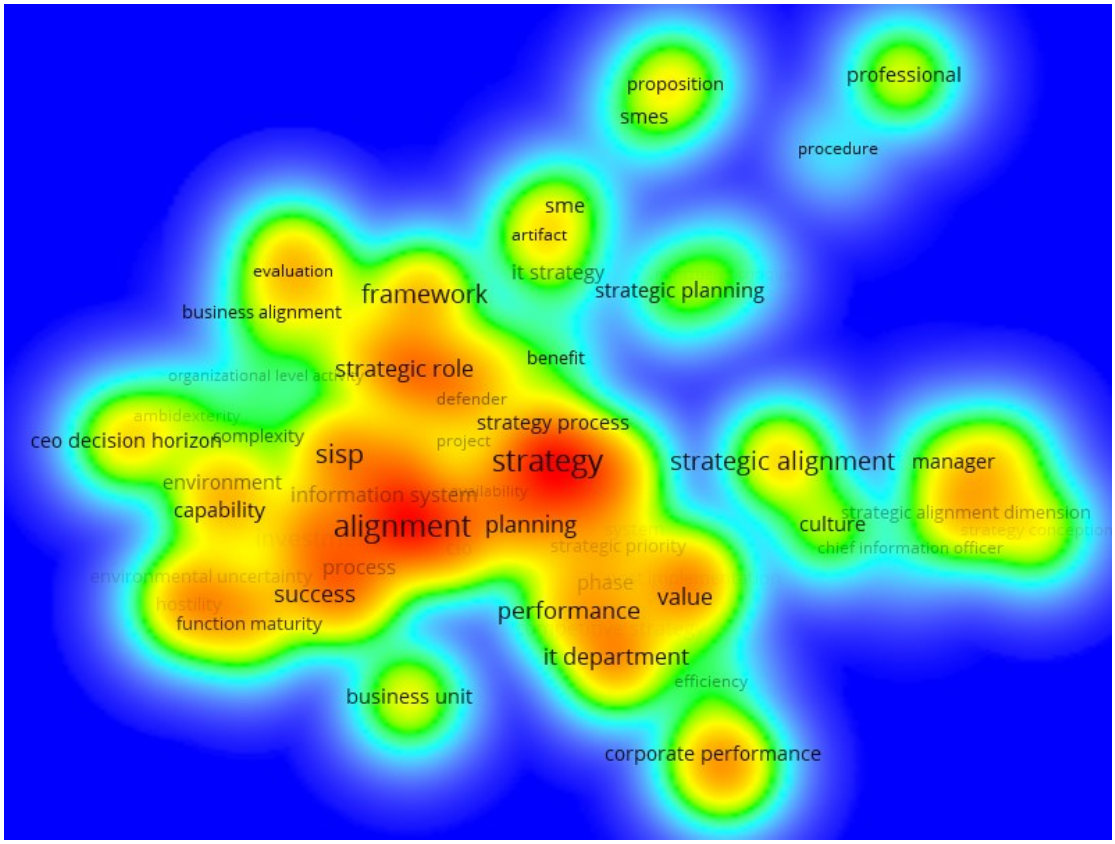

Figure 2.6. Density visualization

Papers have been published in many peer-reviewed journals. Journal of Cleaner Production has published 20 papers, Business Strategy and the Environment and Corporate Social Responsibility and Environmental Management have published 5 papers each one of them and Journal of business strategy and Technological Forecasting and Social Change have published 3 papers each one of them. Table 2.5 presents the distribution of papers based on journals.

Table 2.5. Distribution of papers based on journals

Journal	**Publisher**	**h-index**	**No. of papers**
The Journal of Strategic Information Systems	Elsevier	94	19
Information & Management	Elsevier	170	17
IEEE Transactions on engineering management	IEEE	97	9
MIS quarterly	University of Minnesota	243	7
Journal of Information technology	Springer	82	7
European Journal of Information Systems	Taylor & Francis	113	6
Omega	Elsevier	151	6
Decision Sciences	Wiley-Blackwell	113	5
International Journal of Business Information Systems	Inderscience	28	5
International Journal of Information	Elsevier	132	4

Management			
Journal of computer information systems	Taylor & Francis	66	4
Journal of Management Information Systems	Taylor & Francis	153	4
Long range planning	Elsevier	109	4

2.2.1. Business-IT alignment and firm performance

SMEs choose to operate in a new and complex financial setting. This new world entails increased complexity as well as radically shifting, all of which have an effect on the many operations of companies and hinder their capacity to address the economic crisis itself. Other factors that hinder their capacity to address the financial crisis except for their financial difficulties, maybe as a result of the absence of technical, administrative, and human capacities alongside with a lack of strategic planning (Al-Ammary et al., 2019; Newkirk and Lederer, 2006a; Shihab and Rahardian, 2017). What could help managers improve the firm's performance in SMEs are formal processes identified with both strategic management and information handling. Because IT investment does not only influence firm performance yet additionally assists managers to set business strategy with business performance, it has become a critical problem for managers to invest. Thus, companies should develop structured processes in dynamic environments that use consistent rules and procedures to achieve mitigating environmental sustainability as well as maintaining economic efficiency (Sabherwal et al., 2019).

Due to limited strategic planning and structured procedures, when SMEs cannot align business with IS strategy, they end up using IT ineffectively. In this area, extensive work has been carried out which can assist managers in appreciate the link between strategic alignment and the financial benefit of using IS (Moeini et al., 2020; Queiroz, 2017; Yin et al., 2020). The results showed that different types of alignment exist between the business, IS strategy and organizational structure (Kearns and Sabherwal, 2007). The first of these types which researchers have identified presents a business alignment between business strategy and structure. The second discusses the consistency of IS and addresses problems such as IS strategy and structure consistency. Then, the third is a cross-dimension alignment that requires either aligning between structure with IS strategy, or vice versa (Ilmudeen et al., 2019; Puspitasari and Jie, 2020). Researchers say that the alignment between business viewpoints such as strategy, individual roles and skills and structure management processes will significantly improve market profitability, IS productivity and company performance (Ilmudeen et al., 2019; Puspitasari and Jie, 2020).

For an IS manager, therefore, one of the most important challenge is to maintain a significant level of alignment between IT and business goals, as it consolidates both the IT and the organization (Tai et al., 2019). Services developed with IT support will help companies achieve their goals in this way. Strategic IT alignment requires knowledge of business and IT which is unique to each organization. Thus, strategic IT alignment has to be unique for each company to help it achieve its goals (Chen et al., 2017; Chtourou Ben Amar and Ben Romdhane, 2019; Liang et al., 2017).

It is generally recognized that the alignment process is crucial. One explanation for this is that alignment allows companies to efficiently recognize the position of IT, an essential factor that can support business success. Another is that, by strengthening the interaction between market aspects and technology, alignment as mechanism helps companies develop both their company reach and infrastructure. It is also stated that existing alignment models are more business-driven than IT driven, implying that in order to determine the most effective way in which technology can help organizations, organizations should focus more on IT. If businesses want their initiatives to be supported by IT, they need to know their business strategy as well as to make it clear (Becker and Schmid, 2020; Liang et al., 2017; Steelman et al., 2019).

The result for businesses which have aligned strategy and structure is that they are less defenseless 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 IS were performing better (Cao and Schniederjans, 2004). Also, effective alignment of the IT plan with the business plan can impact on competitive advantage (Chan and Reich, 2007). Even though more attention is given to strategic IT 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). Research has been implemented to demonstrate alignment between IS 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 IT in organizations is increasing, most studies have focused on the alignment of IT strategy with business strategy and examined the performance effects of the strategic alignment (Yayla and Hu, 2012).

There are a variety of ways to evaluate firm performance. “Return on Investment” (ROI) and “Return on Assets” (ROA) can be used to measure it (Bergeron et al., 2004). Other measures, such as market share and customer satisfaction, were proposed by King and Teo (2000). Finally, Mithas et al. (2011), measured financial performance in terms of variables such as customer satisfaction, employee satisfaction, revenue, profits, innovation, supply and production flexibility.

A company's competitive advantage is unlikely to be derived solely from the use of technology (Peppard and Ward, 2004). According to Mirchandani and Lederer (2012), companies can achieve a competitive advantage by aligning their business strategy with IS. According to Andersen (2001), IS are linked to business strategy, skills, management, decision making and create a competitive advantage.

Having already listed the contribution of alignment methodologies, it is important to explore the difficulties that hinder several organizations to align IT with their strategy. First and foremost, IT decisions are frequently made by company members who are unaware of it, resulting in an organizational misalignment. On the other hand, IT executives, not informed of the organizational goals, will be unable to understand the needs of business decisions. 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 competence (Balhareth, 2018; Ilmudeen and Bao, 2020; Sabherwal et al., 2019).

As the use of IT supports an organization’s competitiveness by securing rare resources and acting as a modulator against changes, the productivity of internal processes is enhanced. Acquiring adequate information supports the limitation of cost coordination, increases internal control, improves the productivity of internal methods, and minimizes both the costs of functions and of data handling. Furthermore, IT use supports businesses to improve their relationship with their customers by learning more about their needs and helps businesses reduce uncertainty, as it allows them to focus on rapidly changing customers’ demands while reducing response times. Finally, it allows businesses to

develop innovative products that meet customers' needs and provide more efficient services. It is obvious that it leads to satisfied customers and, as a result, it leads to improved firm performance (Ilmudeen et al., 2019; Luftman et al., 2017; Yoshikuni and Albertin, 2018). A process that can help managers make efforts in this direction is the use of Strategic Information Systems Planning (SISP).

2.2.2. SISP phases and success

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 (Mentzas, 1997; Peppard and Ward, 2004).

Five phases are incorporated into the SISP process. Strategic awareness which is the starting phase involves activities related to the identification of important planning problems, priorities, goals, the selection of the IS team members and the willingness of top-level managers to be engaged in the process. The key risks of the second phase of the SISP process are the analysis of existing business structures, organizational processes, and information systems in addition to the analysis of the external and internal IT environment. IT managers set important goals, opportunities for change and high-level IT strategies during the third stage of the SISP process. Strategy formulation constitutes the fourth phase of the 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 (Brown, 2004; Maharaj and Brown, 2015; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2008; 2003). Table 2.6 presents SISP phases and activities.

Table 2.6. SISP phases and activities

Phases	Activities	References
Strategic Awareness	Determining key planning issues (SAw1) Determining planning objectives (SAw2) Organizing the planning team (Saw3) Obtaining top management commitment (SAw4)	(Brown, 2004; Maharaj and Brown, 2015; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2008; 2003)
Situation Analysis	Analyzing current business systems (SA1) Analyzing current organizational systems (SA2) Analyzing current information systems (SA3) Analyzing the current external business environment (SA4) Analyzing the current external IT environment (SA5)	
Strategy Conception	Identifying major IT objectives (SC1) Identifying opportunities for improvement (SC2) Evaluating opportunities for improvement (SC3) Identifying high level IT strategies (SC4)	
Strategy Formulation	Identifying new business processes (SF1) Identifying new IT architectures (SF2) Identifying specific new projects (SF3) Identifying priorities for new projects (SF4)	
Strategy Implementation Planning	Defining change management approaches (SIP1) Defining action plans (SIP2) Evaluating action plans (SIP3) Defining follow-up and control procedures (SIP4)	

Relevant literature argued that IS planning success is "the degree to which the objectives of IS planning are achieved" (Pai, 2006). The concept of success has traditionally been viewed as a four dimensional one namely alignment, analysis, cooperation and capabilities. The first one refers to the executives understanding of how to use IS in order to support business strategy and to identify opportunities that can support the strategic direction of the firm. It also includes variables such as the alignment of IT strategy with the strategic plan of the organization, the education of top managers with regards to the importance of IT and the adaption of technology to strategic change (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b). The second one is solely preoccupied with the generation of new ideas on how to reengineer business process through IT. At this point the understanding of

both information needs through subunits, and the dispersion of data, application and other technologies throughout the firm so that a blueprint which will improve organizational processes could be developed, are all considered extremely important issues. Through all these processes managers can understand how the organizations actually operate. In this way they can evaluate internal business needs along with the capability of IS to meet these needs (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b).

The third dimension is about the ability of managers to develop clear guidelines of managerial responsibility for plan implementation and to identify potential sources of resistance to IS plans. It also refers to the managers' ability to support open lines of communication with other departments of the business so that they can 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 when it comes to adapting to anticipated changes as well as the ability to gain cooperation among user groups for IS plans (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b). Table 2.7 presents success dimensions and variables.

Table 2.7. Success dimensions and variables.

Alignment	**Analysis**	**Cooperation**	**Capabilities**	**References**
Top managers understood that IS improve business strategy (AL1)	Opportunities for improvement in organizational processes improvement were defined (AN1)	Unambiguous guidelines of managerial responsibility were developed to implement SISP (CO1)	Ability to define important negative results (CA1)	(Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b)
Understanding the strategic priorities of top managers (AL2)	Managers changed organizational processes and procedures (AN2)	Potential sources of resistance to IT projects were defined and solved (CO2)	Ability to deal with surprises and crises (CA2)	
Defining opportunities about IT in order to help the strategic direction of the company (AL3)	New ideas were developed to reframe organizational processes using IT (AN3)	Open lines of communication with other departments were created (CO3)	Ability to deal with unanticipated changes (CA3)	
IS strategies were aligned with the strategic plan of the	Information needs of subunits were understood (AN4)	The development efforts of many organizational subunits	Ability to increase collaboration among members of the development	

company (AL4)		coordinated (CO4)	team (CA4)	
IS objectives were adapted to change organizational goals (AL5)	Managers understood the dispersion of information, applications, and other technical infrastructure used in the company (AN5)	A uniform basis to set priorities was established (CO5)		
Top managers were educated about the significance of IS (AL6)	A ‘‘blueprint’’ was developed to define business processes (AN6)	An increased level of agreement about the risks/tradeoffs among IT plans was achieved (CO6)		
IT was adapted to strategic change (AL7)	Increased comprehension of how the company actually operates (AN7)	The overlapping development of significant systems was decreased (CO7)		
The strategic significance of IT was evaluated (AL8)	Business needs and the capability of IT to achieve certain requirements are evaluated (AN8)			

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, 2006b; 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 (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

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. 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; Newkirk et al., 2003).

Strategy conception with recognition and assessment of opportunities would provide more realistic alternatives. The organizations would be enabled to align IT and business objectives by their recognition, and consequently that would create better alternatives and choices that would support better results (Brown, 2010; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). Despite their focusing on that phase, though, planners cannot identify the suitable alternative strategies and subsequently their efforts do not positively influence SISP success, and they cannot achieve business objectives.

The lack of participation and the failure to apply strategic IS plans are the most common problems which have been raised during the SISP process. As executives cannot be committed to the plan, the members of the team have difficulties in implementing the IS strategy. So, it is better prioritization that would result in higher likelihood of implementation and greater chances of meeting their objectives. Yet, as shown by the existing research, executives tend to focus on the implementation of IS strategy because they consider it to be so difficult a process as they ignore its formulation (Brown, 2004; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

What has been indicated by surveys analyzing the impact of SISP phases on success have shown that IS executives have focused their efforts on the phase of Strategy conception. Combined with recognition and opportunity assessment, Strategy conception could offer more realistic alternatives. Recognizing IT goals can enable the organization to set future IT and business goals, while better options and choices can sustain the plan to achieve better results. The two most common issues that emerged during the implementation of the SISP process were the lack of top management engagement and the inability to develop successful action strategies to develop the IS. If managers do not support the IT projects development, team members will not be dedicated to the plans and will have difficulties implementing the IS strategy. Therefore, it is preferable that executives set priorities that would enable their IS strategy to be better implemented and achieve their objectives.

Results from existing literature indicate that IS executives tend to pay attention to IS strategy execution. This is because they consider the implementation of the strategy as a complex process (Newkirk and Lederer, 2006b; Newkirk et al., 2003).

Findings also indicate that there are managers who are overworked with respect to the SISP process whilst others who are doing too little. Such two approaches may prove ineffective. In the first case, the process could be misunderstood, postponed or stopped from being enforced, while in the second approach the implementation plans could be unsuccessful, meaning that their objectives could not be accomplished. The evaluation of the process is obviously of great importance if managers wish to reduce these unsatisfactory results. Studies have concluded that IT managers focus their efforts on Strategy conception and Strategy implementation planning, ignoring the importance of Strategic awareness and Situation analysis. Consequently, the IS strategies that are being developed are thus inefficient, ineffective and they fail to meet IT goals (Brown, 2010; McCardle et al., 2019; Newkirk and Lederer, 2006b). Moreover, managers concentrate solely on minimizing the time and cost of the implemented project. Executives focus only on process implementation and this fact has negative results because it can contribute to the implementation of the SISP process in less time, but the company's strategic objectives are not in line with IT goals (Arvidsson et al., 2014; Brown, 2010; 2004).

The findings of the existing literature indicate that IT managers concentrate their efforts on Strategy conception and Strategy execution (Burgelman et al., 2018; Chen et al., 2010). In addition, IS executives refrain from investing time in the first and second phases of the process. Thus, the outcome of the implementation of SISP process is the development of ineffective and unsuccessful IT plans that do not meet business' goals. Senior managers have a limited budget at their disposal to develop IS, so they do not focus their efforts on identifying strategic objectives such as how IS will improve the profitability of the company. They only focus on minimizing the time and cost involved in implementing the projects. The focus of executives only on the implementation of the process has negative results because it may lead in less time to the execution of the process of SISP and the strategic objectives of the company are not aligned with the objectives of IT (Bechor et al., 2010; Elysee, 2015; Shimada et al., 2019).

2.2.3. Critical success factors

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 IS which meet the needs of the business according to the business' goals, which affects the process of business with IT alignment. The development of successful IS needs both understanding of system requirements and business processes. Nevertheless, IS developers face challenges in implementing systems that meet business goals which act in an ongoing changing environment, because businesses are misaligned.

Many decisions which concern about IT are driven by business executives who are not informed about IT. This barrier leads to the company being misaligned. Another challenge refers to IT executives who are not informed about the business goals and often they cannot understand the needs of business decisions. Finally, business and IT 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 IT, the communication problems between business and IT, the short-term planning between business and IT, the lack of business and IT capabilities, the turbulent organizational structure, the organizational culture which does not promote the use of IT, the use of IT not as an organizational tool, the informal business planning and the lack of IT faith (Ullah and Lai, 2013).

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 IT and the speedy upgrading of business strategies has force top management to pay more attention to IS 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 IT and the successful implementation of IT strategies. The CIO should devote to understanding business needs and the CEO should devote to investigating IT opportunities. CIOs who participate in formulating business goals are more possible to understand business goals and to closely connect IT strategies closely with organizational strategies. CEOs' participation contributes to the ability to CIOs to provide information about competitors' uses of IT and to share knowledge about emerging opportunities (Kearns and Lederer, 2003). Figure 2.7 summarizes the critical success factors.

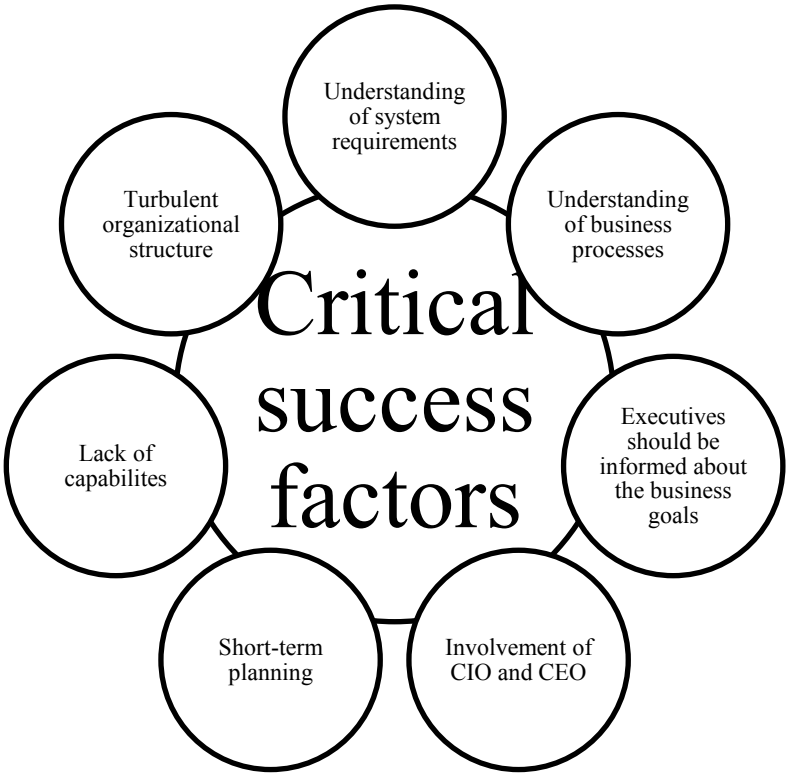

Figure 2.7. Critical success factors

3. Methodology

This chapter has five sections. The purpose of this thesis is explained in the first section, which includes the research questions and hypotheses that were tested. The data collection process is presented in the second section. Specifically, it describes the population and the sample size of the survey. The third section presents how the questionnaire was developed, while the fourth section describes the variables used in the questionnaire. The fifth section describes the basic principles of data analysis methods. Figure 3.1 presents the research framework of this survey.

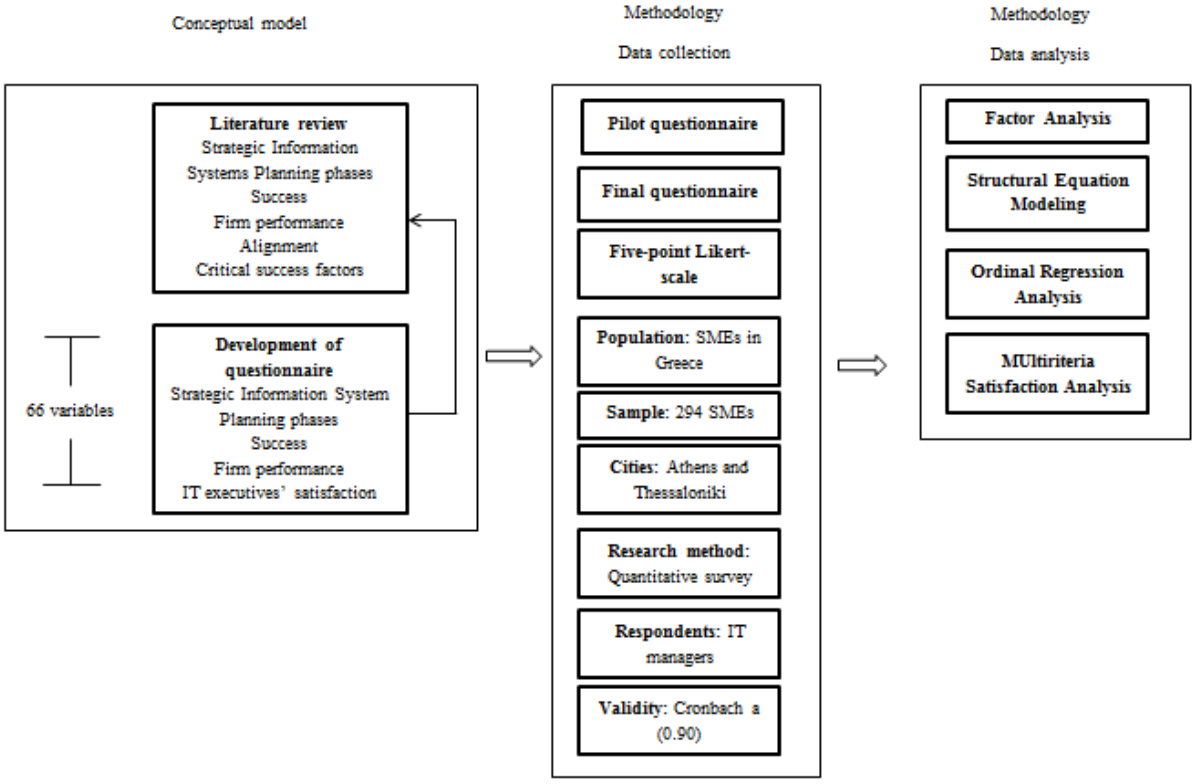

Figure 3.1. Research framework

3.1. Research questions and hypotheses

The purpose of this thesis is to indicate the phases of SISP; (2) indicate the phases that contribute to a greater extent of success; (3) indicate the phases that contribute to firm performance; and (4) investigate the effect of the use of SISP on IT executives' satisfaction. In order to achieve the objectives of this thesis, a research of the existing literature was carried out, according to which the research model emerged. Figure 3.2 presents the research model. The model includes four variables; SISP phases, SISP success, firm performance and IT executives' satisfaction.

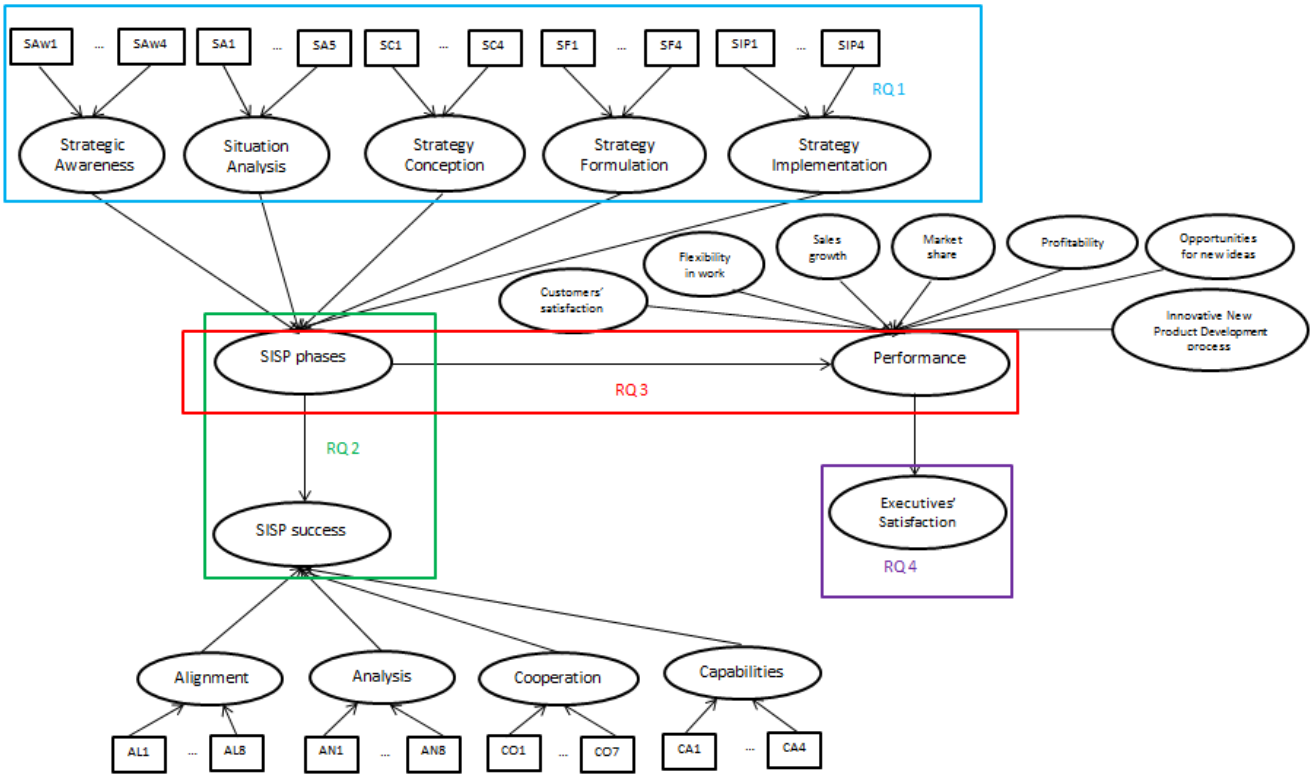

Figure 3.2. Research model

What has been indicated by surveys analyzing the impact of SISP phases on success have shown that IS executives have focused their efforts on Strategy conception. Combined with recognition and opportunity assessment, Strategy conception could offer more realistic alternatives. Recognizing IT goals can enable the organization to set future IT and business goals, while better options and choices can sustain the plan to achieve better results. The two most common issues that emerged during the implementation of the SISP process were the lack of top management engagement and the inability to develop successful action strategies to develop the IS. If managers do not support the IT projects development, team members will not be dedicated to the plans and will have difficulties implementing the IS strategy. Therefore, it is preferred that executives establish priorities that will help their IS strategy be more effectively implemented and fulfill its goals. Results from existing literature indicate that IS executives tend to pay attention to Strategy execution. This is because they consider the implementation of the strategy as a complex process (Newkirk and Lederer, 2006b; Newkirk et al., 2003).

Findings also indicate that there are managers who are overworked with respect to the SISP process whilst others who are doing too little. Such two approaches may prove ineffective. In the first case, the process could be misunderstood, postponed or stopped

from being enforced, while in the second approach the implementation plans could be unsuccessful, meaning that their objectives could not be accomplished. The evaluation of the process is obviously of great importance if managers wish to reduce these unsatisfactory results. Studies have concluded that IT managers focus their efforts on Strategy conception and Strategy implementation planning, ignoring the importance of Strategic awareness and Situation analysis. Consequently, the IS strategies that are being developed are thus inefficient, ineffective and they fail to meet IT goals (Brown, 2010; McCardle et al., 2019; Newkirk and Lederer, 2006b). Moreover, managers concentrate solely on minimizing the time and cost of the implemented project. Executives focus only on process implementation and this fact has negative results because it can contribute to the implementation of the SISP process in less time, but the company's strategic objectives are not in line with IT goals (Arvidsson et al., 2014; Brown, 2010; 2004).

The findings of the existing literature indicate that IT managers concentrate their efforts on Strategy conception and Strategy execution (Burgelman et al., 2018; Chen et al., 2010). In addition, IS executives refrain from investing time in the first and second phases of the process. Thus, the outcome of the implementation of SISP process is the development of ineffective and unsuccessful IT plans that do not meet business' goals. Senior managers have a limited budget at their disposal to develop IS, so they do not focus their efforts on identifying strategic objectives such as how IS will improve the profitability of the company. They only focus on minimizing the time and cost involved in implementing the projects. The focus of executives only on the implementation of the process has negative results because it may lead in less time to the execution of the process of SISP and the strategic objectives of the company are not aligned with the objectives of IT (Bechor et al., 2010; Elysee, 2015; Shimada et al., 2019).

Based on the analysis of the existing literature about SISP phases and success (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003) the following hypotheses are defined:

- H1: Strategic Awareness positively affects SISP success.
- H2: Situation Analysis positively affects SISP success.
- H3: Strategy Conception positively affects SISP success.
- H4: Strategy Formulation positively affects SISP success.
- H5: Strategy Implementation Planning positively affects SISP success.

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).

3.2. Data collection

Since Greek SMEs have been negatively affected by the financial crisis, they tend to try to align their business and IT strategy in an attempt to compete in the current uncertain environment and increase their growth while being innovative at the same time (Mitsos et al., 2019; Tsoukatos et al., 2017). Although Greek SMEs focus on their long-term sustainability, they do not develop strategic planning (Siakas et al., 2014). On top of that lack of strategic planning and of formal processes, Greek SMEs use IS ineffectively as they fail to align business and IT strategy. Greece, specifically, is a country where there are much more SMEs in comparison with other European countries and the financial crisis has a negative impact on the majority of them. In Greece the majority of firms consist of 20-50 employees and there are many family firms also consisting of 5-10 employees. As the existing studies have examined the impact of SISP process in large firms (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006; Newkirk et al., 2003), it would be helpful to examine how SMEs that try to be competitive using IT can implement the SISP process in order to increase success.

The research was designed based on previous similar papers (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). According to previous surveys that examined the SISP process, the selection of the sample was based on companies that were registered in business lists (Mirchandani and Lederer, 2012; Newkirk et al., 2003). Four managers were accepted to complete a pilot survey in order to provide feedback for

the content, duration and general appearance of the instrument. The sample of the survey includes IT managers in Greek SMEs in various industries (IT, Business Services, Logistics, Agriculture, Metals, Electrical, R&D, Construction, Leisure and tourism, Chemicals, Energy and Paper printing) located in the regions of Thessaloniki and Athens and it was chosen using the Icap list. The Icap list (a 'Business Service Group') is a well-known and reliable source of data for Greek companies. It was used in order to contact with the IS executive of each one and collect data. SMEs should meet the following criteria: The number of employees was 0-50 and the turnover did not exceed 50 million euro based on the EU recommendation 2003/361 (European Commission, 2003). The population of Greek SMEs that meet these criteria was 3.000. SMEs that provided contact information were chosen as the correct survey sample. IT managers in these companies were invited to participate in the survey. The instrument was given to 1.246 IS managers. When a manager that has initially agreed to participate in the survey failed to submit a reply within a reasonable time period, follow-up letters (emails) were sent (approximately two to three weeks after the initial contact). From the 1.246 questionnaires that were initially distributed, 294 were finally returned. Thus, the final sample includes 294 SMEs (response rate 23.9%).

Moreover, when examining the sample sizes of previous studies of the same field, published in respectable journals, it is also concluded that the final sample of this study is within acceptable levels. Actually, most studies, conducted in large firms, were based on much smaller samples (e.g., Mirchandani and Lederer, 2012: 131 questionnaires; Newkirk et al., 2003: 161 questionnaires).

3.3. Questionnaire development

Figure 3.3 shows the methodology adopted to develop the questionnaire of this thesis. The questionnaire was created following a six-step process. In the first stage, the analysis of the literature review, which focused on SISP phases and success and was presented in previous sections, highlighted a number of questions, as well as the methodology for data collection. In the second stage, a draft questionnaire was developed based on similar studies (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). These questions were examined further to identify syntax issues, which led to the redesign of the questionnaire. A pilot questionnaire was created in the third stage. The pilot questionnaire was reviewed by four IT managers from Greek companies in the fourth

stage. The questionnaire was corrected in the fifth stage based on feedback from four IT managers, and the final draft of the questionnaire was developed. The final questionnaire was e-mailed to the IT managers of 1.246 Small and Medium Enterprises in the sixth stage. The final questionnaire is presented in Appendix A.

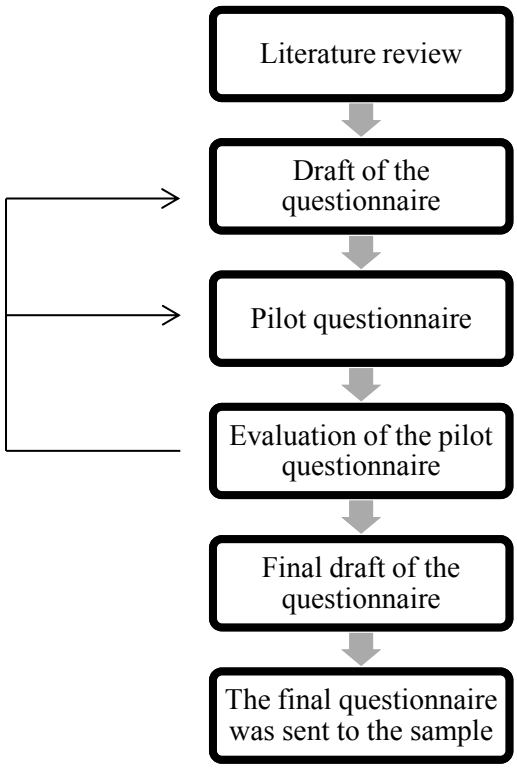

Figure 3.3. Questionnaire development

Source: Adapted from: Kitsios (2005)

3.4. Description of variables

A five-point Likert-scale was adopted to evaluate SISP phases, success, firm performance and IT satisfaction. The questionnaire hinged on the current research about the process of SISP (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003) and firm performance (Kitsios and Grigoroudis, 2020; Yoshikuni and Albertin, 2018). Researchers measure SISP phases using the following stages: Strategic awareness, Situation analysis, Strategy conception, Strategy formulation, and Strategy implementation planning (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). SISP success was evaluated using variables such as alignment, analysis, cooperation, and capabilities (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). Researchers measured business performance using variables

such as profitability, sales growth (Ilmudeen and Bao, 2020), sales growth, innovation, profitability, cost reduction, revenue-growth, quality-improvement (Luftman et al., 2017), improvement internal efficiency of operations, growth of ROI, growth of customer satisfaction, growth of market share of products and services and growth of annual sales revenue, sales, ROA, growth and profitability (Chatzoglou et al., 2011). Each of the variables used in the questionnaire is defined in Table 3.1.

Table 3.1. Variables and definitions

Variables	Definitions
Strategic Awareness	This phase includes activities such as the identification of key planning issues and objectives, the development of the planning team and the encouragement of top management to participate in the process.
Situation Analysis	This phase includes an analysis of current business systems, current organizational systems, current information systems, external environment and external IT environment.
Strategy Conception	This phase of the process refers to the identification of important IT objectives, opportunities for improvement and high-level IT strategies.
Strategy Formulation	In this phase IS executives identify new business processes, new IT architectures, specific new projects and priorities for new projects.
Strategy Implementation Planning	In this phase IT managers define change management approaches and action plans and they evaluate them.
Success	The degree to which the objectives of SISP process are achieved.
Firm performance	The extent to which sales growth, profitability, market share, and customer satisfaction were increased, as well as increased work flexibility, opportunities for new ideas, and an innovative process for new product development.
Satisfaction	The extent to which IT executives are satisfied with the improvement in firm performance.

The questionnaire includes five parts. The first part of the questionnaire consists of questions regarding the type of industry, the number of employees, and the company's turnover. Furthermore, this part involves questions about the Information System's budget, the type of the Information System and its characteristics.

Part A: Profile of participating company characteristics

1. **Type of Industry**
   - Agriculture & Food
   - Business Services
   - Chemicals, Pharmaceuticals & Plastics
   - Construction
   - Education, Training & Organizations
   - Electrical, Electronics & Optical
   - Energy, Environment
   - IT, Internet, R&D
   - Leisure & Tourism
   - Metals, Machinery & Engineering
   - Minerals
   - Paper, Printing, Publishing
   - Retail and Traders
   - Textiles, Clothing, Leather, Watchmaking, Jewellery
   - Transport & Logistics

2. **Number of employees**
   - 0-9
   - 10-19
   - 20-49
   - 50-99
   - 100-250

3. **Turnover**
   - <2 millions €
   - 3-10 millions €
   - 11-50 millions €

4. **Information Systems Structure**
5. **Has your company department of Information Technology (IT)?**
   - Yes

- No

6. **Number of IT employees**
   - 0-5
   - 6-10
   - 11-20
   - 21-30
   - 31-40
   - 41-50
   - >= 51

7. **Information System's budget**
   - 0-50.000 €
   - 51.000-100.000 €
   - 101.000- 150.000 €
   - 151.000-200.000 €
   - >= 201.000 €

8. **Name and brief description of the selected Information System**
9. **In which of the following types the selected Information System is included?**
   - Information Systems for sales and Marketing
   - Information Systems for production and manufacture
   - Information Systems for financial management
   - Information Systems for human resource management
   - Decision Support Systems
   - Electronic Data Interchange Systems

Part B: Respondent's Profile

The second part of the questionnaire includes questions regarding the respondent's profile, such as its gender, age, education level, and his or her experience.

1. **Gender**
   - Male

- Female

2. **Age**
   - 18-25
   - 26-35
   - 36-45
   - 46-55
   - >= 56

3. **Education level**
   - Some college
   - 2 year college graduate
   - 4 year college graduate
   - Some postgraduate school
   - Post graduate degree

4. **Specialization of your degree:**
5. **Respondent's employment**
   - 0-5
   - 6-15
   - 16-25
   - 26-35
   - >= 36

Part C: Strategic Information Systems Planning Phases

The third part of the questionnaire includes questions about evaluating each phase of the SISP process based on the existing literature (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). Four items were used to evaluate Strategic awareness, five items were used to assess Situation analysis, four items were used to evaluate Strategy conception, four items were used to assess Strategy formulation, and four items were used to evaluate Strategy implementation planning.

Strategic Awareness, which is the starting phase, involves activities related to the identification of important planning problems, priorities, goals, the selection of the IS team

members and the willingness of top-level managers to be engaged in the process (Brown, 2004; Maharaj and Brown, 2015; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2008; 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 (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). IT managers set important goals, opportunities for change and high-level IT strategies during the third stage of the SISP process. 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 (Brown, 2004; Maharaj and Brown, 2015; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2008; 2003).

1. Strategic Awareness	No extent				Great extent
Determining key planning issues	1	2	3	4	5
Defining planning objectives					
Organizing the planning team					
Obtaining top management commitment					
2. Situation Analysis					
Analyzing current business systems					
Analyzing current organizational systems					
Analyzing current information systems					
Analyzing the current external business environment					
Analyzing the current external IT environment					
3. Strategy Conception					
Identifying major IT objectives					
Identifying opportunities for improvement					
Evaluating opportunities for improvement					
Identifying high level IT strategies					
4. Strategy Formulation					
Identifying new business processes					
Identifying new IT architectures					
Identifying specific new projects					
Identifying priorities for new projects					
5. Strategy Implementation Planning					
Defining change management approach					
Defining action plan					
Evaluating action plan					

Defining follow-up and control procedures					

Part D: Strategic Information Systems Planning Success

The fourth part of the questionnaire includes variables to evaluate the success of the SISP process based on the existing literature (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). The concept of success has traditionally been viewed as a four dimensional one namely alignment, analysis, cooperation, and capabilities. Alignment was evaluated using eight items, Analysis was evaluated using eight items, Cooperation was evaluated using seven items, and Capabilities were evaluated using seven items.

The first one refers to the executives understanding of how to use IS in order to support business strategy and to identify opportunities that can support the strategic direction of the firm. It also includes variables such as the alignment of IT strategy with the strategic plan of the organization, the education of top managers with regards to the importance of IT and the adaption of technology to strategic change (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). The second one is solely preoccupied with the generation of new ideas on how to reengineer business process through IT. At this point the understanding of both information needs through subunits, and the dispersion of data, application and other technologies throughout the firm so that a blueprint which will improve organizational processes could be developed, are all considered extremely important issues (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

The third dimension is about the ability of managers to develop clear guidelines of managerial responsibility for plan implementation and to identify potential sources of resistance to IS plans. It also refers to the managers' ability to support open lines of communication with other departments of the business so that they can 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 when it comes to adapting to anticipated changes as well as the ability to gain cooperation among user groups for IS plans (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

1. Alignment	No extent				Great extent
Understanding the strategic priorities of top management	1	2	3	4	5
Aligning IS strategies with the strategic plan of the organization					
Adapting the goals/objectives of IS to changing goals/objectives of the organization					
Maintaining a mutual understanding with top management on the role of IS in supporting strategy					
Identifying IT-related opportunities to support the strategic direction of the firm					
Educating top management on the importance of IT					
Adapting technology to strategic change					
Assessing the strategic importance of emerging technologies					
2. Analysis					
Understanding the information needs of organizational subunits					
Identifying opportunities for internal improvement in business processes through IT					
Improved understanding of how the organization actually operates					
Development of a 'blueprint' which structures organizational processes					
Monitoring of internal business needs and the capability of IS to meet those needs					
Maintaining an understanding of changing organizational processes and procedures					
Generating new ideas to reengineer business processes through IT					
Understanding the dispersion of data, applications, and other technologies throughout the firm					
3. Cooperation					
Avoiding the overlapping development of major systems					
Achieving a general level of agreement regarding the risks/tradeoffs among system projects					
Establishing a uniform basis for prioritizing projects					
Maintaining open lines of communication with other departments					
Coordinating the development efforts of various organizational subunits					
Identifying and resolving potential sources of resistance to IS plans					
Developing clear guidelines of managerial responsibility for plan implementation					
4. Capabilities					
Ability to identify key problem areas					
Ability to identify new business opportunities					
Ability to align IS strategy with organizational strategy					
Ability to anticipate surprises and crises					
Ability to understand the business and its information					

needs					
Flexibility to adapt to unanticipated changes					
Ability to gain cooperation among user groups for IS plans					

Part E: Firm performance and IT executives' satisfaction

The fifth part of the questionnaire includes questions about how well the organization met each of the following firm performance measures and how satisfied IT executives were with its SISP efforts. The purpose of this part is to evaluate the impact of the SISP process on firm performance. It specifically investigates whether the company's profits, market share, and sales are increased, whether the way of working and the products and services are improved, and whether customers are satisfied (Andersen, 2001; Bergeron et al., 2004; Cao and Schniederjans, 2004; Chatzoglou et al., 2011; Croteau and Bergeron, 2001; King and Teo, 2000; Kitsios and Grigoroudis, 2020).

1. Profitability	No extent				Great extent
To what extent was the company's profitability increased?	1	2	3	4	5
2. Sales growth					
To what extent were sales increased?					
To what extent was the company's market share increased?					
3. Innovation					
To what extent was the employees' job's performance changed positively?					
To what extent were the new ideas transformed in achievable projects?					
To what extent were the new product/service development process changed?					
4. Customer's Satisfaction					
To what extent was the level of customers' satisfaction increased?					
5. IT executives' satisfaction	Very dissatisfied				Very satisfied
How satisfied are you with the increase of company's profitability?	1	2	3	4	5
How satisfied are you with the increase of sales?					
How satisfied are you with the increase of company's market share?					
How satisfied are you with the transformation of employees' job's performance?					
How satisfied are you with the transformation of the new ideas in achievable projects?					
How satisfied are you with the transformation of new product/service development process?					
How satisfied are you with the growth of customers'					

satisfaction?					
6. Overall Satisfaction					
Overall, how satisfied are you with the increase of firm performance?					

3.5. Methods for data analysis

3.5.1. Factor Analysis

The purpose of Factor Analysis is to categorize factors in a group of variables that do not exist but are created for the analysis. As a result of it:

- the dimensions of the case can be reduced as the original variables are no longer used, but the factors are created to retain as much information as possible that existed in the original variables,
- new variables called factors can be created that can be subjectively identified as some non-measurable variables, and
- the correlations that exist in the data may be due solely to the existence of some common factors that were created.

Many sciences benefit from Factor Analysis. It is a methodology for quantifying unobservable quantities that are frequently encountered in these sciences (Loehlin and Beaujean, 2017).

The loadings on each factor can be considered significant only if the following criteria are considered (Loehlin and Beaujean, 2017):

- For determining the appropriateness of the factor analysis, the following measures can be examined: (a) the statistical test of "Kaiser-Mayer-Olkin" (KMO) (values over
- 0.7 are satisfactory, while values over 0.5 are acceptable); (b) the "Bartlett's test of Sphericity" (it should be statistically significant, at the 0.05 level); (c) the correlations of the entry table (correlations should be statistically significant, at the 0.05 level).
- For determining the number of the extracted factors, the criterion of "eigenvalue" can be used. Factors whose 'eigenvalue' is over one are selected.

- For determining the percent of the total variance that is explained by the proposed factor(s), Total Variance Explained (TVE) was used. TVE should be more than 50%.
- A variable may belong to a factor simply because it has a higher loading, but that does not mean that the loading is satisfactory. Indicatively it is stated that loadings ± 0.5 and above are considered significant, while ± 0.3 is considered as the minimum acceptable limit.
- The loading can be considered satisfactory if is aligned with the sample size. For example, a sample size of 100 units requires a loading of at least 0.55 in order to be considered as significant. As the sample size increases the loading, which is required in order to be considered as significant, decreases. For example, a sample size of 350 units requires a loading of 0.3.
- As the number of variables increases, the desired limit of loadings decreases.

When one (or more) of the above measures is off its corresponding threshold, corrective action will be taken. More specifically, the item with the lowest factor loading will be dropped; and then the analysis will be conducted again. This procedure will be completed when all measures are within their corresponding thresholds.

3.5.2. Structural Equation Modeling (SEM)

SEM is a multivariate analysis technique; its origins can be traced back to psychologist Charles Spearman and geneticist Sewall Wright (Kline, 2015). A structural equation model implies a structure of the covariance matrix. Once the parameters of the model are estimated, the resulting model-implied covariance matrix is compared to a data-based (empirical) covariance matrix. If the two matrices are consistent, then the structural equation model is perceived as successfully explaining the causal relations between the constructs (factors) of the study (Kline, 2015).

A significant application of SEM includes causal modeling, or path analysis, which examines causal relationships among constructs (factors), using a linear equation system (Kline, 2015). This analysis helps estimate both direct and indirect (causal) effects, as well as total effects, of the independent constructs on the dependent construct(s) (Kline, 2015). In SEM, dependent constructs are named “endogenous constructs”, while independent are named “exogenous constructs”.

SEM is used to validate various theoretical hypotheses because it provides estimates for model factors and examines the degree to which they adapt to data. Because it combines Multiple Regression Analysis and Factor Analysis, it is regarded as an extension of these methods. It differs, however, because it investigates the relationships between one or more dependent variables and two or more independent variables at the same time. SEM differs from Multiple Regression Analysis because measurement errors are calculated, and the path model created allows the control of the indirect effect of an independent variable on a dependent variable, whereas Regression only controls the immediate effects. Furthermore, SEM differs from Factor Analysis, which is considered an exploratory method, because the number of factors and variable weights in the factors are not known in advance. SEM determines the structure of the problem to a great extent and performs statistical significance evaluations (Kline, 2015).

SEM is extremely useful, because it allows the testing of models that include complex patterns of relationships, in which certain factors are both dependent and independent. Moreover, SEM proposes modifications indices and produces enhanced measures for ensuring validity. IBM AMOS is the most used software when trying to fit structural equation models.

3.5.3. Ordinal Regression Analysis

Ordinal Regression Analysis involves solving mathematical packages in order to infer compatible instances from a given preference model, which restore the exemplary decisions for reference substitutes. This has been applied in the field of multidimensional analysis for at least fifty years (Clogg and Goodman, 1984; Tutz and Hennevogl, 1996).

Ordinal Regression Analysis is used in order to predict an ordinal variable, i.e. a variable whose value exists on an arbitrary scale where only the relative ordering between different values is significant. It can be considered as an intermediate problem between regression and classification (Clogg and Goodman, 1984; Tutz and Hennevogl, 1996). For further details on the main functions of ordinal regression analysis, can refer to the following studies (Grigoroudis and Siskos, 2010; 2002).

3.5.4. MUlticriteria Satisfaction Analysis (MUSA)

MUSA was used to assess the satisfaction of IT executives. This method can show the satisfaction indices of every criterion as well as the weights that IT managers assess for

every criterion. Moreover, this method was used because IT executives can utilize the action and improvement diagrams that are created to know about the weak and strong dimensions of satisfaction. Specifically, the improvement diagram provides managers a more clear perspective on the actions that must be improved (Grigoroudis and Matsatsinis, 2018; Grigoroudis and Siskos, 2010; 2002; Grigoroudis et al., 2007; 2000; Ipsilandis et a., 2008; Manolitzas et al., 2014; Muhtaseb et al., 2012; Siskos et al., 1998). The MUSA method has many benefits. Data represents the satisfaction of IT executives and can be easily collected using a simple questionnaire. Regarding the results of the model, outcomes are not only focused on descriptive analysis of IT executives' satisfaction data. Also, they support the evaluation of an integrated benchmarking system. Finally, the model does not require strong assumptions about IT executives' satisfaction or IT executives' behavior generally (Grigoroudis and Matsatsinis, 2018; Grigoroudis and Siskos, 2010; 2002).

This method is utilized for the assessment of a set of marginal satisfaction functions. The global satisfaction function originates from the consequence of the marginal satisfaction functions that product customer feedback. The most significant goal of the method is the aggregation of individual decisions into a collective value function (Grigoroudis and Siskos, 2002).

The MUSA approach evaluates global and partial satisfaction functions Y* and Xi* respectively, given managers' ordinal judgments Y and Xi (for the i-th criterion). The hypothesis of an added utility model is the basic axis of the method, and it is represented by the following ordinal regression analysis equation:

$$\check{Y}^* = \sum_{i=1}^{n} b_i X_i^* - \sigma^+ + \sigma^-$$

where $\check{Y}^*$ is the estimation of the global value function Y*, n is the number of criteria, b_i is a positive weight of the i-th criterion, σ^+ and σ^- are the overestimation and the underestimation errors, respectively, and the value functions Y* and X_i*are normalized in the interval [0, 100] (Grigoroudis and Siskos, 2002).

The final result is determined by taking the average of the near optimal linear programming solutions, which increases the weights of the n satisfaction criteria. A critical arrangement concerns the criteria weights bi, which describe the relative significance of the assessed satisfaction criteria (value trade-offs among the criteria). Several normalized indicators are recommended for the MUSA method that may uphold the top to bottom

examination of the satisfaction analysis (Grigoroudis and Siskos, 2002). The average indicators, known as satisfaction indicators, have a range of [0, 1] and represent the degree of manager global or criteria satisfaction. These indicators can be distinguished as the essential average performance indicators (globally or per criteria) for the company. The normalized indicators named demanding indicators have a range of [–1, 1] and they are determined by the arrangement of estimated added value curves. Moreover, these indicators represent IS executives' demanding level (globally and per criteria) and they are recognized as an index for the degree endeavors that a company intends to enhance. The normalized average improvement indicators have a range of [0, 1] and these indicators present the improvement margins on a particular criterion. The significance of the satisfaction measurements characterizes the effect of the amelioration endeavors and their commitment to dissatisfaction also.

Moreover, the outcomes can be optimized utilizing two types of diagrams: action and improvement diagrams. These diagrams are created dependent on the previously mentioned results (Grigoroudis and Siskos, 2002). The first type of diagrams is created combining criteria weights with satisfaction indices (Figure 3.4). These diagrams are similar to SWOT analysis, and they can outline the strong and weak dimensions of the company in order to assist executives to distinguish which satisfaction dimensions should be enhanced.

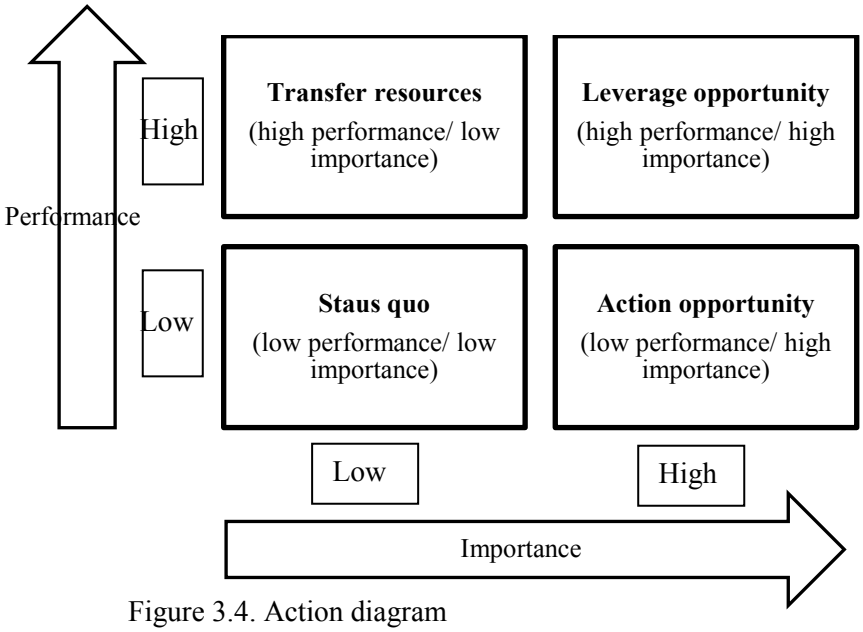

Figure 3.4. Action diagram

Adapted from: Grigoroudis and Siskos (2002)

Action diagrams are separated into four quadrants and the satisfaction dimensions are presented into two actions named performance and importance. The improvement actions for every satisfaction dimension could be applied by the quadrant in which the dimension is represented. Low performance and low importance characterize the status quo quadrant. In this way, no action is needed because IS executives do not think that these satisfaction dimensions are important. The leverage opportunity quadrant is described by high performance and high importance. This quadrant involves dimensions that can be described as competitive advantage. The transfer resources quadrant at that point is described by high performance and low importance. These assets might be better utilized somewhere else. For instance, an organization's assets can be utilized for the purpose of enhancing the satisfaction dimensions situated in the action opportunity quadrant. Ultimately, action opportunity quadrant is described by low performance and high importance. More consideration should be paid to these criteria and, in this manner, improvement actions should be centered around these to improve the global IT executive satisfaction level.

Improvement diagrams are created combining improvement with demanding indices (Figure 3.5). Rather than the action diagram that can just represent which satisfaction dimensions should be enhanced, these diagrams can assess improvement priorities and anticipate the yield or the degree of improvement endeavors.

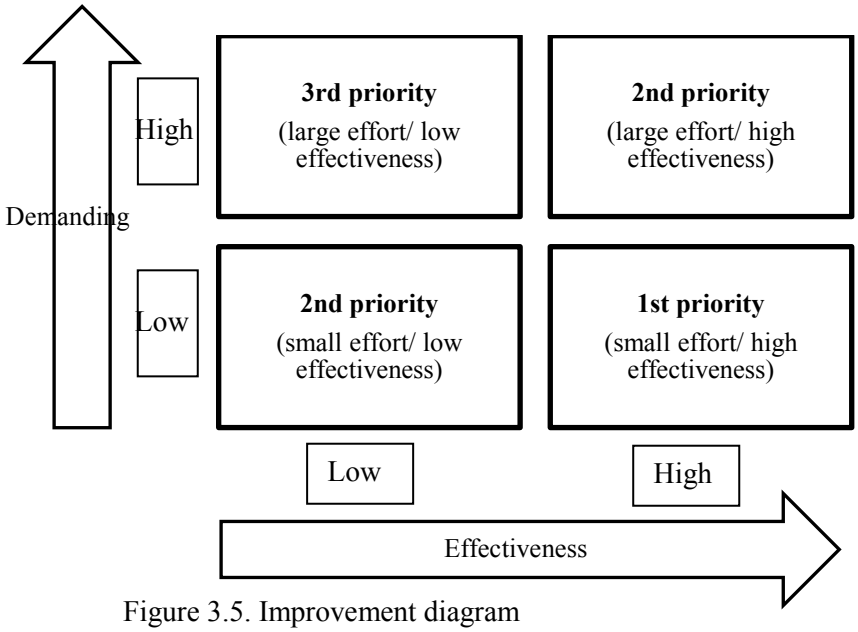

Figure 3.5. Improvement diagram

Adapted from: Grigoroudis and Siskos (2002)

Improvement diagrams can be characterized as dynamic since they can introduce just the existing circumstance of managers' behavior. These diagrams are separated into four quadrants and the satisfaction dimensions are illustrated into two actions as per demanding and effectiveness. The improvement priorities for every satisfaction dimension could be assessed by the quadrant in which the dimension is outlined. 1st priority territory suggests unmediated improvement actions because these satisfaction dimensions are effective and IS executives are not demanding. Then, 2nd priority territory involves satisfaction dimensions that have either a low demanding indicator or a high improvement indicator. Last of all, third priority area incorporates satisfaction dimensions that have little enhancement margin and need improvement actions (Grigoroudis and Siskos, 2002).

4. Results

This chapter has six sections. The first section presents the descriptive statistics of the sample including respondents' education level, age, and IS experience, as well as companies' characteristics (industry, number of employees, number of employees in the IT department, budget for IS, and turnover). Reliability analysis is presented in the second section. The third section presents the results of data analysis using Factor Analysis. The results of data analysis using SEM are presented in the fourth section. The fifth section presents the results of data analysis using the Ordinal Regression Analysis. The sixth section presents the results of measuring IT executives' satisfaction using MUSA.

4.1. Descriptive statistics

Table 4.1 presents details about the respondents and Table 4.2 presents details about the SMEs. 64.8% held a college degree while 35.2% had completed an advanced degree. 39.9% of them had 16-25 years of experience while 27.6% of them had 6-15 years of experience. The average number of IS employees was 2 and the majority of SMEs had turnover between 3 and 10 million euros.

Table 4.1. Respondent's profile

Gender	**Respondents**	**Percentage**
Male	266	90.4
Female	28	9.6
Total	294	100.00
Education level	**Respondents**	**Percentage**
2 year college graduate	59	20.1
4 year college graduate	132	44.7
Post graduate degree	103	35.2
Total	294	100.00
Age	**Respondents**	**Percentage**
18-25 years	3	1.0
26-35 years	63	21.5
36-45 years	116	39.2
46-55 years	91	31.1
>56 years	21	7.2
Total	294	100.00

Employment	Respondents	Percentage
0-5 years	22	7.5
6-15 years	81	27.6
16-25 years	118	39.9
26-35 years	61	20.8
>36 years	12	4.1
Total	294	100.00

Table 4.2. Companies' characteristics

Industry	Respondents	Percentage
Agriculture & Food	47	16.0
Business Services	33	11.3
Chemicals, Pharmaceuticals & Plastics	19	6.1
Construction	22	7.5
Education, Training & Organizations	4	1.4
Electrical, Electronics & Optical	11	3.8
Energy, Environment	8	2.7
IT, Internet, R&D	24	8.2
Leisure & Tourism	16	5.5
Metals, Machinery & Engineering	28	9.6
Minerals	3	1.0
Paper, Printing, Publishing	14	4.8
Retail and Traders	31	10.5
Textiles, Clothing, Leather, Watchmaking, Jewellery	14	4.8
Transport & Logistics	20	6.8
Total	294	100.00
Number of employees	**Respondents**	**Percentage**
0-9	6	2.0
10-19	14	4.8
20-49	107	36.2
50-99	78	26.6
100-250	89	30.4
Total	294	100.00

Number of employees in the IT department	**Respondents**	**Percentage**
0-5	261	89.1
6-10	22	7.5
11-20	3	1.0
21-30	6	1.7
31-40	0	0
41-50	2	0.7
Total	294	100.00
Turnover	**Respondents**	**Percentage**
<2 million euros	55	18.4
3-10 million euros	120	41.0
11-50 million euros	119	40.6
Total	294	100.00
Budget for IS	**Respondents**	**Percentage**
0-50.000 euros	175	59.7
51.000-100.000 euros	64	21.8
101.000-150.000 euros	17	5.8
151.000-200.000 euros	38	8.6
Total	294	100

4.2. Reliability analysis

The reliability of variables was evaluated using Cronbach's alpha and the values ranged from 0.899 to 0.912, exceeding the minimally recommended level of 0.70 (Newkirk and Lederer, 2003). The Table 4.3 presents the Cronbach a value for each variable.

Table 4.3. Reliability of variables

Variables	**Cronbach a value**
Strategic awareness	0.900
Situation analysis	0.905
Strategy conception	0.907
Strategy formulation	0.912
Strategy implementation planning	0.904
Success	0.899

Table 4.4 presents the values for mean and standard deviation for each variable.

Table 4.4. Mean and Standard Deviation

Variables	Mean	Standard deviation
SAw1	3.820	.9190
SAw2	3.949	.9130
SAw3	3.752	1.0562
SAw4	3.830	1.0540
SA1	3.633	1.0258
SA2	3.721	.9147
SA3	4.207	.7932
SA4	3.888	.9443
SA5	4.082	.9384
SC1	3.946	.8608
SC2	3.823	.8952
SC3	3.714	.9420
SC4	3.963	.8677
SF1	3.748	.9299
SF2	3.748	1.0920
SF3	3.701	.9486
SF4	3.776	.9035
SIP1	3.765	.9252
SIP2	3.704	1.0004
SIP3	3.415	1.0538
SIP4	3.565	.9953
AL1	3.993	.9347
AL2	3.864	.9502
AL3	3.922	.9185
AL4	3.854	.9469
AL5	3.878	.9303
AL6	3.728	1.0552
AL7	3.827	.9350
AL8	3.793	.9462
AN1	3.827	.8388
AN2	3.782	.8667
AN3	3.779	.9212
AN4	3.707	.8721
AN5	3.806	.9740
AN6	3.517	.9589
AN7	3.735	.8885

AN8	3.759	.8702
CO1	3.639	1.0349
CO2	3.415	.9188
CO3	3.687	.9621
CO4	3.551	.9541
CO5	3.622	.9654
CO6	3.476	.9694
CO7	3.554	.9787
CA1	3.711	.9464
CA2	3.571	.9564
CA3	3.670	.9365
CA4	3.840	.9871

The multiple regression method of problem interpretation works best when the independent variables in the model are unrelated to one another. When there are strong correlations between variables, determining the true effect of a particular independent variable on the dependent variable is difficult, if not impossible. The Pearson correlation was used to examine correlations. The multicollinearity test was carried out using the IBM SPSS Statistics software package (version 21). The Pearson correlation test is shown in Table 4.5.

Table 4.5. Correlations among constructs

		Success	**SAw**	**SA**	**SC**	**SF**	**SIP**
Pearson Correlation	**Success**	1.000	.733	.730	.763	.773	.788
	SAw	.733	1.000	.783	.756	.754	.734
	SA	.730	.783	1.000	.717	.709	.701
	SC	.763	.756	.717	1.000	.770	.704
	SF	.773	.754	.709	.770	1.000	.741
	SIP	.788	.734	.701	.704	.741	1.000

Table 4.5 shows that all independent factors are correlated. The majority of the correlations are moderate, with Strategy Implementation Planning and Success have the strongest correlation (0.788). However, it is observed that the values of all probabilities are 0.000, while the value of the coefficient named "R^2", which is a measure of the model's adaptability, is 0.741, implying that 74.1% of the variance in the dependent variable is explained. This is statistically significant, and the problem of multicollinearity is not severe.

Table 4.6 shows the results of Variance Inflation Factor (VIF) and Tolerance index calculations. The values of these two correlation statistics indicate that the problem of multicollinearity in the current study can be safely ignored. As a result, all the model's factors were preserved.

Table 4.6. VIF and Tolerance index

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.576	.122		4.740	.000		
	SAw	.026	.049	.031	.541	.589	.272	3.680
	SA	.151	.051	.154	2.935	.004	.329	3.040
	SC	.199	.047	.224	4.190	.000	.316	3.168
	SF	.191	.048	.218	3.985	.000	.300	3.337
	SIP	.267	.040	.338	6.736	.000	.358	2.797

4.3. The SISP process

4.3.1. SISP phases

According to the above, 48 variables (items referring to SISP phases and Success) are chosen as the basis of the Factor Analysis. Their reliability was calculated using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling (values greater than 0.7 are considered satisfactory, while values greater than 0.5 are considered acceptable) and Bartlett's Test (it should be statistically significant at the 0.05 level). Table 4.7 presents the results of these tests. The Factor Analysis can be continued as long as the index value is greater than 0.8.

Table 4.7. KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.970
Bartlett's Test of Sphericity	Approx. Chi-Square	11655.185
	df	1128
	Sig.	.000

Table 4.8 presents the communalities values as well as the principal component analysis performed with the Maximum Likelihood Estimate and the extraction of factors with Promax with Kaiser Normalization method. The factor and cross loadings support both

convergent and discriminant validity. This table shows the Initial and Extraction values. The possible values range from 0 to 1. The value "0" indicates that the factors do not explain any rate of change of the variable, whereas the value "1" indicates that 100% of the changes in the variable are interpreted by the factors. Table 4.8 shows that the communalities of all items are satisfactory (>0.3). This means that all items account for a sufficient amount of variance through the common factors.

Table 4.8. Communalities (SISP phases)

Variables	Initial	Extraction
SAw2	.629	.625
SAw3	.650	.688
SAw4	.455	.432
SA1	.481	.649
SA2	.563	.654
SA3	.593	.659
SA4	.518	.524
SA5	.483	.510
SC1	.721	.793
SC2	.715	.809
SC3	.624	.647
SC4	.629	.651
SF1	.505	.505
SF2	.577	.695
SF3	.557	.525
SF4	.588	.581
SIP1	.685	.689
SIP2	.704	.775
SIP3	.700	.782
SIP4	.699	.728

Table 4.9 presents eigenvalues and the variance of the model.

The column labeled "Factors" shows the number of variables. The total number of factors in this analysis is 20 because the variables of the survey that refer to SISP phases are 20. The column labeled "Initial Eigenvalues presents the eigenvalues for each factor in size order. Each value describes the total loading that each factor interprets. The sum of these values equals the number of factors (20). The column labeled "% Variance" (Initial Eigenvalues) presents the percentage of variance described by each factor. The value, in

this case, is 55.223 (11.045/20*100). The column labeled “Cumulative %” (Initial Eigenvalues) presents the sum of the percentages from the previous column. The column labeled “Total” (Extraction Sums of Squared Loadings) describes the eigenvalues with values greater than one. The size was determined during the application of the method. It is an indicator that determines how many factors are ultimately chosen by Factor Analysis. The factors with a higher eigenvalue than the defined value will constitute the final factors of the analysis. The column labeled “% Variance” (Extraction Sums of Squared Loadings) presents the percentage of variance explained by the five factors with an eigenvalue greater than one. In this case, the first factor accounts for 55.223% of the changes, the second factor for 4.970% of the changes, the third factor for 4.810% of the changes, the fourth factor for 4.340% of the changes, and the fifth factor for 3.490% of the changes. These five factors account 6.948% of the changes. The column labeled “Cumulative %” (Extraction Sums of Squared Loadings) presents the sum of the previous column’s two percentages. The eigenvalues with values greater than one after the rotation are listed in the column labeled “Total” (Rotation Sums of Squared Loadings). The final factor solution consists of five factors that account for 6.948% of the variance.

Table 4.9. Eigenvalues and Variance (SISP phases)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% Variance	Cumulative %	Total	% Variance	Cumulative %	Total
1	11.045	55.223	55.223	10.674	53.368	53.368	8.451
2	.994	4.970	60.193	.736	3.678	57.047	9.073
3	.962	4.810	65.003	.645	3.227	60.273	8.423
4	.868	4.340	69.343	.488	2.439	62.713	8.808
5	.698	3.490	72.833	.380	1.901	64.613	6.948
6	.664	3.319	76.153				
7	.575	2.877	79.030				
8	.541	2.707	81.737				
9	.465	2.323	84.060				
10	.413	2.064	86.123				
11	.387	1.937	88.060				
12	.341	1.705	89.765				
13	.324	1.622	91.387				
14	.324	1.618	93.005				
15	.303	1.513	94.518				

16	.270	1.351	95.869				
17	.243	1.214	97.083				
18	.218	1.092	98.175				
19	.197	.984	99.159				
20	.168	.841	100.000				

Table 4.10 presents the rotation of factors as well as the variable loadings in the factors. Maximum Likelihood is the extraction method, and Promax with Kaiser Normalization is used for rotation. The rotation converged in 6 iterations.

Table 4.10. Pattern Matrix (SISP phases)

	Factors				
	1	2	3	4	5
SIP3	.929				
SIP2	.890				
SIP1	.661				
SIP4	.595				
SA3		.878			
SA4		.728			
SA5		.639			
SAw3		.635			
SAw2		.472			
SAw4		.329			
SC2			.925		
SC1			.846		
SC4			.556		
SC3			.504		
SF2				.906	
SF1				.500	
SF4				.474	
SF3				.351	
SA1					.895
SA2					.711

Table 4.11 shows the solution to the Factor Analysis. The internal reliability of the analysis is also measured by calculating Cronbach's alpha coefficient for each of the five factors. Their coefficient values ranged from 0.774 to 0.910, which is considered very satisfactory.

Table 4.11. Factor Analysis- New variables for SISP phases

	Factor 1: Strategy Implementation Planning and Evaluation		
	Variables	*Loadings*	*Cronbach's a*
SIP3	Evaluating action plans	.923	.910
SIP2	Defining action plans	.890	
SIP1	Defining change management approaches	.661	
SIP4	Defining follow-up and control procedures	.595	
	Factor 2: Analysis of external environment and planning issues		
	Variables	*Loadings*	*Cronbach's a*
SA3	Analyzing current information systems	.878	.876
SA4	Analyzing the current external business environment	.728	
SA5	Analyzing the current external IT environment	.639	
SAw3	Organizing the planning team	.635	
SAw2	Determining planning objectives	.472	
SAw4	Obtaining top management commitment	.329	
	Factor 3: Strategy Conception		
	Variables	*Loadings*	*Cronbach's a*
SC2	Identifying opportunities for improvement	.925	.901
SC1	Identifying major IT objectives	.846	
SC4	Identifying high level IT strategies	.556	
SC3	Evaluating opportunities for improvement	.504	
	Factor 4: Strategy Formulation		
	Variables	*Loadings*	*Cronbach's a*
SF2	Identifying new IT architectures	.906	.836
SF1	Identifying new business processes	.500	
SF4	Identifying priorities for new projects	.474	
SF3	Identifying specific new projects	.351	
	Factor 5: Analysis of internal environment		
	Variables	*Loadings*	*Cronbach's a*
SA1	Analyzing current business systems	.895	.774
SA2	Analyzing current organizational systems	.744	

4.3.2. SISP Success

Table 4.12 presents the communalities values as well as the principal component analysis performed with the Maximum Likelihood Estimate and the extraction of factors with Promax with Kaiser Normalization method. The factor and cross loadings support both convergent and discriminant validity. This table shows the Initial and Extraction values. The values range from 0 to 1. The value "0" indicates that the factors do not explain any rate of change in the variable, whereas the value "1" indicates that the factors explain

100% of the changes in the variable. Table 6 shows that the communalities of all items are satisfactory (>0.3). This means that all items account for a sufficient amount of variance through the common factors.

Table 4.12. Communalities (SISP success)

Variables	Initial	Extraction
AL1	.740	.926
AL2	.753	.754
AL3	.660	.649
AL4	.753	.803
AL5	.711	.815
AL8	.647	.606
AN1	.616	.583
AN2	.605	.593
AN3	.657	.643
AN4	.679	.663
AN5	.628	.568
AN6	.614	.560
AN7	.702	.689
AN8	.716	.703
CO1	.645	.642
CO2	.662	.671
CO3	.646	.618
CO4	.734	.763
CO5	.673	.683
CO6	.693	.670
CO7	.538	.508
CA1	.490	.407
CA2	.552	.471
CA3	.531	.459
CA4	.491	.410

Table 4.13 presents eigenvalues and the variance of the model.

The column labeled “Factors” shows the number of variables. The total number of factors, in this analysis, is 25 because the variables of the survey that refer to SISP Success are 25. The column labeled “Initial Eigenvalues presents the eigenvalues for each factor in size order. Each value describes the total loading that each factor interprets. The sum of these values equals the number of factors (25). The column labeled “% Variance” (Initial

Eigenvalues) presents the percentage of variance described by each factor. The value, in this case, is 55.925 (13.981/25* 100). The column labeled “Cumulative %” (Initial Eigenvalues) presents the sum of the percentages of the previous column. The column labeled “Total” (Extraction Sums of Squared Loadings) describes the eigenvalues with values greater than one. The size was determined during the application of the method. It is an indicator that determines how many factors are ultimately chosen by Factor Analysis. The factors with a higher eigenvalue than the defined value will constitute the final factors of the analysis. The column labeled “% Variance” (Extraction Sums of Squared Loadings) presents the percentage of variance explained by the four factors with an eigenvalue greater than one. In this case, the first factor accounts for 55.925% of the changes, the second for 61.432% of the changes, the third for 65.570% of the changes, and the fourth for 68.809% of the changes. The column labeled “Cumulative %” (Extraction Sums of Squared Loadings) presents the sum of the previous column's two percentages. The eigenvalues with values greater than one after the rotation are listed in the column labeled “Total” (Rotation Sums of Squared Loadings). The final factor solution includes four factors that account for 8.753% of the variance.

Table 4.13. Eigenvalues and Variance (SISP success)

Factors	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% Variance	Cumulative %	Total	% Variance	Cumulative %	Total
1	13.981	55.925	55.925	13.384	53.538	53.538	11.579
2	1.377	5.507	61.432	1.003	4.011	57.549	12.095
3	1.035	4.138	65.570	.832	3.327	60.876	9.637
4	.810	3.239	68.809	.639	2.555	63.431	8.753
5	.764	3.054	71.863				
6	.714	2.855	74.718				
7	.665	2.660	77.378				
8	.598	2.391	79.769				
9	.488	1.953	81.722				
10	.451	1.803	83.525				
11	.429	1.715	85.240				
12	.371	1.483	86.722				
13	.357	1.429	88.151				
14	.346	1.386	89.537				
15	.331	1.323	90.860				

16	.308	1.233	92.092				
17	.293	1.171	93.263				
18	.267	1.067	94.330				
19	.257	1.028	95.358				
20	.244	.978	96.335				
21	.226	.903	97.239				
22	.212	.849	98.088				
23	.184	.734	98.822				
24	.164	.657	99.479				
25	.130	.521	100.000				

Table 4.14 presents the rotation of factors as well as the corresponding loadings of the variables in the factors. Maximum Likelihood is used for extraction, and Promax with Kaiser Normalization is used for rotation. The rotation converged in 6 iterations.

Table 4.14. Pattern Matrix (SISP success)

	Factors			
	1	2	3	4
CO2	.835			
CO4	.814			
CO6	.800			
CO5	.772			
CO3	.748			
CO1	.688			
CA2	.523			
CO7	.480			
CA4	.471			
AN2		.795		
AN3		.774		
AN7		.773		
AN4		.746		
AN1		.738		
AN8		.599		
AN5		.597		
CA1		.562		
AN6		.522		
AL8		.425		
CA3		.323		
AL5			.910	
AL4			.707	

AL3			.393	
AL1				.979
AL2				.677

Table 4.15 shows the solution to the Factor Analysis. The internal reliability of the analysis is also measured by calculating Cronbach's alpha coefficient for each of the four factors. Their coefficient values ranged from 0.882 to 0.933, which is considered very satisfactory.

Table 4.15. Factor Analysis- New variables for SISP Success

Factor 1: Cooperation

	Variables	*Loadings*	*Cronbach's a*
CO2	Potential sources of resistance to IT projects were defined and solved	.835	.926
CO4	The development efforts of many organizational subunits coordinated	.814	
CO6	An increased level of agreement about the risks/tradeoffs among IT plans was achieved	.800	
CO5	A uniform basis to set priorities was established	.772	
CO3	Open lines of communication with other departments were created	.748	
CO1	Unambiguous guidelines of managerial responsibility were developed to implement SISP	.688	
CA2	Ability to deal with surprises and crises	.523	
CO7	The overlapping development of significant systems was decreased	.480	
CA4	Ability to increase collaboration among members of the development team	.471	

Factor 2: Analysis

	Variables	*Loadings*	*Cronbach's a*
AN2	Managers changed organizational processes and procedures	.795	.933
AN3	New ideas were developed to reframe organizational processes using IT	.774	
AN7	Increased comprehension of how the company actually operates	.773	
AN4	Information needs of subunits were understood	.746	
AN1	Opportunities for improvement in organizational processes improvement were defined	.738	
AN8	Business needs and the capability of IT to achieve certain requirements are evaluated	.599	
AN5	Managers understood the dispersion of information, applications, and other	.597	

	technical infrastructure used in the company		
CA1	Ability to define important negative results	.562	
AN6	A ‘‘blueprint’’ was developed to define business processes	.522	
AL8	The strategic significance of IT was evaluated	.425	
CA3	Ability to deal with unanticipated changes	.323	

Factor 3: Alignment

	Variables	*Loadings*	*Cronbach's a*
AL5	IS objectives were adapted to change organizational goals	.910	.882
AL4	IS strategies were aligned with the strategic plan of the company	.707	
AL3	Defining opportunities about IT in order to help the strategic direction of the company	.393	

Factor 4: Managers' understanding of IS

	Variables	*Loadings*	*Cronbach's a*
AL1	Top managers understood that IS improve business strategy	.979	.899
AL2	Understanding the strategic priorities of top managers	.677	

4.4. The impact of SISP phases on success

4.4.1. SISP phases

The main results of the analysis are presented in Table 4.16 and Model fit indices are presented in Tables 4.17. The Comparative Fit Index (CFI) should be 0.90 or higher, the Satorra–Bentler chi square divided by degrees of freedom (SB x^2/d.f.) ratio be 2.0 or lower, the standardized Root Mean square Residual (RMR) be 0.10 or less, and the Root Mean Square Error of Approximation (RMSEA) be 0.08 or less (Newkirk et al., 2003).

Table 4.16. Results of the SISP phases model

Causal path			**r**	**p**
SIP3	<---	Strategy Implementation Planning and Evaluation		
SIP2	<---	Strategy Implementation Planning and Evaluation	.051	***
SIP1	<---	Strategy Implementation Planning and Evaluation	.048	***
SIP4	<---	Strategy Implementation Planning and Evaluation	.051	***
SA3	<---	Analysis of external environment and planning issues	.047	***
SA4	<---	Analysis of external environment and planning issues	.057	***
SA5	<---	Analysis of external environment and planning issues	.057	***

Causal path			r	p
SAw3	<---	Analysis of external environment and planning issues		
SAw2	<---	Analysis of external environment and planning issues	.052	***
SAw4	<---	Analysis of external environment and planning issues	.065	***
SC2	<---	Strategy Conception		
SC1	<---	Strategy Conception	.050	***
SC4	<---	Strategy Conception	.052	***
SC3	<---	Strategy Conception	.057	***
SF2	<---	Strategy Formulation		
SF1	<---	Strategy Formulation	.064	***
SF4	<---	Strategy Formulation	.061	***
SF3	<---	Strategy Formulation	.065	***
SA1	<---	Analysis of internal environment	.081	***
SA2	<---	Analysis_of_internal environment		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4.17. Overall fit of the SISP phases model

Model-fit Index	Scores	Acceptable value
Chi-square (X^2)	299.441	
Degrees of Freedom (df)	160	
p	.000	
Normed X^2: Chi-square / Degrees of Freedom (X^2 / df)	1.872	2< Normed X^2<5
NFI	.930	>0.9
CFI	.966	>0.9
GFI	.908	>0.9
RMR	.031	<0.05
RMSEA	.055	0.05-0.08

4.4.2. SISP Success

The main results of the analysis are presented in Table 4.18 and Model fit indices are presented in Tables 4.19. The Comparative Fit Index (CFI) should be 0.90 or higher, the Satorra–Bentler chi square divided by degrees of freedom (SB x^2/d.f.) ratio be 2.0 or lower, the standardized Root Mean square Residual (RMR) be 0.10 or less, and the Root Mean Square Error of Approximation (RMSEA) be 0.08 or less (Newkirk et al., 2003). The NFI and GFI index values are less than 0.9 but they are very close to the acceptable value.

Table 4.18. Results of the SISP Success model

Causal path			r	p
CO2	<---	Cooperation	.050	***
CO4	<---	Cooperation		
CO6	<---	Cooperation	.052	***
CO5	<---	Cooperation	.051	***
CO3	<---	Cooperation	.054	***
CO1	<---	Cooperation	.056	***
CA2	<---	Cooperation	.058	***
CO7	<---	Cooperation	.057	***
CA4	<---	Cooperation	.061	***
AN2	<---	Analysis	.058	***
AN3	<---	Analysis	.060	***
AN7	<---	Analysis	.056	***
AN4	<---	Analysis	.056	***
AN1	<---	Analysis	.057	***
AN8	<---	Analysis		
AN5	<---	Analysis	.065	***
CA1	<---	Analysis	.068	***
AN6	<---	Analysis	.064	***
AL8	<---	Analysis	.062	***
CA3	<---	Analysis	.066	***
AL5	<---	Alignment	.045	***
AL4	<---	Alignment		
AL3	<---	Alignment	.048	***
AL1	<---	Managers' understanding of IS	.046	***
AL2	<---	Managers'_understanding_of_IS		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4.19. Overall fit of the SISP Success model

Model-fit Index	Scores	Acceptable value
Chi-square (X^2)	641.403	
Degrees of Freedom (df)	269	
p	.000	
Normed X^2: Chi-square / Degrees of Freedom (X^2 / df)	2.384	2< Normed X^2<5
NFI	.892	>0.9
CFI	.934	>0.9
GFI	.855	>0.9
RMR	.037	<0.05
RMSEA	.069	0.05-0.08

4.4.3. The modified model

Taking under consideration the mediocre fit of previous models, an effort was conducted in order to enhance its overall statistical performance. Initially, all statistically insignificant paths were removed. Secondly, after consulting the modification indices provided by IBM AMOS, alternative paths were added to the model that improved the understanding of the relationship between the factors included in the present study. After dropping two items, the modified model provided an acceptable fit to the data. Table 4.20 presents main results of the analysis and Table 4.21 presents the hypothesized paths. Model fit indices are presented in Table 4.22. The NFI and GFI index values are less than 0.9 but they are very close to the acceptable value. The R^2 value was relatively high (0.746), demonstrating that the initial model, as it stands, can explain 74.6% of the variance of SISP Success. Finally, Figure 4.1 includes a schematic representation of the modified structural model.

Table 4.20. Results of the modified model

Causal path			r	p
Managers' understanding of IS	<---	Success		
Analysis	<---	Success	.079	***
Cooperation	<---	Success	.086	***
Alignment	<---	Success	.091	***
CO6	<---	Cooperation	.070	***
CO3	<---	Cooperation	.073	***
CO4	<---	Cooperation		
CO2	<---	Cooperation	.067	***
CO5	<---	Cooperation	.069	***
CO1	<---	Cooperation	.075	***
CA2	<---	Cooperation	.078	***
CO7	<---	Cooperation	.077	***
CA4	<---	Cooperation	.082	***
AN7	<---	Analysis	.079	***
AN5	<---	Analysis	.090	***
AN4	<---	Analysis	.077	***
AN8	<---	Analysis		
AN2	<---	Analysis	.082	***
CA1	<---	Analysis	.096	***
AL7	<---	Analysis	.085	***
CA3	<---	Analysis	.091	***
SA3	<---	Analysis of external environment and planning issues	.048	***
SAw3	<---	Analysis of external environment and planning issues		
SA4	<---	Analysis of external environment and planning	.059	***

Causal path			r	p
		issues		
SA5	<---	Analysis of external environment and planning issues	.058	***
SAw2	<---	Analysis of external environment and planning issues	.054	***
SAw1	<---	Analysis of external environment and planning issues	.056	***
SAw4	<---	Analysis of external environment and planning issues	.066	***
SC2	<---	Strategy Conception		
SC1	<---	Strategy Conception	.048	***
SC4	<---	Strategy Conception	.051	***
SC3	<---	Strategy Conception	.056	***
SIP2	<---	Strategy Implementation Planning and Evaluation	.048	***
SIP3	<---	Strategy Implementation Planning and Evaluation		
SIP1	<---	Strategy Implementation Planning and Evaluation	.046	***
SIP4	<---	Strategy Implementation Planning and Evaluation	.049	***
AL1	<---	Alignment	.070	***
AL2	<---	Alignment		
SA2	<---	Analysis of internal environment	.178	.002
SA1	<---	Analysis of internal environment		
AL5	<---	Managers' understanding of IS	.066	***
AL4	<---	Managers' understanding of IS		
SF2	<---	Strategy Formulation	.205	***
SF1	<---	Strategy Formulation		
AN6	<---	Analysis	.088	***

* p < 0.05; ** p < 0.01; *** p < 0.001

Table 4.21. Hypothesized paths

	Causal path			r	p	Result
H1	Success	<---	Analysis of external environment and planning issues	.030	***	Supported
H2	Success	<---	Analysis of internal environment	.038	.016	Supported
H3	Success	<---	Strategy Conception	.037	***	Supported
H4	Success	<---	Strategy Formulation	.045	.005	Supported
H5	Success	<---	Strategy Implementation Planning and Evaluation	.035	***	Supported

* p < 0.05; ** p < 0.01; *** p < 0.001

Based on the values represented at Table 4.21, the Analysis of external environment and planning issues phase (this phase was named Strategic awareness in the initial research model) has a positive and significant impact on SISP Success (r= 0.030, p<0.001). Therefore, H1 was supported. The Analysis of internal environment phase (this name was named Situation Analysis in the initial research model) has a positive and significant impact on SISP Success (r= 0.038, p<0.05). Therefore, H2 was supported. Strategy Conception has a positive and significant impact on SISP Success (r= 0.037, p<0.001). Therefore, H3 was supported. Strategy Formulation has a positive and significant impact on SISP Success (r= 0.045, p<0.01). Therefore, H4 was supported. Strategy Implementation Planning and Evaluation phase (this phase was named Strategy Implementation Planning in the initial research model) has a positive and significant impact on SISP Success (r= 0.035, p<0.001). Therefore, H5 was supported.

Table 4.22. Overall fit of the modified model

Model-fit Index	**Scores**	**Acceptable value**
Chi-square (X^2)	1392.464	
Degrees of Freedom (df)	760	
p	.000	
Normed X^2: Chi-square / Degrees of Freedom (X^2 / df)	1.832	2< Normed X^2<5
NFI	.863	>0.9
CFI	.932	>0.9
GFI	.844	>0.9
RMR	.0432	<0.05
RMSEA	.053	0.05-0.08

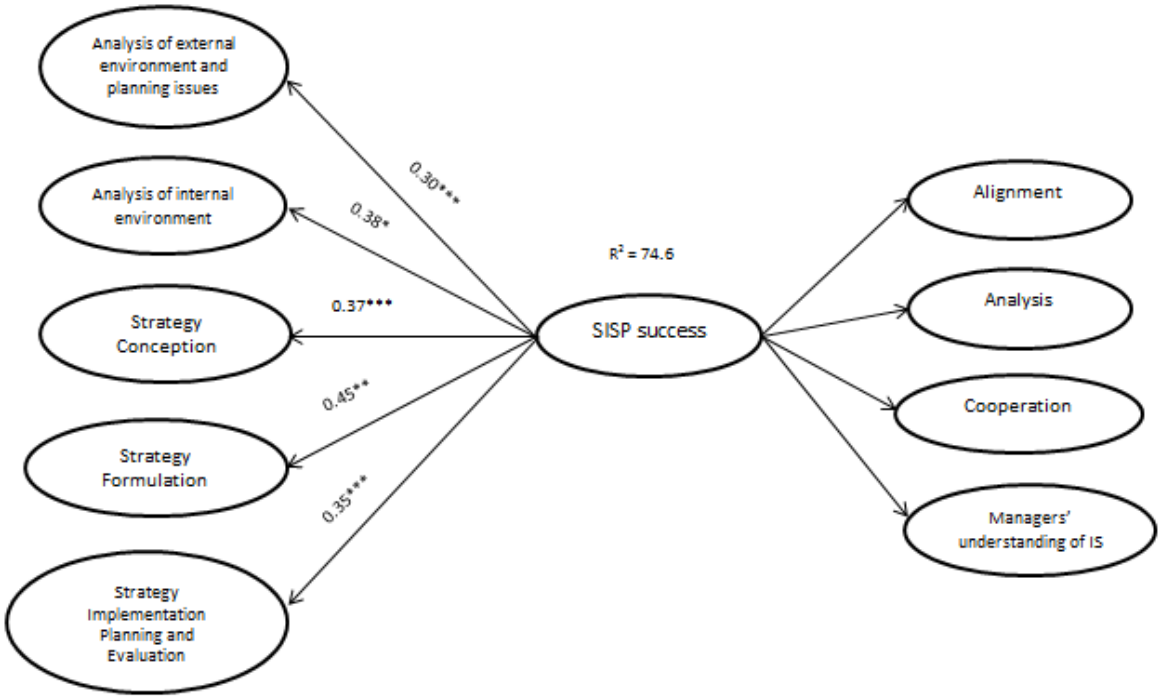

Figure 4.1. The impact of SISP phases on Success (modified model)

Despite the fact that all hypotheses were supported, it is clear that each phase of the SISP process did not contribute equally to success. Strategy conception and Strategy implementation planning contribute to a greater extent to success than the other phases. IT managers do not concentrate on Analysis of internal environment. As a result, the outcome of the implementation of the SISP process is the development of inefficient IS that cannot meet the company's objectives. The available budget for IS projects is often limited. Thus, managers do not focus on the definition of strategic goals. Instead, they overemphasize the attempts to reduce the time and cost for the development of IS plans. As a result, IS plans fail to support companies to meet customers' needs, align the developed systems with the existing ones, and increase system's flexibility without strategic planning (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003). Managers' understanding of IS is one important factor that results from Factor Analysis.

When managers understand the value of IS projects, their contribution to business strategy, and the importance of setting priorities for their implementation, they improve project and firm performance. Managers should recognize those IS are an important source of competitive advantage for businesses and focus on locating appropriate resources to support the use of IS and meet strategic objectives (Bulchand-Gidumal and Melián-González, 2011). The relationship between management team members and the creation of

a positive organizational culture influence alignment and have a significant impact on the company's financial performance (Krotov, 2015). Both managers and IT executives must participate in the SISP process. As a result, the company's goals are met because the company's vision is linked to the vision of IS (Kearns and Lederer, 2003).

Selecting team members who participate in the development of the IS plan is another fundamental task in the SISP process, but managers tend to overlook it. The importance of that task stems from the fact that team members can collaborate and develop skills to develop efficient IS projects. Therefore, executives should support employees during the development of IS plans to help companies achieve their objectives, improve business operations, and firm performance.

The results show that executives focus their efforts on the SISP process implementation, but this phenomenon has significant barriers. Although less time may be spent for the implementation of the SISP process, the strategic goals might not be aligned with IT goals. Considering this challenge, academics (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b) have concluded that changes in the internal environment of the organization increase uncertainty and change the contribution of IS to organizational processes. Thus, managers should take into consideration environmental scanning and the use of digital tools to align IS projects with company's performance. These findings confirm the high importance that Strategy formulation plays within SISP process (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

Executives can analyze the existing business systems, IS, and both the organizational and the external technological environment to align IT strategy with business strategy. Considering this analysis, the developed IT plan will be remarkably enhanced with the exception of required time and cost for the process. When managers are aware of the business environment, they can define crucial IS goals and opportunities to improve the company's effectiveness. Furthermore, they can assess these goals to identify high-level IS strategies during Strategy Conception (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

4.5. The contribution of SISP phases on Performance

Table 4.23 presents the case processing summary and Table 4.24 presents the model fit of Ordinal Regression Analysis for the dependent variable. A model without explanatory

variables (Intercept Only model) was used in order to compare it to the final model which contains all explanatory variables. This process was carried out to determine whether the model enhances the prediction of the outcome. Table 4.24 presents the -2 log-likelihood values for the Intercept Only model and the final model. Chi-square was calculated to evaluate the difference between the -2LL for the two models. Table 4.24 indicates that results are statistically significant (p=0.000) so this is a good finding in terms of how well do these models fit the data.

Table 4.23. Case processing summary

		N	Marginal Percentage
PERFORMANCE	1.0	4	1.4%
	2.0	13	4.4%
	3.0	85	28.9%
	4.0	157	53.4%
	5.0	35	11.9%
SAw1	1.0	6	2.0%
	2.0	19	6.5%
	3.0	62	21.1%
	4.0	142	48.3%
	5.0	65	22.1%
SAw2	1.0	7	2.4%
	2.0	13	4.4%
	3.0	49	16.7%
	4.0	144	49.0%
	5.0	81	27.6%
SAw3	1.0	13	4.4%
	2.0	22	7.5%
	3.0	65	22.1%
	4.0	119	40.5%
	5.0	75	25.5%
SAw4	1.0	9	3.1%
	2.0	27	9.2%
	3.0	57	19.4%
	4.0	113	38.4%
	5.0	88	29.9%

SA1	1.0	11	3.7%
	2.0	28	9.5%
	3.0	78	26.5%
	4.0	118	40.1%
	5.0	59	20.1%
SA2	1.0	5	1.7%
	2.0	24	8.2%
	3.0	73	24.8%
	4.0	138	46.9%
	5.0	54	18.4%
SA3	1.0	3	1.0%
	2.0	6	2.0%
	3.0	32	10.9%
	4.0	139	47.3%
	5.0	114	38.8%
SA4	1.0	5	1.7%
	2.0	21	7.1%
	3.0	56	19.0%
	4.0	132	44.9%
	5.0	80	27.2%
SA5	1.0	5	1.7%
	2.0	17	5.8%
	3.0	37	12.6%
	4.0	125	42.5%
	5.0	110	37.4%
SC1	1.0	5	1.7%
	2.0	11	3.7%
	3.0	54	18.4%
	4.0	149	50.7%
	5.0	75	25.5%
SC2	1.0	6	2.0%
	2.0	13	4.4%
	3.0	73	24.8%
	4.0	137	46.6%
	5.0	65	22.1%
SC3	1.0	6	2.0%

	2.0	21	7.1%
	3.0	85	28.9%
	4.0	121	41.2%
	5.0	61	20.7%
SC4	1.0	5	1.7%
	2.0	11	3.7%
	3.0	53	18.0%
	4.0	146	49.7%
	5.0	79	26.9%
SF1	1.0	7	2.4%
	2.0	20	6.8%
	3.0	71	24.1%
	4.0	138	46.9%
	5.0	58	19.7%
SF2	1.0	14	4.8%
	2.0	26	8.8%
	3.0	59	20.1%
	4.0	116	39.5%
	5.0	79	26.9%
SF3	1.0	8	2.7%
	2.0	28	9.5%
	3.0	57	19.4%
	4.0	152	51.7%
	5.0	49	16.7%
SF4	1.0	5	1.7%
	2.0	19	6.5%
	3.0	73	24.8%
	4.0	137	46.6%
	5.0	60	20.4%
SIP1	1.0	8	2.7%
	2.0	19	6.5%
	3.0	63	21.4%
	4.0	148	50.3%
	5.0	56	19.0%
SIP2	1.0	8	2.7%
	2.0	28	9.5%

	3.0	71	24.1%
	4.0	123	41.8%
	5.0	64	21.8%
SIP3	1.0	14	4.8%
	2.0	41	13.9%
	3.0	92	31.3%
	4.0	103	35.0%
	5.0	44	15.0%
SIP4	1.0	11	3.7%
	2.0	29	9.9%
	3.0	84	28.6%
	4.0	123	41.8%
	5.0	47	16.0%
Valid		294	100.0%
Missing		0	
Total		294	

Table 4.24. Model fitting information

Model	**-2 Log Likelihood**	**Chi-Square**	**df**	**Sig.**
Intercept Only	663.380			
Final	427.622	235.758	84	0.000

Table 4.25 presents the results of 3 approximations that were calculated instead of R^2. The nature of the outcome and the explanatory variables determine if the value of R^2 is good. Pseudo R^2 values (e.g., Nagelkerke = 61.4%) indicate that SISP phases account for a large proportion of the variation between executives in their firm performance.

Table 4.25. Pseudo R square

Cox and Snell	0.552
Nagelkerke	0.614
McFadden	0.351

Table 4.26 presents the parameter estimates table which analyzes the relationship between our explanatory variables and the outcome.

Table 4.26. Parameter estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[PERFORMANCE = 1.0]	-13.047	1.644	63.013	1	.000	-16.268	-9.825
	[PERFORMANCE = 2.0]	-8.768	.813	116.437	1	.000	-10.361	-7.176
	[PERFORMANCE = 3.0]	-4.516	.588	58.930	1	.000	-5.669	-3.363
	[PERFORMANCE = 4.0]	-.388	.476	.667	1	.414	-1.321	.544
Location	[SAw1=1.0]	-1.155	2.077	.309	1	.578	-5.227	2.917
	[SAw1=2.0]	1.127	1.139	.979	1	.322	-1.105	3.358
	[SAw1=3.0]	.658	.591	1.240	1	.265	-.500	1.815
	[SAw1=4.0]	-.230	.453	.257	1	.612	-1.117	.658
	[SAw1=5.0]	0[a]	.	.	0	.	.	.
	[SAw2=1.0]	2.781	2.025	1.887	1	.170	-1.187	6.750
	[SAw2=2.0]	.341	1.247	.075	1	.784	-2.103	2.786
	[SAw2=3.0]	-.631	.635	.986	1	.321	-1.876	.614
	[SAw2=4.0]	.188	.449	.176	1	.675	-.691	1.068
	[SAw2=5.0]	0[a]	.	.	0	.	.	.
	[SAw3=1.0]	.450	1.375	.107	1	.744	-2.246	3.145
	[SAw3=2.0]	.719	.940	.585	1	.444	-1.123	2.561
	[SAw3=3.0]	.887	.583	2.313	1	.128	-.256	2.029
	[SAw3=4.0]	1.387	.488	8.076	1	.004	.430	2.344
	[SAw3=5.0]	0[a]	.	.	0	.	.	.
	[SAw4=1.0]	2.745	1.491	3.391	1	.066	-.177	5.667
	[SAw4=2.0]	.292	.746	.154	1	.695	-1.169	1.754
	[SAw4=3.0]	.973	.514	3.587	1	.058	-.034	1.981
	[SAw4=4.0]	.644	.396	2.651	1	.103	-.131	1.419
	[SAw4=5.0]	0[a]	.	.	0	.	.	.
	[SA1=1.0]	-1.937	1.226	2.496	1	.114	-4.341	.466
	[SA1=2.0]	-2.143	.764	7.861	1	.005	-3.642	-.645
	[SA1=3.0]	.290	.535	.294	1	.588	-.758	1.338
	[SA1=4.0]	.079	.459	.030	1	.863	-.819	.978
	[SA1=5.0]	0[a]	.	.	0	.	.	.
	[SA2=1.0]	-4.771	2.035	5.496	1	.019	-8.759	-.782

	[SA2=2.0]	-.913	.921	.982	1	.322	-2.718	.892
	[SA2=3.0]	-1.308	.618	4.483	1	.034	-2.518	-.097
	[SA2=4.0]	-.683	.504	1.840	1	.175	-1.670	.304
	[SA2=5.0]	0[a]	.	.	0	.	.	.
	[SA3=1.0]	1.769	2.937	.363	1	.547	-3.988	7.526
	[SA3=2.0]	.854	1.493	.327	1	.568	-2.073	3.780
	[SA3=3.0]	-.391	.721	.294	1	.588	-1.805	1.023
	[SA3=4.0]	-.094	.425	.049	1	.824	-.927	.738
	[SA3=5.0]	0[a]	.	.	0	.	.	.
	[SA4=1.0]	3.332	2.404	1.922	1	.166	-1.378	8.043
	[SA4=2.0]	-.261	.837	.097	1	.755	-1.901	1.380
	[SA4=3.0]	-.825	.599	1.896	1	.169	-1.999	.349
	[SA4=4.0]	-.305	.440	.480	1	.488	-1.166	.557
	[SA4=5.0]	0[a]	.	.	0	.	.	.
	[SA5=1.0]	3.367	1.542	4.767	1	.029	.345	6.390
	[SA5=2.0]	.950	.952	.996	1	.318	-.915	2.815
	[SA5=3.0]	1.962	.621	9.987	1	.002	.745	3.179
	[SA5=4.0]	1.187	.402	8.702	1	.003	.398	1.976
	[SA5=5.0]	0[a]	.	.	0	.	.	.
	[SC1=1.0]	-3.715	5.366	.479	1	.489	-14.231	6.802
	[SC1=2.0]	-2.348	1.582	2.202	1	.138	-5.450	.754
	[SC1=3.0]	-1.172	.689	2.891	1	.089	-2.522	.179
	[SC1=4.0]	-.141	.473	.089	1	.765	-1.067	.785
	[SC1=5.0]	0[a]	.	.	0	.	.	.
	[SC2=1.0]	-4.703	3.540	1.765	1	.184	-11.642	2.236
	[SC2=2.0]	-1.166	1.375	.719	1	.396	-3.861	1.529
	[SC2=3.0]	-.158	.713	.049	1	.824	-1.556	1.239
	[SC2=4.0]	.303	.522	.338	1	.561	-.720	1.327
	[SC2=5.0]	0[a]	.	.	0	.	.	.
	[SC3=1.0]	-8.677	2.913	8.872	1	.003	-14.386	-2.967
	[SC3=2.0]	.499	.985	.257	1	.612	-1.432	2.430
	[SC3=3.0]	-1.073	.560	3.671	1	.055	-2.170	.025
	[SC3=4.0]	-.670	.456	2.160	1	.142	-1.564	.223
	[SC3=5.0]	0[a]	.	.	0	.	.	.
	[SC4=1.0]	3.650	4.524	.651	1	.420	-5.216	12.516
	[SC4=2.0]	1.006	1.328	.574	1	.449	-1.597	3.608

	[SC4=3.0]	-.219	.628	.122	1	.727	-1.450	1.012
	[SC4=4.0]	-.116	.438	.070	1	.791	-.974	.742
	[SC4=5.0]	0[a]	.	.	0	.	.	.
	[SF1=1.0]	-5.400	1.948	7.685	1	.006	-9.218	-1.582
	[SF1=2.0]	-1.187	.943	1.585	1	.208	-3.035	.661
	[SF1=3.0]	-1.278	.558	5.245	1	.022	-2.372	-.184
	[SF1=4.0]	-1.495	.458	10.647	1	.001	-2.393	-.597
	[SF1=5.0]	0[a]	.	.	0	.	.	.
	[SF2=1.0]	2.225	1.785	1.553	1	.213	-1.274	5.723
	[SF2=2.0]	.377	.798	.224	1	.636	-1.187	1.942
	[SF2=3.0]	-.803	.506	2.516	1	.113	-1.795	.189
	[SF2=4.0]	-.933	.420	4.937	1	.026	-1.756	-.110
	[SF2=5.0]	0[a]	.	.	0	.	.	.
	[SF3=1.0]	-4.435	1.757	6.369	1	.012	-7.879	-.991
	[SF3=2.0]	.342	.909	.142	1	.706	-1.439	2.123
	[SF3=3.0]	.499	.613	.664	1	.415	-.701	1.700
	[SF3=4.0]	-.058	.434	.018	1	.893	-.908	.792
	[SF3=5.0]	0[a]	.	.	0	.	.	.
	[SF4=1.0]	-.544	1.889	.083	1	.773	-4.246	3.157
	[SF4=2.0]	-2.731	1.240	4.853	1	.028	-5.162	-.301
	[SF4=3.0]	-1.243	.550	5.109	1	.024	-2.321	-.165
	[SF4=4.0]	-.770	.438	3.091	1	.079	-1.628	.088
	[SF4=5.0]	0[a]	.	.	0	.	.	.
	[SIP1=1.0]	.058	2.468	.001	1	.981	-4.780	4.896
	[SIP1=2.0]	-2.833	1.128	6.305	1	.012	-5.044	-.622
	[SIP1=3.0]	-.161	.643	.063	1	.802	-1.422	1.100
	[SIP1=4.0]	-.228	.480	.226	1	.635	-1.168	.712
	[SIP1=5.0]	0[a]	.	.	0	.	.	.
	[SIP2=1.0]	1.865	2.667	.489	1	.484	-3.362	7.093
	[SIP2=2.0]	-1.263	.978	1.669	1	.196	-3.179	.653
	[SIP2=3.0]	-1.651	.621	7.058	1	.008	-2.869	-.433
	[SIP2=4.0]	-.529	.459	1.330	1	.249	-1.429	.370
	[SIP2=5.0]	0[a]	.	.	0	.	.	.
	[SIP3=1.0]	-2.829	1.708	2.745	1	.098	-6.176	.518
	[SIP3=2.0]	-.085	.849	.010	1	.920	-1.749	1.579
	[SIP3=3.0]	-.780	.637	1.500	1	.221	-2.028	.468

	[SIP3=4.0]	-.464	.552	.706	1	.401	-1.545	.618
	[SIP3=5.0]	0[a]	.	.	0	.	.	.
	[SIP4=1.0]	.796	1.638	.236	1	.627	-2.414	4.006
	[SIP4=2.0]	1.708	1.054	2.628	1	.105	-.357	3.773
	[SIP4=3.0]	.391	.662	.349	1	.555	-.907	1.690
	[SIP4=4.0]	.373	.538	.481	1	.488	-.681	1.427
	[SIP4=5.0]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

The findings of Ordinal Regression Analysis confirm the outcomes of the existing literature (Brown, 2010; Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2008; 2003; Shimada et al., 2019). Table 4.26 indicates that managers focus on Strategy conception and Strategy execution. In addition, IS executives refrain from investing time in the first and second phases of the process. Thus, the outcome of the implementation of the SISP process is the development of ineffective and unsuccessful IT plans that do not meet business' goals.

Senior managers have a limited budget at their disposal to develop IS, so they do not focus their efforts on identifying strategic objectives such as how IS will improve the profitability of the company. They only focus on minimizing the time and cost involved in implementing the projects. Therefore, the failure of IT projects to meet business' demand, lack of system flexibility, lack of integration with existing systems, and lack of prior planning were most often encountered (Duh et al., 2006).

The focus of executives only on the implementation of the process has negative results because it may lead in less time to the execution of the process of SISP and the strategic objectives of the company are not aligned with the objectives of IT. In this view, previous researchers (Bergeron et al., 2004; Cohen, 2008) have indicated that changes in the internal IS context will necessitate a change in the SISP process. IS executives should look for changes in environmental and organizational circumstances which increase uncertainty and change the role that IS will have to play within businesses. IS strategy should put much emphasis on environment analysis and on the strategic use of IT in order to align firms' portfolio of IT projects with firm performance. With information obtained from analyzing the IT environment, executives can focus on the potential competitive use of IS to adapt

the business strategy, with new or expanded strategic thrusts in order to increase innovation and firm performance.

4.6. IT executives' satisfaction

The examination of the global IT managers' satisfaction demonstrates that the average satisfaction index is significant (79.7). Clearly, managers who have implemented the SISP process are relatively satisfied with customer satisfaction and flexibility in work. IT managers tend to take further note of satisfaction criteria, including customers' satisfaction and their flexibility in work. Conversely, IT executives are not satisfied with the market share and sales growth. The values of satisfaction indices for each criterion are displayed in Table 4.27.

Table 4.27. Criteria Weights and Satisfaction Indices

Criteria	**Weights (%)**	**Satisfaction Indices (%)**
Sales growth	12.229	75.707
Profitability	14.286	71.621
Market share	11.524	68.927
Flexibility in work	17.143	82.817
Opportunities for new ideas	14.286	78.007
Innovative New Product Development process	14.857	76.695
Customers' satisfaction	15.676	82.113
Global		79.695

A set of diagrams was created using this method to better examine the IT executives' satisfaction and to evaluate their expectations in order to make improvements. Based on the results that are presented in Figure 4 dimensions such as opportunities for new ideas and innovative new product development are described by high performance and high importance. According to the analysis of action diagrams, these dimensions belong to the leverage opportunity quadrant. This quadrant involves dimensions that can be described as competitive advantage. The transfer resources quadrant at that point is defined by high performance and low importance. These assets might be better utilized somewhere else. Therefore, when managers implement IS planning, they develop new ideas and innovative

products that increase firms' competitive advantage. As these dimensions are described by high performance and high importance, they contribute to IS executives' satisfaction.

The findings of the action diagram show that the strong dimension of the impact of IS and business strategy on business performance relates to the flexibility of work and customers' satisfaction. These dimensions have been deemed critical by IT executives, although they could be of comparatively higher significance. This is the key factor that affects the decision of IT managers about the adoption of the IS strategy and thus the future actions should be based on sustaining this high performance. Market share is the most important attribute that leads to dissatisfaction. Sales growth is another significant dimension that does not add to the satisfaction of IT executives. Park et al. (2017) indicated that previous researchers have failed to establish a significant relationship between IT alignment and firm profitability. IS projects are not supported by increased efficiency, market share, and sales. Thus, it is important for IT executives to align business and IT strategy.

SMEs cannot increase business performance without strategic direction. So, what SMEs should do is to identify and communicate their business strategy, mission, vision and goals to align them with IS strategy. IT executives should be aware of IT issues because this will delay the organization and keep it from achieving its planning objectives and growing the value of the business (Figure 4.2). These results are similar to the outcomes of previous studies because business-IT alignment is significant to IS effectiveness and, to a lesser extent, firm performance (Chan et al., 2006; Tan and Gallupe, 2006).

More often than not, the decisions taken, do not focus on the objectives of the IS department, a fact that can hinder both SME's profitability and firm competitiveness. Therefore, a culture of innovation that can support IS is needed so that SME's benefits can be increased through the process of strategic alignment. In this view, Park et al. (2017) and Pan and Pan (2010) mentioned that top managers' perception of IS planning importance is likely to influence the significance given to the alignment of business and IT strategy. The SISP process is crucial for companies in the current competitive environment because it facilitates the effective creation and execution of their IT projects, and this method will improve sustainable performance. Implementing the SISP process is not an easy task though. After having fully understood their goals and strategies, businesses should necessarily have multiple planning aspects in order to encounter various issues. So, it is essential that IT executives should be knowledgeable about the alignment between IS and

business strategy. It is possible that by understanding this alignment IS executives will be helped not only concentrate on organizational goals but also understand the importance of the planning process to their organization. Otherwise, there will be difficulties in achieving them both. Likewise, Tan and Gallupe (2006) concluded that firms with clear strategic goals and IT plans can achieve high performance rates because they develop IS that support them to develop qualitative products and services. Thus, customers are satisfied, and firm's market share will be increased.

Figure 4.2. Action diagram

The MUSA method creates improvement diagrams that allow decision makers to determine which attributes of satisfaction should be improved. Managers can focus on market share, profitability, sales growth, the development of new ideas and new products, and satisfaction can be improved with significant improvement actions. For executives, criteria such as work flexibility and customers' satisfaction are not important. IT managers are not demanding of these criteria, but they do not have significant improvement margins. These results are presented in Figure 4.3.

Based on the results that are presented in Figure 4.3, dimensions such as opportunities for new ideas and innovative new product development are described by high impact and low demanding. According to the analysis of improvement diagrams, these dimensions belong

to the 1st priority territory which suggests unmediated improvement actions because these satisfaction dimensions are effective, and consumers are not demanding. As managers implement IS planning, they develop new ideas and innovative products that increase firms' competitive advantage and satisfy customers' needs.

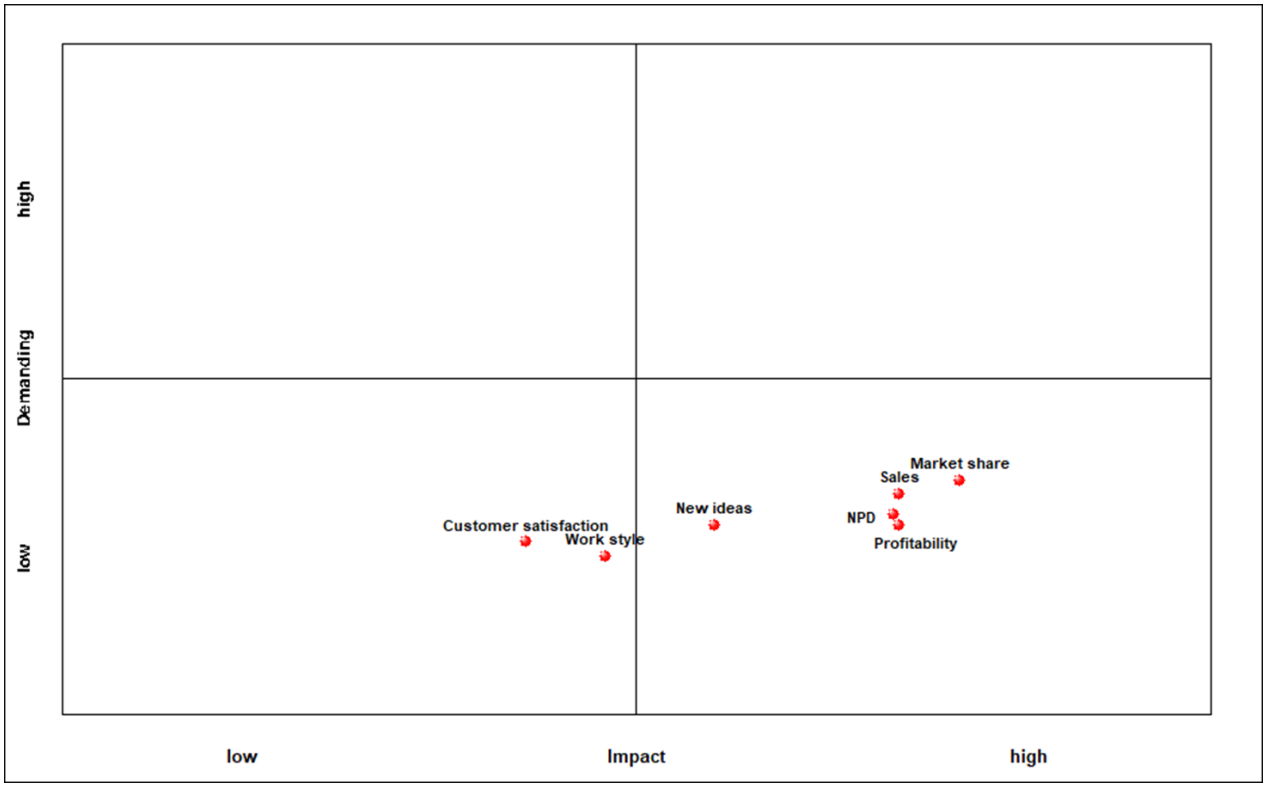

Figure 4.3. Improvement diagram

Criteria such as customer satisfaction, flexibility at work and the development of new products and services are the main points of competitive advantage of SMEs, when using the IS strategic planning. Sales growth and market share seem to be a threat to SMEs when using IS strategic planning, as they are low performance and important for IT executives. Transforming new ideas into sustainable development opportunities for SMEs is a potential strength for them, while increasing profitability when using IS strategic planning is a potentially critical feature. Other researchers reveal that business-IT alignment faces significant challenges when businesses perform innovation tasks that require the generation of new knowledge (Ebner et al., 2016). Business-IT alignment supports businesses to focus on their core business and produce high-quality products or services (Lee et al., 2018; Li et al., 2006; Park et al., 2017). Based on the analysis above, Figure 4.4 presents the holistic approach used to conduct this study.

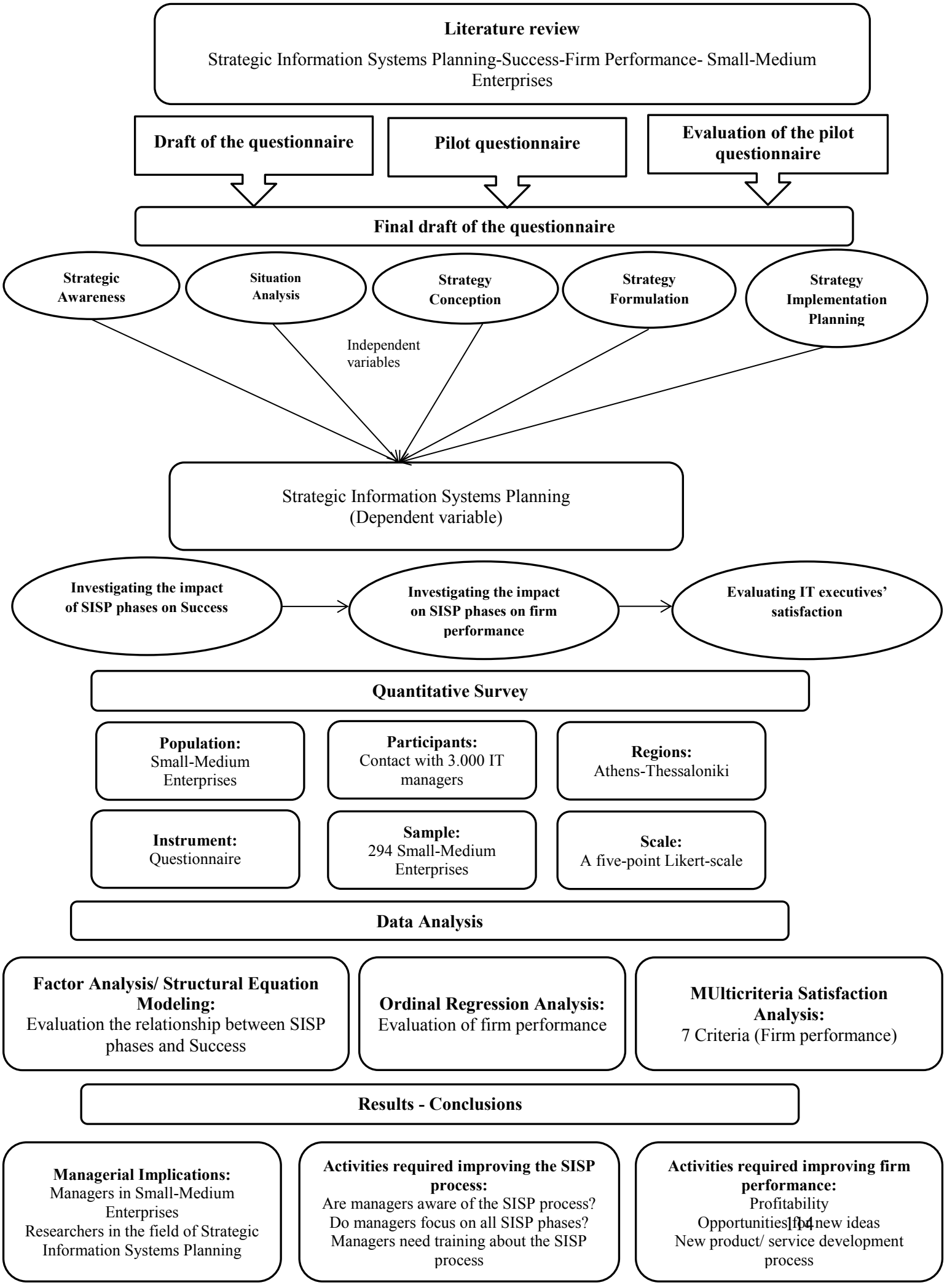
Literature review
Strategic Information Systems Planning-Success-Firm Performance- Small-Medium Enterprises
Draft of the questionnaire
Pilot questionnaire
Evaluation of the pilot questionnaire
Final draft of the questionnaire
Strategic Awareness
Situation Analysis
Strategy Conception
Strategy Formulation
Strategy Implementation Planning
Independent variables
Strategic Information Systems Planning
(Dependent variable)
Investigating the impact of SISP phases on Success
Investigating the impact on SISP phases on firm performance
Evaluating IT executives' satisfaction
Quantitative Survey
Population:
Small-Medium Enterprises
Participants:
Contact with 3.000 IT managers
Regions:
Athens-Thessaloniki
Instrument:
Questionnaire
Sample:
294 Small-Medium Enterprises
Scale:
A five-point Likert-scale
Data Analysis
Factor Analysis/ Structural Equation Modeling:
Evaluation the relationship between SISP phases and Success
Ordinal Regression Analysis:
Evaluation of firm performance
MUlticriteria Satisfaction Analysis:
7 Criteria (Firm performance)
Results - Conclusions
Managerial Implications:
Managers in Small-Medium Enterprises
Researchers in the field of Strategic Information Systems Planning
Activities required improving the SISP process:
Are managers aware of the SISP process?
Do managers focus on all SISP phases?
Managers need training about the SISP process
Activities required improving firm performance:
Profitability
Opportunities for new ideas
New product/ service development process

Figure 4.4. Holistic research process for the survey

5. Conclusion

This chapter is divided in two parts. The first part presents and discusses the main findings of the data analysis. The second part discusses the thesis's theoretical and practical contribution, as well as managerial implications. Furthermore, it presents limitations and provides suggestions for future researchers.

The findings of this study show that the available budget for IS projects is often limited. Thus, managers do not focus on the definition of strategic goals such as how digital tools will improve the company's effectiveness. Instead, they overemphasize the attempts to reduce the time and cost for the development of IS plans. As a result, IS plans fail to support companies to meet customers' needs, align the developed systems with the existing ones, and increase system's flexibility without strategic planning and the outcome of the implementation of the SISP process is the development of inefficient IS and digital tools that cannot meet a company's objectives (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

Selecting team members who participate in the development of the IS plan is another fundamental task in the SISP process, but managers tend to overlook it. The importance of that task stems from the fact that team members can collaborate and develop skills to develop efficient digital projects. Therefore, executives should support employees during the development of IS plans to help companies achieve their company's objectives, improve business operations and firm performance. In addition, managers ignore identifying priorities, enhancing collaboration among employees, and providing guidance to increase the efficiency of IT projects and align them with organizational goals (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

Executives focus their efforts on the SISP process implementation, but this phenomenon has significant barriers. Although less time may be spent for the implementation of the SISP process, the strategic goals of the company might not be aligned with IT goals. Considering this challenge, academics (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b) have concluded that changes in the internal environment of the organization increase uncertainty and change the contribution of digital tools to organizational processes. Thus, managers should take into consideration environmental analysis and the use of digital tools to align the digital projects of the organization with company's performance (Sipahi and Timor, 2010; Xiao et al., 2021).

The results presented herein indicate that when executives concentrate on Analysis of internal environment, the agility of Strategy conception and Strategy implementation planning will be increased. Executives can analyze the existing business systems, the digital tools and both the organizational and the external technological environment to align IT strategy with business strategy. Considering this analysis, the developed IT plan will be remarkably enhanced with the exception of required time and cost for the process. When managers are aware of the business environment, they can define crucial IS goals and opportunities to improve the company's effectiveness. Furthermore, they can assess these goals to identify high-level IS strategies during Strategy conception (Mirchandani and Lederer, 2012; Newkirk and Lederer, 2006b; Newkirk et al., 2003).

The results show that IT investment assists managers to set business strategy focusing on the improvement of organizational market share, flexibility in work and generation of opportunities for new product development. In this way, what SMEs should do is identify and communicate a culture of innovation and alignment with business strategy and IT goals in order to increase flexibility in work and opportunities for new product development. IT executives should be aware of IT issues because this can be an obstacle for the organization and will prevent them from achieving their planning goals and increasing the market share of the business.

More often than not, the decisions taken do not focus on the objectives of IS department, a fact that can impede both SME's profitability and competitiveness of businesses. Therefore, a culture of innovation that can support IS is necessary if the benefits of SMEs can be increased through the process of strategic alignment.

The SISP process is important to companies in the current competitive environment as it facilitates the effective creation and execution of IT projects and this process will improve their market share. The implementation of SISP process is not an easy task though. Managers need to have a good understanding of the company's objectives and strategies because businesses need to have multiple planning aspects in order to encounter various issues. It is therefore critical for businesses to take all phases into consideration in order to complete the SISP process successfully.

The evaluation of the impact of the use of IS strategic planning on IT executives' satisfaction can provide helpful data to managers in SMEs in order to have the option to

make better decisions and figure out which dimensions of the business performance should be enhanced. Moreover, the utilization of the MUSA method recognized the territories in which the business performance of Greek SMEs that implemented IS strategies is close to achieving executives' expectations and fields in which it misses the mark regarding expectations. Greek SMEs can use this method in order to upgrade the level of quality and the viability of the IS strategic planning. As IS strategy being a critical dimension of innovation and competitive advantage for SMEs, IS executives can use the results of this thesis in order to increase the rate of innovation and entrepreneurship in their firms. Furthermore, the outcomes of this thesis can be used as a guide in order to improve decision making processes in SMEs. Innovation can be increased only if the appropriate technology is used. Thus, IS strategy and IS planning are important processes for managers. Recognizing IT goals can make it possible for the firm to set future IT and organizational goals while better options and choices can sustain the plan to have improved results.

5.1. Theoretical and practical contribution

The findings of this survey lead to an understanding of IS strategic planning's use by executives. It is essential that they should be knowledgeable about it and that the tasks of IS strategic planning should not be ignored. It is possible that by understanding the process of IS strategy and its importance, IS executives will be helped not only concentrate on organizational goals but also realize that the planning process has the greatest importance to their business. Otherwise, there will be difficulties in achieving them both. Alignment may enable businesses to increase IS investments and to achieve harmony with the business strategies and plans. Thus, this leads to increased profitability and competitive advantage. Business-IT alignment helps IT executives acquire salient information about business initiatives and they are more likely to be knowledgeable about IT technologies and opportunities. As a result, IT plans have fewer problems, improved quality and the firm's performance is increased. These findings could help researchers understand how IS strategy supports the development of innovative technologies that incorporate opportunities to enhance business development, innovation and create a social impact through the challenges of COVID-19.

The current outbreak of the COVID-19 pandemic crisis has created a novel, complicated environment involving increased uncertainty and challenging market features. This new

environment may cause difficulties in the financial dimension of firms and particularly for SMEs, which may lead to lack of administrative, technical and human capabilities which, in effect, may constrain the capacity to deal with the crisis. Post-Covid-19 SMEs need to (re-)consider how to revitalize their strategies involving crisis scenarios and business continuity plans using alternative/ additional distribution channels in order to increase their revenues. Practically, retaining consumers virtually is a complicated process since it would irreversibly hurt businesses by delivering a low quality service. Owing to the various difficulties and uncertainties faced by COVID-19 organizations, new technologies must be established by organizational actors. Appropriate systems and support staff ought to be in a location at the level of SMEs to ensure that infrastructure is always accessible, to ensure that all business operations run smoothly (using SMEs digital platforms).

Another benefit from this thesis is the use of Ordinal Regression Analysis and MCDA. Ordinal Regression Analysis helps decision makers forecast effects or impacts of changes and predict trends and future values in order to improve the process of IS planning. MCDA is a decision making approach which handles ordinal data, without arbitrarily quantifying it. MCDA helps decision makers evaluate alternatives and make decisions about their problems. IS planning and alignment are fields that include multiple conflicting objectives. Using this method, decision makers can analyze alternatives and select the most appropriate for their problem during the implementation of IS strategic planning. IS planning should not be viewed solely through the lens of the periodic planning exercise. IS planning should also encompass the planning associated with IT investment decisions. By incorporating cooperation between business managers and IT managers in strategic IS planning, IT executives have the opportunity to examine the challenges in the implementation of IS projects and the impact of IS on the firm's performance. By examining IT executives' perceptions, they can identify the dimensions that should be improved during the implementation of IS projects and thus they can improve their satisfaction as well as their firm's performance. This wider collaboration in IS planning can improve adaptability and increase congruence between IS planning and market needs.

5.2. Limitations

A limitation of this thesis is related to the fact that the survey performed the results of this analysis only in SMEs in Greece. IS managers were the respondents of this research and the survey is characterized as self-assessment. In the context of self-assessment surveys,

the results can be biased by selecting or encouraging a specific sample over others. Future studies should analyze and compare the findings of this thesis with results from large companies operating in other countries. To compare the differences in IS strategy between firms from different industries, cluster analysis should be used for data analysis by potential researchers. It would be interesting to examine how the SISP process can be used for specific Information Systems (e.g., CRM ERP etc) in different industries (e.g., agrifood, hospitality, manufacturing etc) using case studies. Case studies can provide more details about the challenges and obstacles during the process as well as the evaluation of the SISP process.

Another limitation refers to the lack of studies that examine the uncertainty of external environment in the SISP process. The financial crisis, the increase of digital transformation, and the current outbreak of the COVID-19 pandemic crisis have created a novel, complicated environment involving increased uncertainty and challenging market features. This new environment may cause difficulties in the financial dimension of firms and particularly for SMEs, which may lead to lack of administrative, technical and human capabilities which, in effect, may constrain the capacity to deal with the crisis. Post-Covid-19 SMEs need to (re-)consider how to revitalize their strategies involving crisis scenarios and business continuity plans using alternative/ additional distribution channels in order to increase their revenues.

All phases of the SISP process did not influence the four dimensions of success to the same extent because managers in this sector frequently lack appropriate skills and may be isolated without prior experience or training in IS. A limitation of this thesis is that other factors that prevent managers from engagement with SISP related activities such as age, the organizational culture of the company, and the lack of sufficient budget for IS projects are not taken into consideration. Thus, managers face difficulties in understanding the significance of IS implementation and as a result in formulating, implementing, and evaluating strategic plans. Therefore, they ignore many phases of the SISP process, they do not support IT projects and due to limited resources and lack of innovation culture they do not invest on IS.

5.3. Suggestions for future research

The findings of this thesis support decision makers in SMEs in order to analyze how the IT executives assess the business performance and which dimensions of satisfaction must be

ameliorated. The MUSA method showed the strong and weak dimensions of IT managers' satisfaction. The action and improvement diagrams are significant instruments for executives to make decisions for the improvement of IS planning. By examining IT executives' perceptions, they can identify the dimensions that should be improved during the implementation of IS projects and thus they can improve their satisfaction as well as their firm's performance. From the results of the analysis, managers can understand which dimensions do not contribute to customers' satisfaction and transfer resources to specific actions in order to improve their efficiency. Future researchers could analyze if there is a distinction in satisfaction considering components, for example, the type of company or the budget spent for new technologies.

An important dimension for IT executives is the transformation of new ideas into sustainable development opportunities for SMEs using IS. When top managers have a high perception of IT importance, the value of IS planning is increased, the problems during the implementation of IS projects are reduced and IT executives are knowledgeable about business direction. Therefore, an interesting avenue for future research is to conduct qualitative surveys measuring the participation of managers during the IS planning process and how it can be improved.

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. Specifically, with the use of semi-structured interviews future researchers can make open discussions regarding the effect of SISP phases on success. By exploring IS managers' perceptions about the SISP process, scholars can determine how the SISP process can be improved and which factors need attention during the implementation of IT plans.

Most businesses have experienced an unexpected and severe recession as a result of the pandemic crisis. Some businesses have tried numerous survival strategies, but turnover continues to fall, or there is no way out of recovery. A key condition for a successful recovery process is adaptability and coexistence with the developments and technologies that accompany the 4th industrial revolution, both nationally and internationally, with a goal of immediate use of new tools that are institutionalized globally, so that a company can provide the best possible and competitive services. Continuous IT associated with the 4th industrial revolution are important factors for a company's long-term development.

For example, the digital age and Artificial Intelligence technologies can provide numerous benefits to a business. In general, complex processes can now be automated, increasing productivity and lowering the cost of specific tasks. Simultaneously, predictive analytics, through the use of statistical models and machine learning, enables the most effective risk identification for a business. Technology facilitates business decision-making in this way. At the same time, cultivating an environment in a company that encourages the development of digital intelligence is critical to its growth. As a result, to ensure a smooth transition to the adoption of new technologies, companies must implement staff information and training policies to remain competitive and keep pace with developments. As a result, future researchers can investigate whether the SISP process can be adapted by SMEs seeking to develop Artificial Intelligence or Machine Learning applications, as well as the differences in phases.

Businesses are now synonymous with digital transformation, providing services based on Internet of Things, Cloud Computing, Artificial Intelligence, and other cutting-edge technologies. However, the digital transition necessitates reforms and processes such as new technology and digital skills training, as well as digital infrastructure. Companies must learn to work with non-traditional management models in teams and remotely, as well as embrace an agile philosophy. This frequently causes a reaction and leads to changes in organizational culture or even the creation of a new culture to address the issues that arise. Thus, managers' participation in the development of IT projects is critical to understanding the requirements of organizations, and market needs, and developing the appropriate system. Future researchers can look into how different types of engagement affect SISP process improvement.

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Appendix A: Questionnaire

Part A: Profile of participating company characteristics

Respondents will be asked to provide some information about the characteristics of their company as well as the current Information Systems. Next, they will choose the most important Information System of their company and they will fill out the questions about the phases and the activities of Strategic Information Systems Planning.

1. **Type of Industry**
   - Agriculture & Food
   - Business Services
   - Chemicals, Pharmaceuticals & Plastics
   - Construction
   - Education, Training & Organizations
   - Electrical, Electronics & Optical
   - Energy, Environment
   - IT, Internet, R&D
   - Leisure & Tourism
   - Metals, Machinery & Engineering
   - Minerals
   - Paper, Printing, Publishing
   - Retail and Traders
   - Textiles, Clothing, Leather, Watchmaking, Jewellery
   - Transport & Logistics

2. **Number of employees**
   - 0-9
   - 10-19
   - 20-49
   - 50-99
   - 100-250

3. **Turnover**
   - <2 millions €

- 3-10 millions €
- 11-50 millions €

4. Information Systems Structure

5. **Has your company department of Information Technology (IT)?**
   - Yes
   - No

6. Number of IT employees
   - 0-5
   - 6-10
   - 11-20
   - 21-30
   - 31-40
   - 41-50
   - >= 51

7. Information System's budget
   - 0-50.000 €
   - 51.000-100.000 €
   - 101.000- 150.000 €
   - 151.000-200.000 €
   - >= 201.000 €

8. Name and brief description of the selected Information System

9. In which of the following types the selected Information System is included?
   - Information Systems for sales and Marketing
   - Information Systems for production and manufacture
   - Information Systems for financial management
   - Information Systems for human resource management
   - Decision Support Systems
   - Electronic Data Interchange Systems

Part B: Respondent's Profile

1. **Gender**
   - Male
   - Female

2. **Age**
   - 18-25
   - 26-35
   - 36-45
   - 46-55
   - >= 56

3. **Education level**
   - Some college
   - 2 year college graduate
   - 4 year college graduate
   - Some postgraduate school
   - Post graduate degree

4. **Specialization of your degree:**
5. **Respondent's employment**
   - 0-5
   - 6-15
   - 16-25
   - 26-35
   - >= 36

Part C: Strategic Information Systems Planning Phases

Please mark the number to indicate the extent to which the company conducted each of the following five phases and their related tasks during its Strategic Information Systems Planning process.

1. Strategic Awareness	No extent				Great extent
Determining key planning issues	1	2	3	4	5
Defining planning objectives					
Organizing the planning team					
Obtaining top management commitment					
2. Analyzing the current environment					
Analyzing current business systems					
Analyzing current organizational systems					
Analyzing current information systems					
Analyzing the current external business environment					
Analyzing the current external IT environment					
3. Strategy Conception					
Identifying major IT objectives					
Identifying opportunities for improvement					
Evaluating opportunities for improvement					
Identifying high level IT strategies					
4. Strategy Formulation					
Identifying new business processes					
Identifying new IT architectures					
Identifying specific new projects					
Identifying priorities for new projects					
5. Strategy Implementation Planning					
Defining change management approach					
Defining action plan					
Evaluating action plan					
Defining follow-up and control procedures					

Part D: Strategic Information Systems Planning Success

Please mark the number to indicate the extent to which the organization fulfilled each of the following objectives of alignment, analysis, and cooperation from its SISP efforts.

1. Alignment	No extent				Great extent
Understanding the strategic priorities of top management	1	2	3	4	5
Aligning IS strategies with the strategic plan of the organization					
Adapting the goals/objectives of IS to changing goals/objectives of the organization					
Maintaining a mutual understanding with top management on the role of IS in supporting strategy					
Identifying IT-related opportunities to support the strategic direction of the firm					
Educating top management on the importance of IT					
Adapting technology to strategic change					
Assessing the strategic importance of emerging technologies					
2. Analysis					
Understanding the information needs of organizational subunits					

Identifying opportunities for internal improvement in business processes through IT					
Improved understanding of how the organization actually operates					
Development of a 'blueprint' which structures organizational processes					
Monitoring of internal business needs and the capability of IS to meet those needs					
Maintaining an understanding of changing organizational processes and procedures					
Generating new ideas to reengineer business processes through IT					
Understanding the dispersion of data, applications, and other technologies throughout the firm					
3. Cooperation					
Avoiding the overlapping development of major systems					
Achieving a general level of agreement regarding the risks/tradeoffs among system projects					
Establishing a uniform basis for prioritizing projects					
Maintaining open lines of communication with other departments					
Coordinating the development efforts of various organizational subunits					
Identifying and resolving potential sources of resistance to IS plans					
Developing clear guidelines of managerial responsibility for plan implementation					
4. Capabilities					
Ability to identify key problem areas					
Ability to identify new business opportunities					
Ability to align IS strategy with organizational strategy					
Ability to anticipate surprises and crises					
Ability to understand the business and its information needs					
Flexibility to adapt to unanticipated changes					
Ability to gain cooperation among user groups for IS plans					

Part E: Firm performance and IT executives' satisfaction

Please mark the number to indicate the extent to which the organization fulfilled each of the following measures of firm performance and IT executives' satisfaction from its SISP efforts.

1. Profitability	No extent				Great extent
To what extent was the company's profitability increased?	1	2	3	4	5
How satisfied are you with the increase of company's					

profitability?					
2. Sales growth					
To what extent were sales increased?					
To what extent was the company's market share increased?					
3. Innovation					
To what extent was the employees' job's performance changed positively?					
To what extent were the new ideas transformed in achievable projects?					
To what extent were the new product/service development process changed?					
4. Customer's Satisfaction					
To what extent was the level of customers' satisfaction increased?					
5. IT executives' satisfaction	Very dissatisfied				Very satisfied
How satisfied are you with the increase of company's profitability?	1	2	3	4	5
How satisfied are you with the increase of sales?					
How satisfied are you with the increase of company's market share?					
How satisfied are you with the transformation of employees' job's performance?					
How satisfied are you with the transformation of the new ideas in achievable projects?					
How satisfied are you with the transformation of new product/service development process?					
How satisfied are you with the growth of customers' satisfaction?					
6. Overall Satisfaction					
Overall, how satisfied are you with the increase of firm performance?					

Appendix B: Descriptive statistics

Strategic Awareness

Figure B1 presents that the majority of IS executives determined key planning issues to a low extent (48.1%).

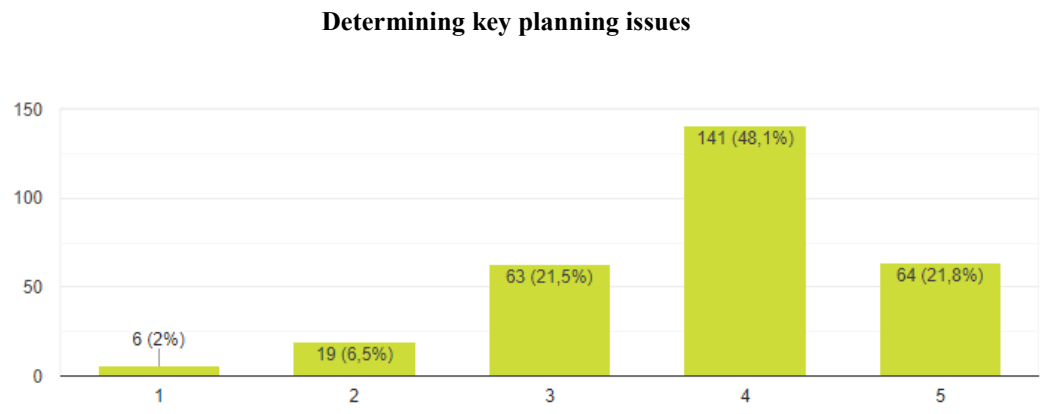

Figure B1. Determining key planning issues

Figure B2 presents that the majority of IS executives defined planning objectives to a low extent (49.1%).

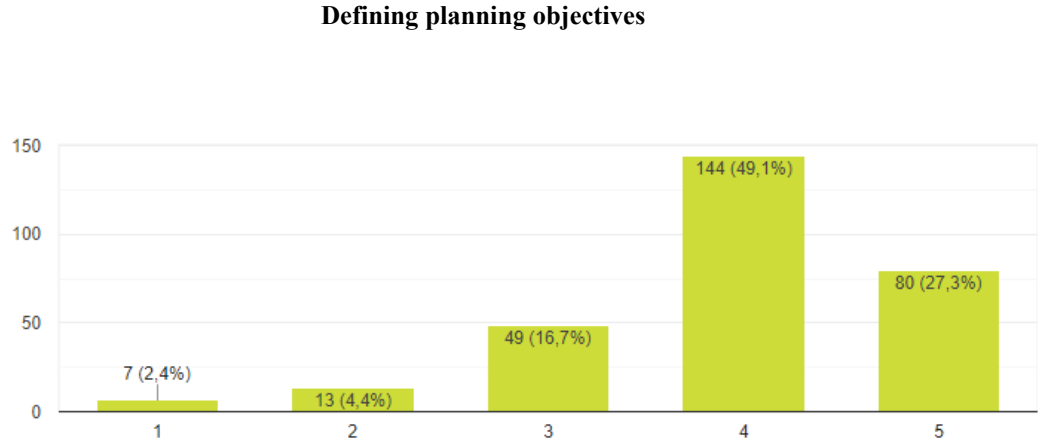

Figure B2. Defining planning objectives

Figure B3 presents that the majority of IS executives organized the planning team to a low extent (40.6%).

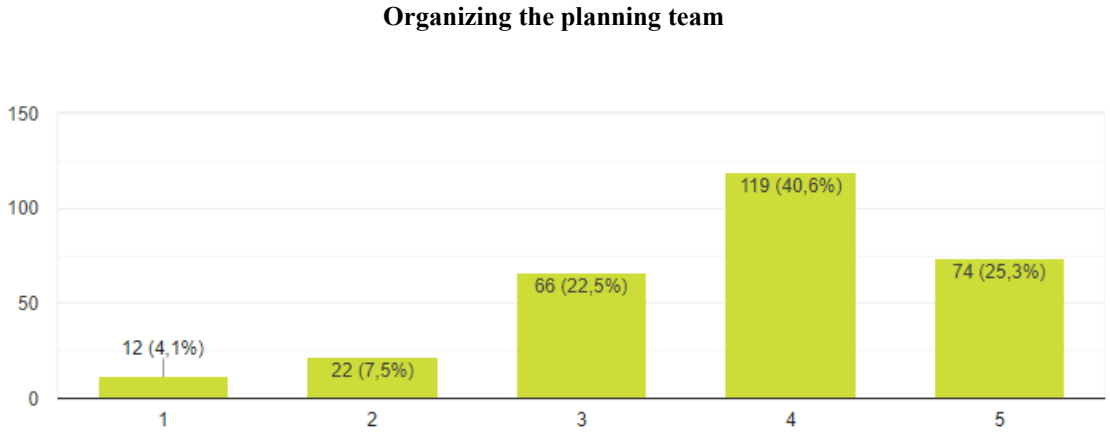

Figure B3. Organizing the planning team

Figure B4 presents that the majority of IS executives obtained top management commitment to a low extent (38.6%).

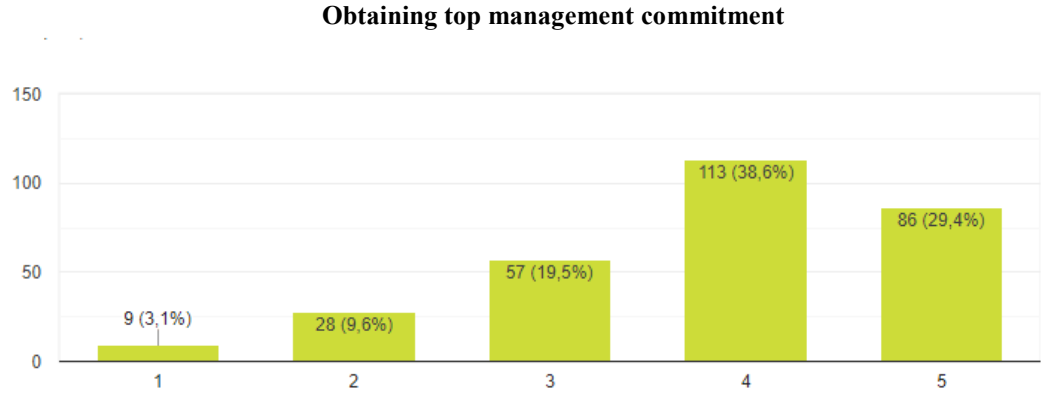

Figure B4. Obtaining top management commitment

Analyzing the current environment

Figure B5 presents that the majority of IS executives analyzed current business systems to a low extent (47.1%).

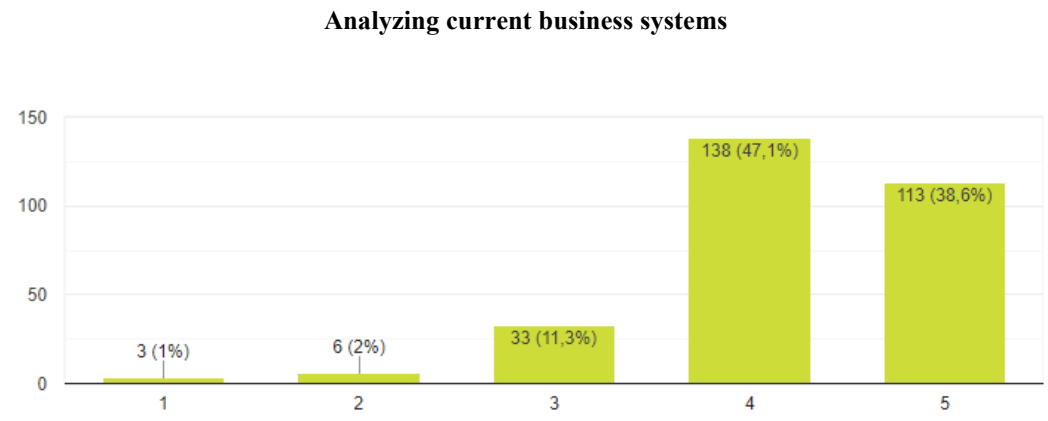

Figure B5. Analyzing current business systems

Figure B6 presents that the majority of IS executives analyzed current organizational systems to a low extent (45.4%).

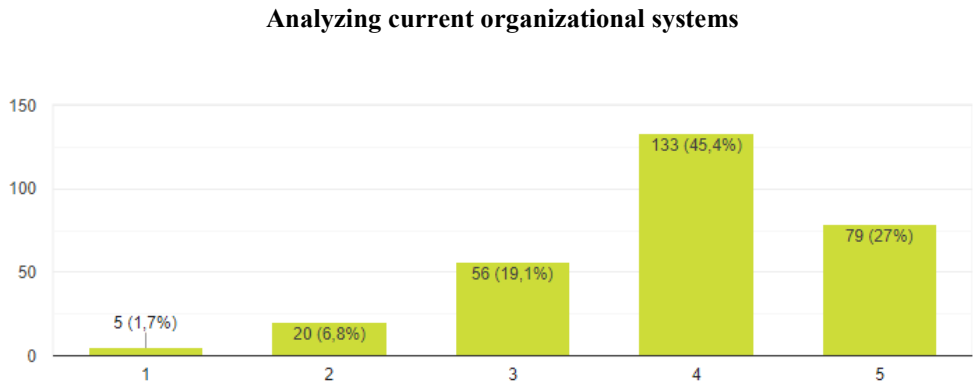

Figure B6. Analyzing current organizational systems

Figure B7 presents that the majority of IS executives analyzed current information systems to a low extent (42.7%).

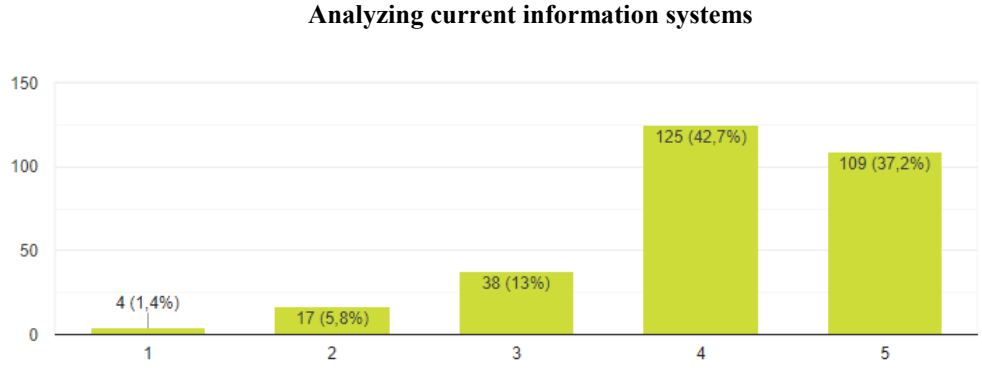

Figure B7. Analyzing current information systems

Figure B8 presents that the majority of IS executives analyzed the current external business environment to a low extent (39.9%).

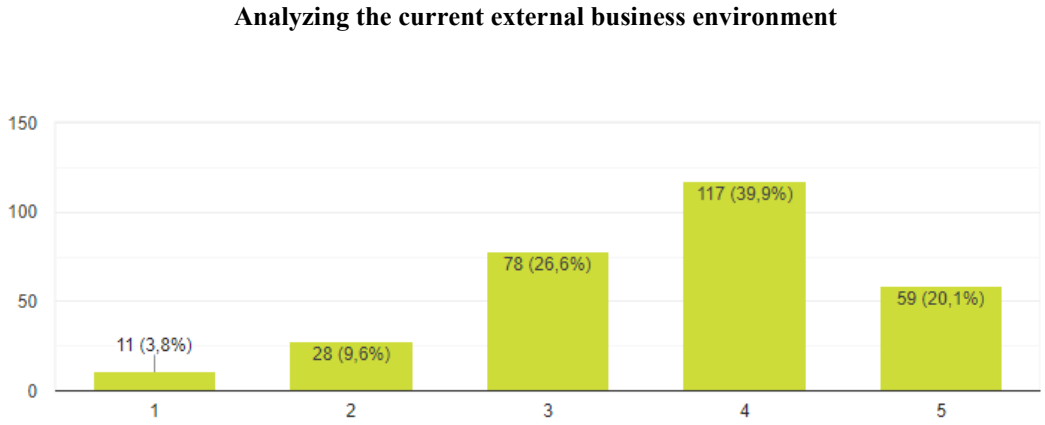

Figure B8. Analyzing the current external business environment

Figure B9 presents that the majority of IS executives analyzed the current external IT environment to a moderate extent (46.8%).

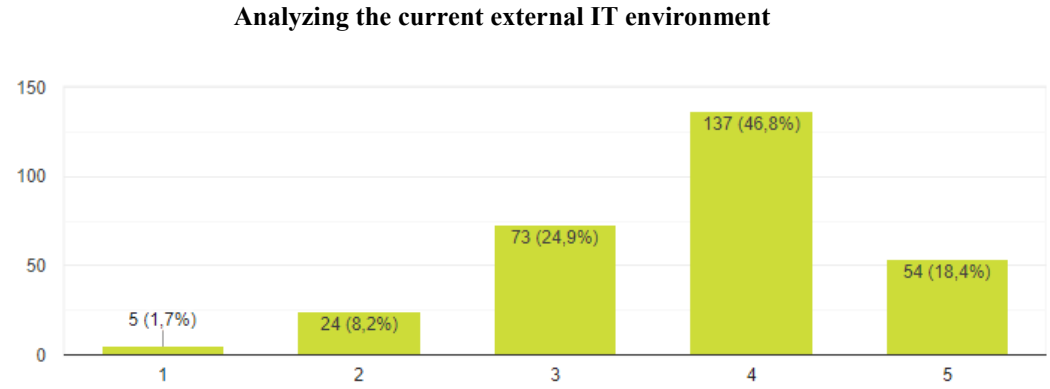

Figure B9. Analyzing the current external IT environment

Strategy Conception

Figure B10 presents that the majority of IS executives identified major IT objectives to a low extent (49.5%).

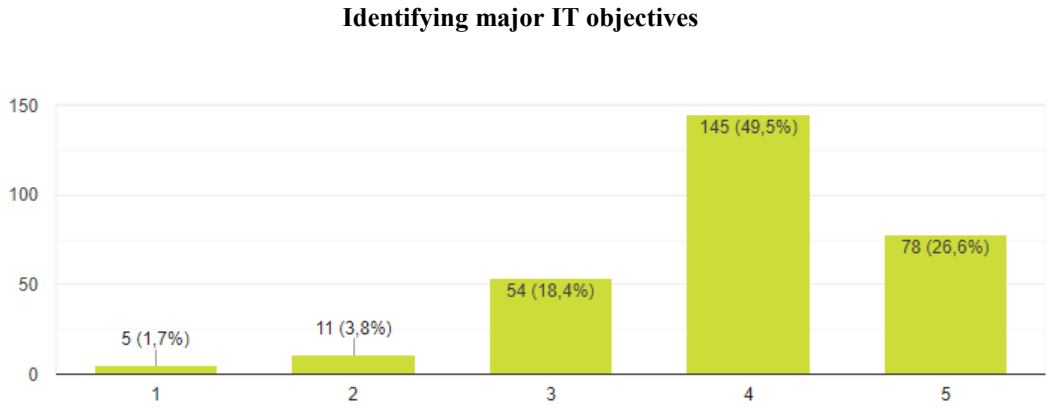

Figure B10. Identifying major IT objectives

Figure B11 presents that the majority of IS executives identified opportunities for improvement to a moderate extent (50.5%).

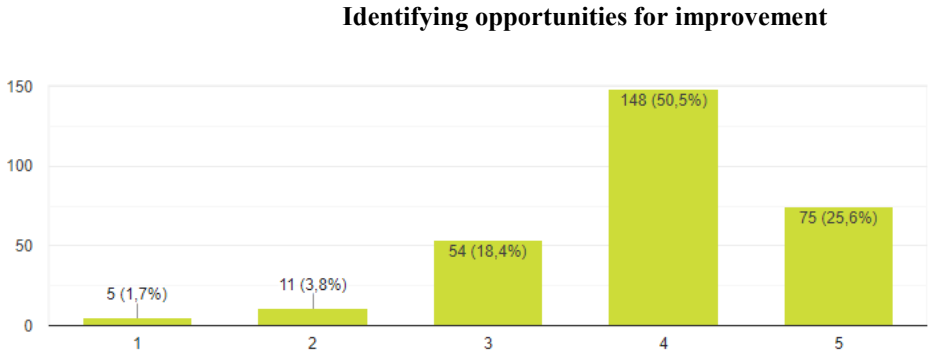

Figure B11. Identifying opportunities for improvement

Figure B12 presents that the majority of IS executives evaluated opportunities for improvement to a low extent (46.4%).

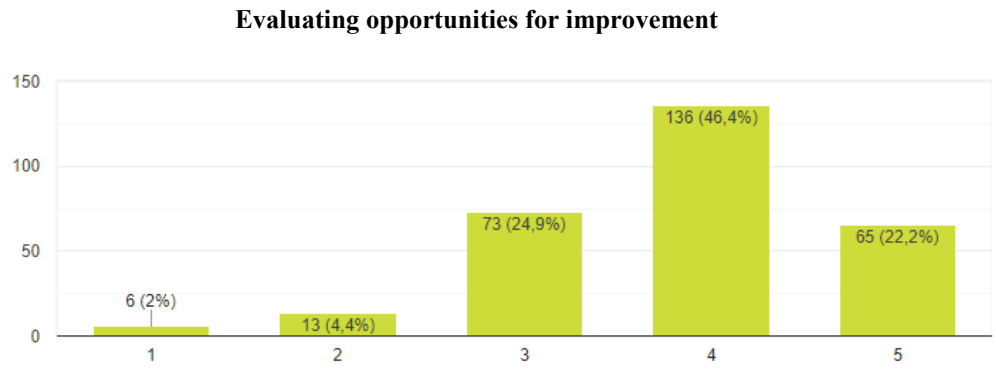

Figure B12. Evaluating opportunities for improvement

Figure B13 presents that the majority of IS executives identified high level IT strategies to a low extent (40.6%).

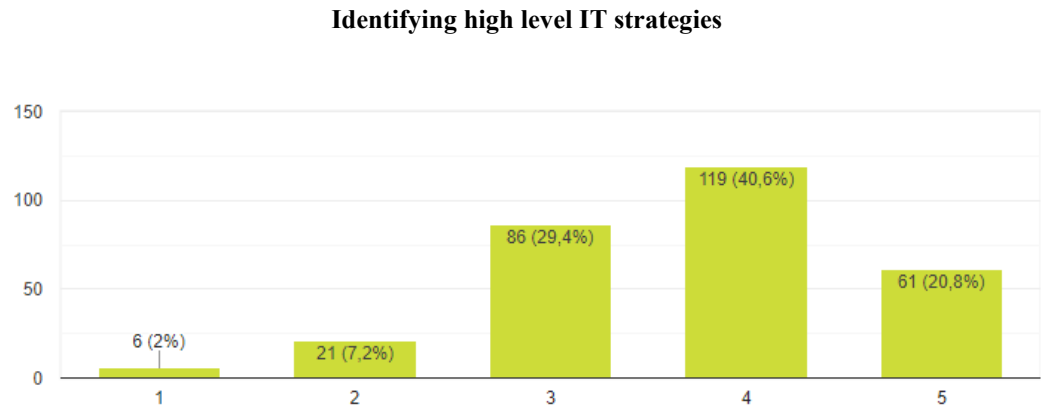

Figure B13. Identifying high level IT strategies

Strategy Formulation

Figure B14 presents that the majority of IS executives identified new business processes to a low extent (46.8%).

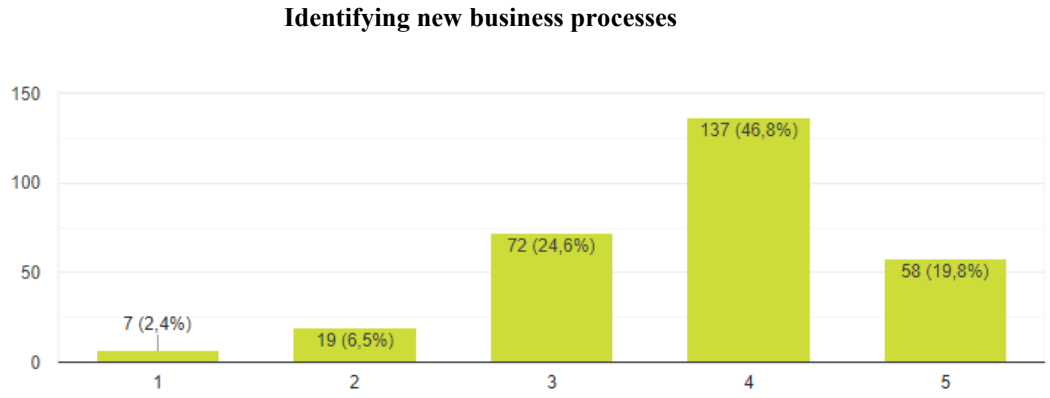

Figure B14. Identifying new business processes

Figure B15 presents that the majority of IS executives identified new IT architectures to a low extent (39.6%).

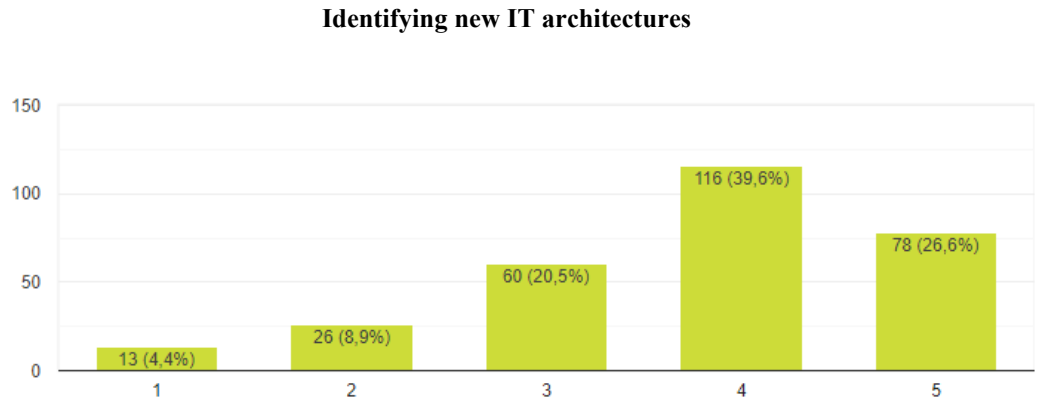

Figure B15. Identifying new IT architectures

Figure B16 presents that the majority of IS executives identified specific new projects to a moderate extent (51.9%).

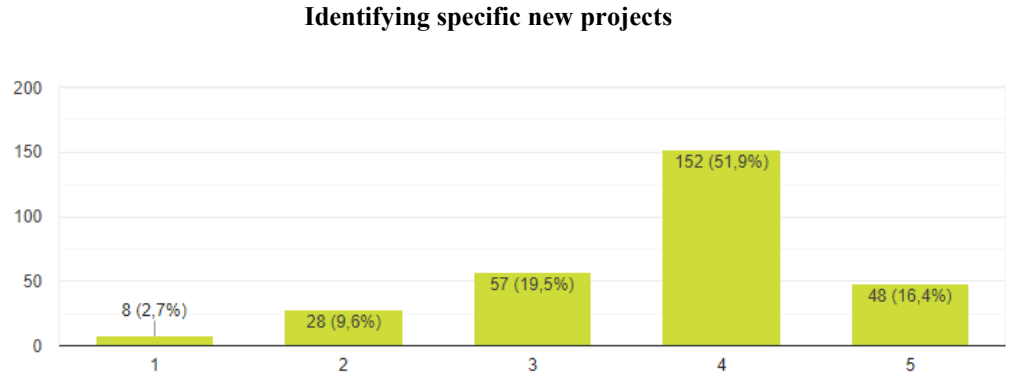

Figure B16. Identifying specific new projects

Figure B17 presents that the majority of IS executives identified priorities for new projects to a low extent (46.4%).

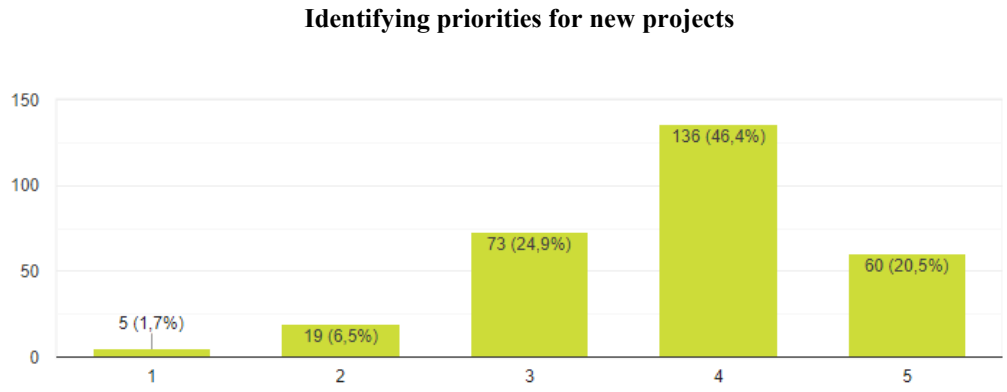

Figure B17. Identifying priorities for new projects

Strategy Implementation Planning

Figure B18 presents that the majority of IS executives defined change management approach to a low extent (49.8%).

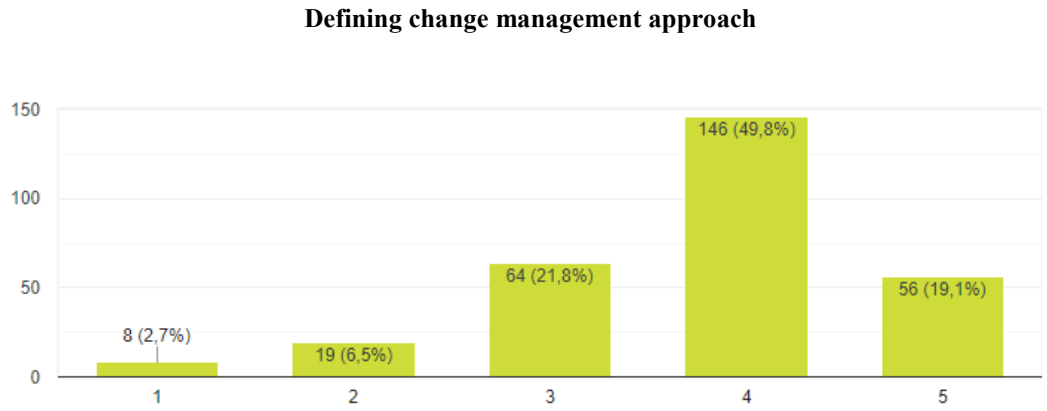

Figure B18. Defining change management approach

Figure B19 presents that the majority of IS executives defining action plan to a low extent (42.3%).

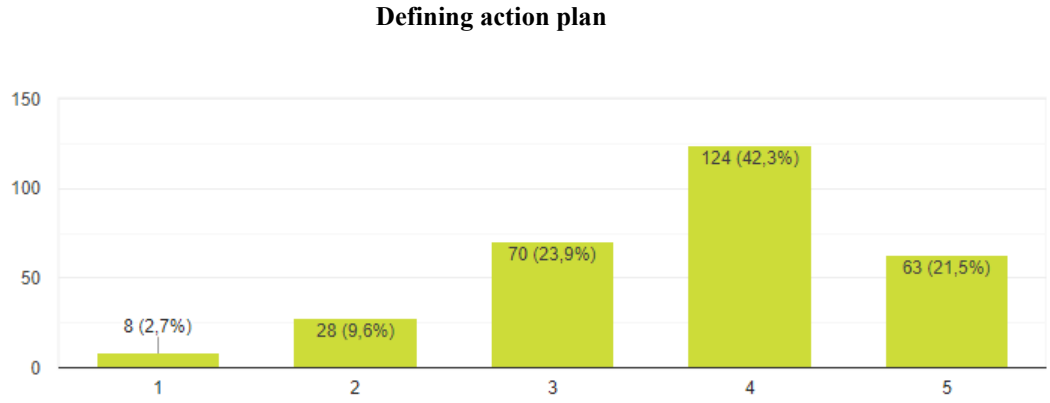

Figure B19. Defining action plan

Figure B20 presents that the majority of IS executives evaluated action plan to a low extent (35.2%).

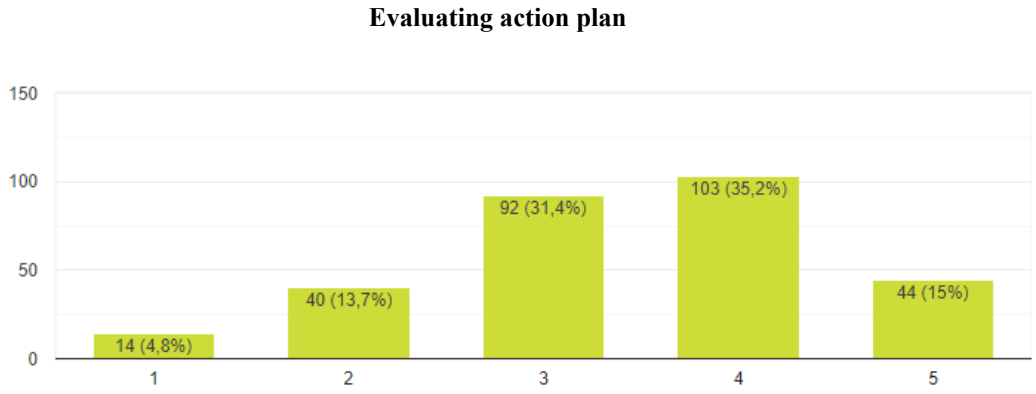

Figure B20. Evaluating action plan

Figure B21 presents that the majority of IS executives defined follow-up and control procedures to a low extent (42.3%).

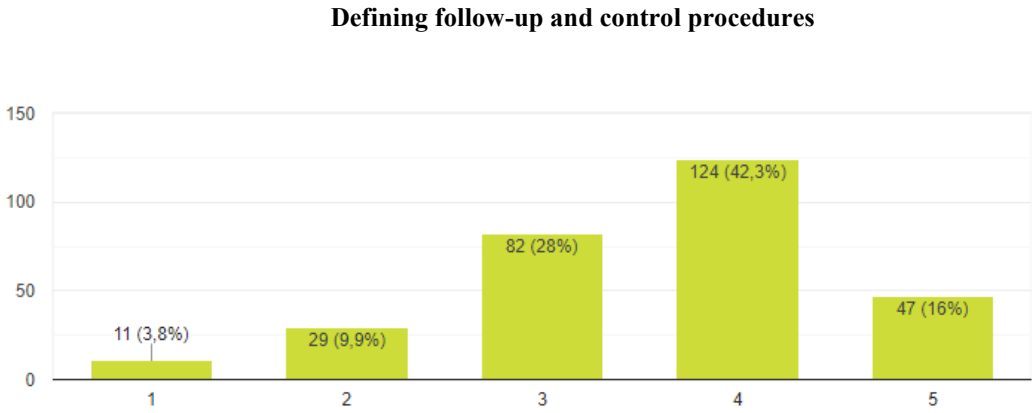

Figure B21. Defining follow-up and control procedures

Alignment

Figure B22 presents that the majority of IS executives understood the strategic priorities of top management to a low extent (42.3%).

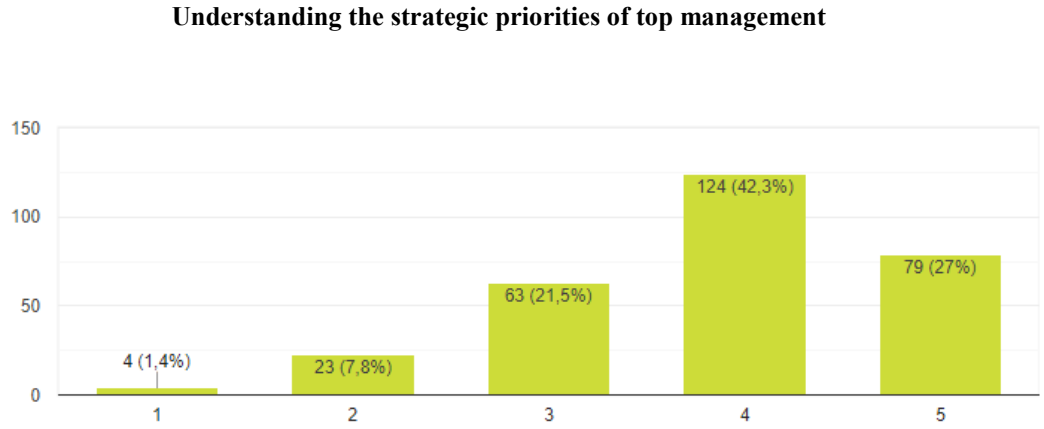

Figure B22. Understanding the strategic priorities of top management

Figure B23 presents that the majority of IS executives aligned IS strategies with the strategic plan of the organization to a low extent (39.9%).

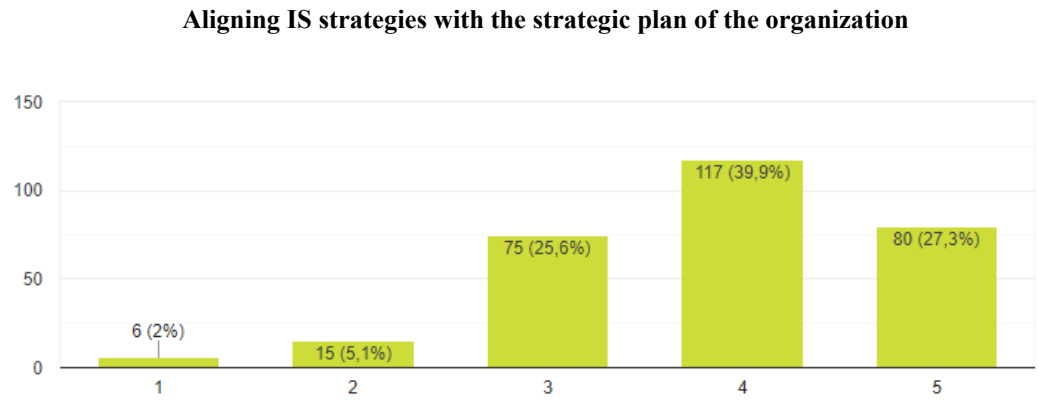

Figure B23. Aligning IS strategies with the strategic plan of the organization

Figure B24 presents that the majority of IS executives adapted the goals/objectives of IS to changing goals/objectives of the organization to a low extent (42.3%).

Adapting the goals/objectives of IS to changing goals/objectives of the organization

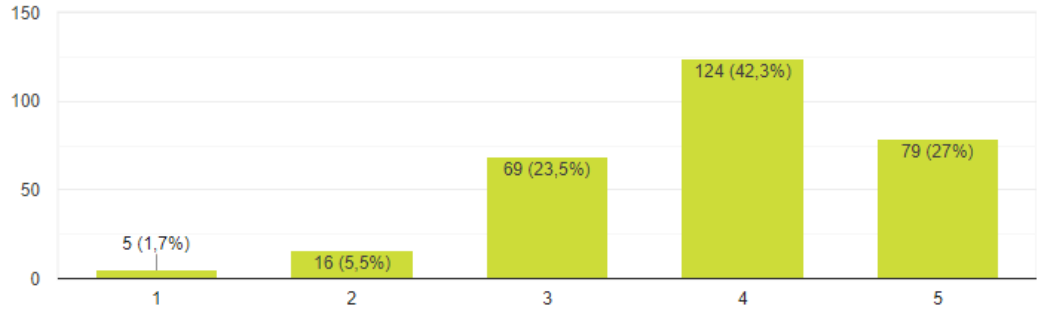

Figure B24. Adapting the goals/objectives of IS to changing goals/objectives of the organization

Figure B25 presents that the majority of IS executives maintained a mutual understanding with top management on the role of IS in supporting strategy to a low extent (43%).

Maintaining a mutual understanding with top management on the role of IS in supporting strategy

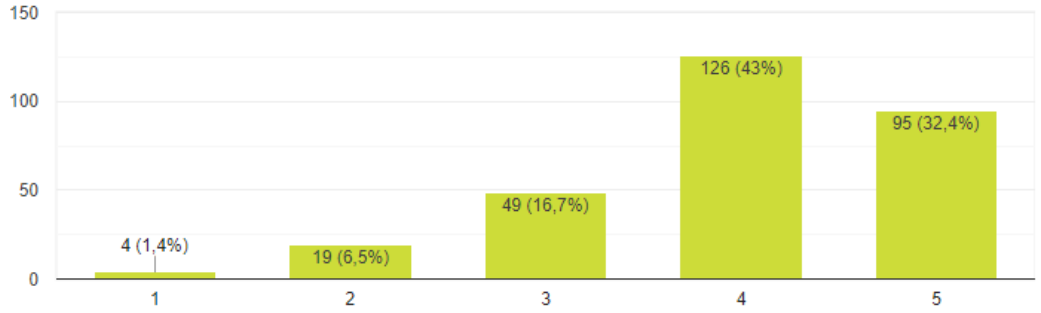

Figure B25. Maintaining a mutual understanding with top management on the role of IS in supporting strategy

Figure B26 presents that the majority of IS executives identified IT-related opportunities to support the strategic direction of the firm to a low extent (44%).

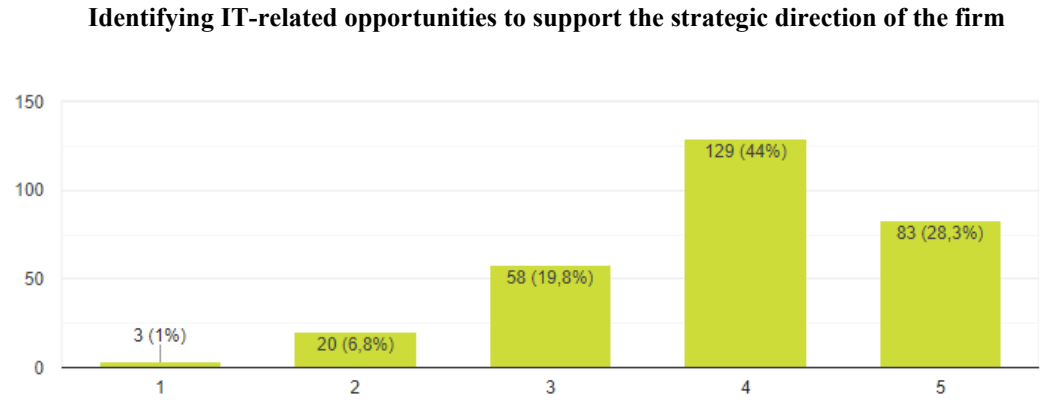

Figure B26. Identifying IT-related opportunities to support the strategic direction of the firm

Figure B27 presents that the majority of IS executives were educated on the importance of IT to a low extent (35.5%).

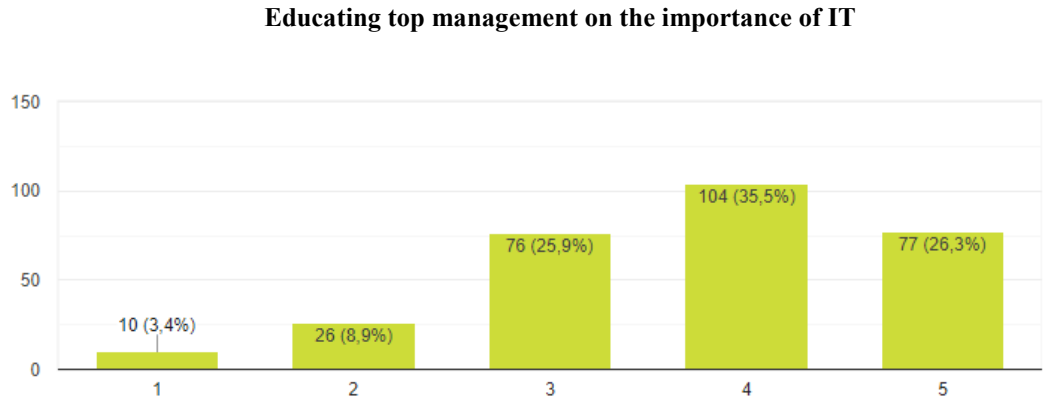

Figure B27. Educating top management on the importance of IT

Figure B28 presents that the majority of IS executives adapted technology to strategic change to a low extent (45.1%).

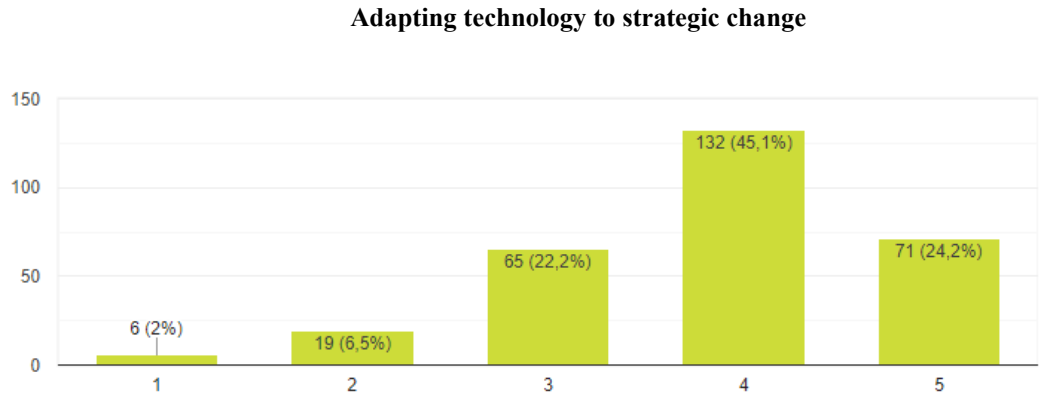

Figure B28. Adapting technology to strategic change

Figure B28 presents that the majority of IS executives assessed the strategic importance of emerging technologies to a low extent (46.4%).

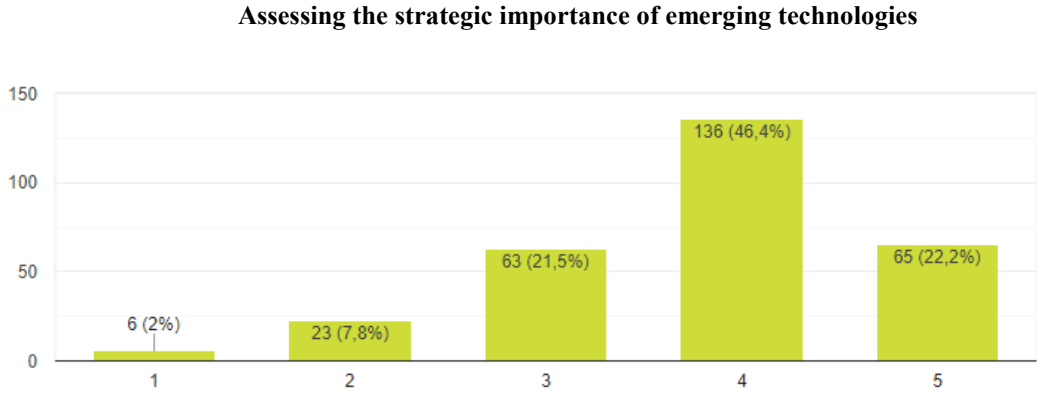

Figure B28. Assessing the strategic importance of emerging technologies

Analysis

Figure B29 presents that the majority of IS executives understood the information needs of organizational subunits to a low extent (48.5%).

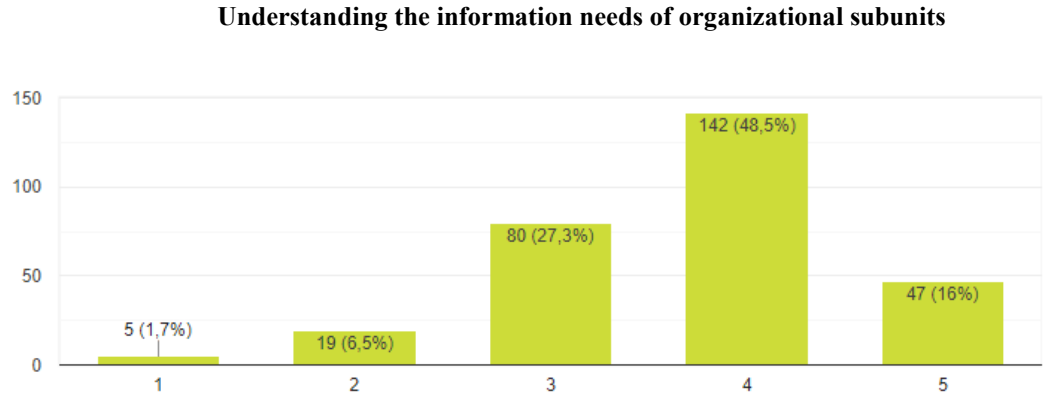

Figure B29. Understanding the information needs of organizational subunits

Figure B30 presents that the majority of IS executives identified opportunities for internal improvement in business processes through IT to a moderate extent (53.2%).

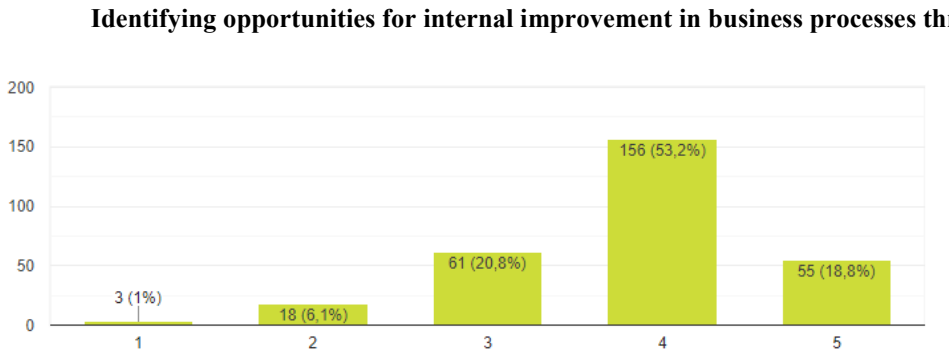

Figure B30. Identifying opportunities for internal improvement in business processes through IT

Figure B31 presents that the majority of IS executives understood how the organization actually operates to a low extent (49.5%).

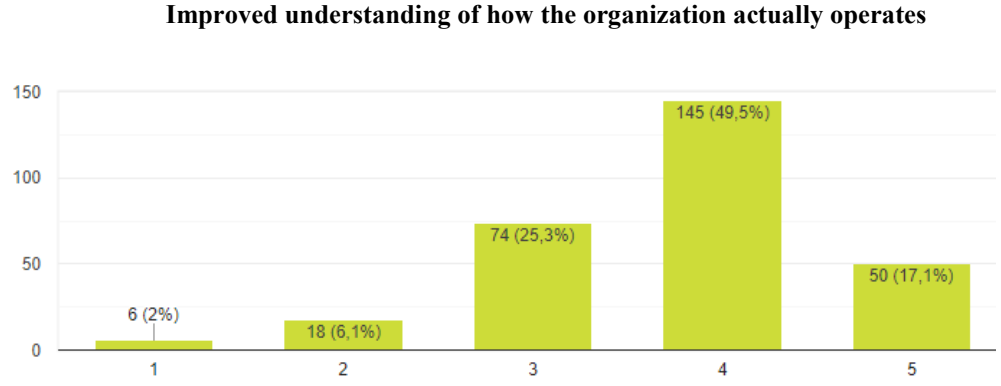

Figure B31. Improved understanding of how the organization actually operates

Figure B32 presents that the majority of IS executives developed a 'blueprint' which structures organizational processes to a low extent (41.3%).

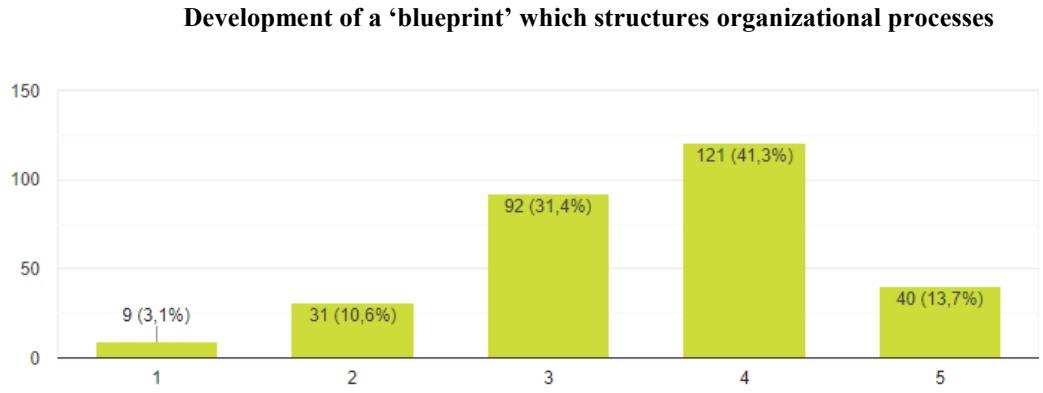

Figure B32. Development of a 'blueprint' which structures organizational processes

Figure B33 presents that the majority of IS executives monitored internal business needs and the capability of IS to meet those needs to a moderate extent (50.2%).

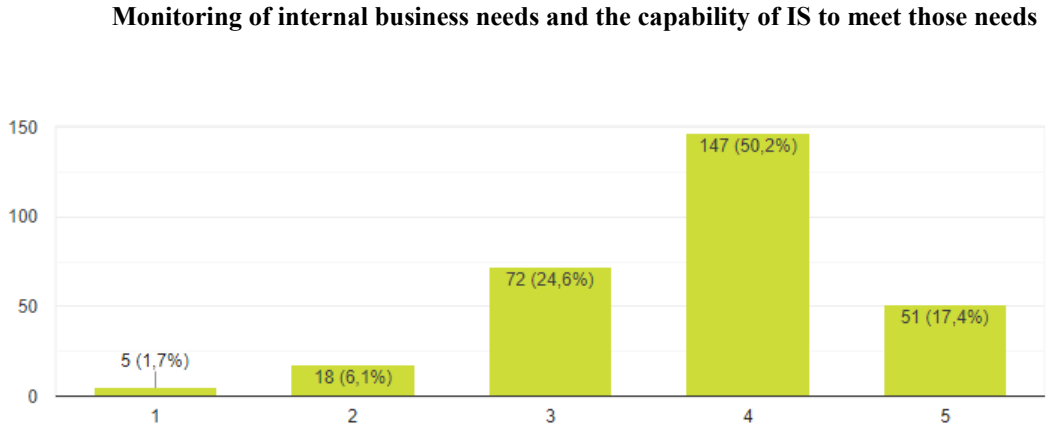

Figure B33. Monitoring of internal business needs and the capability of IS to meet those needs

Figure B34 presents that the majority of IS executives understood the change of organizational processes and procedures to a low extent (48.8%).

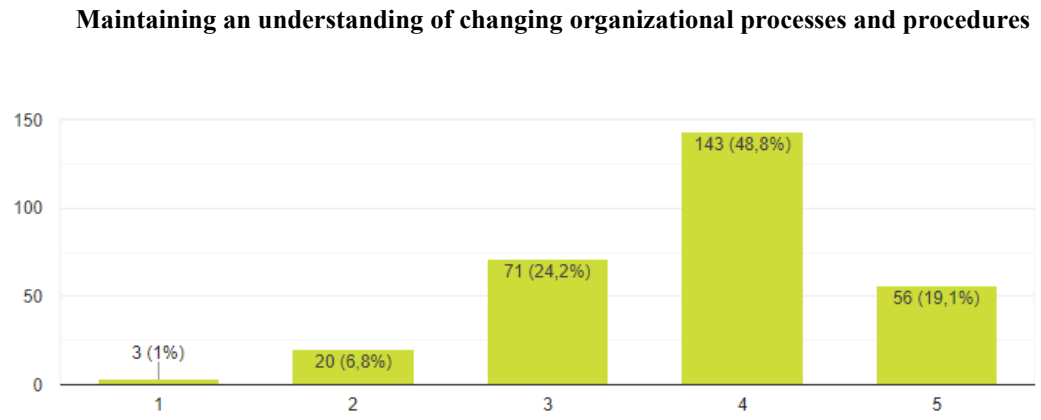

Figure B34. Maintaining an understanding of changing organizational processes and procedures

Figure B35 presents that the majority of IS executives generated new ideas to reengineer business processes through IT to a low extent (43%).

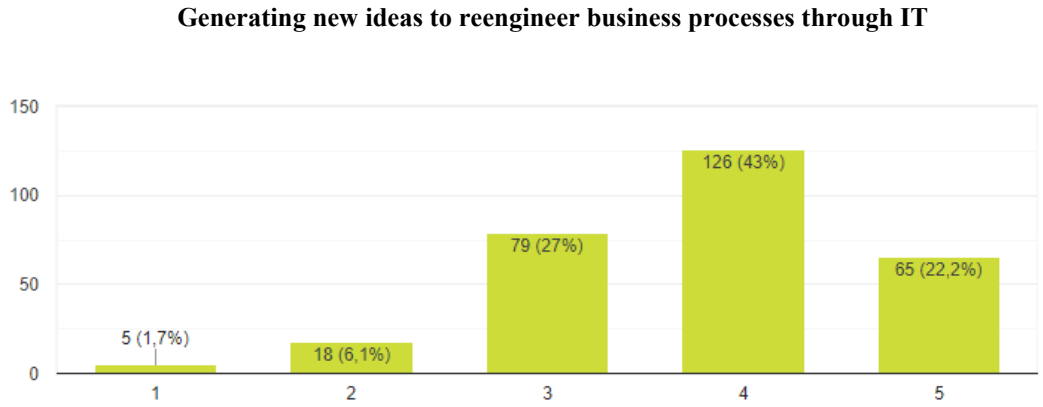

Figure B35. Generating new ideas to reengineer business processes through IT

Figure B36 presents that the majority of IS executives understood the dispersion of data, applications, and other technologies throughout the firm to a low extent (44.7%).

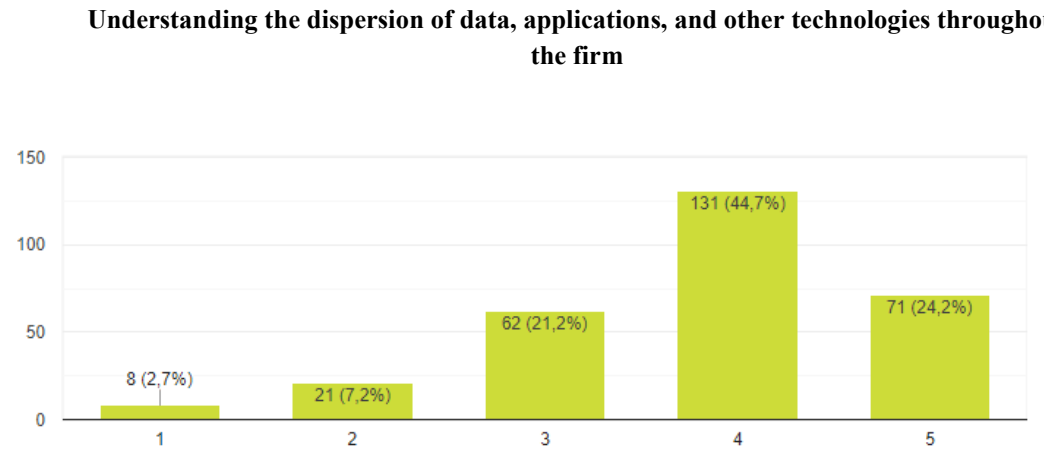

Figure B36. Understanding the dispersion of data, applications, and other technologies throughout the firm

Cooperation

Figure B37 presents that the majority of IS executives avoided the overlapping development of major systems to a low extent (39.2%).

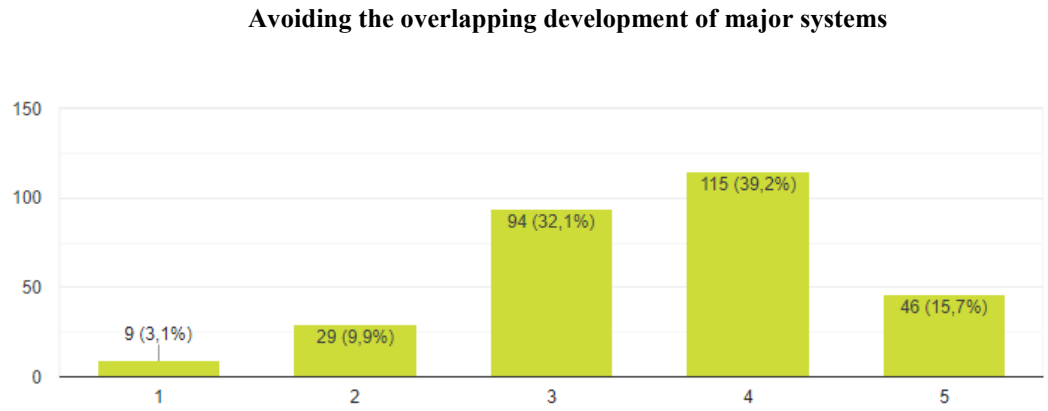

Figure B37. Avoiding the overlapping development of major systems

Figure B38 presents that the majority of IS executives achieved a general level of agreement regarding the risks/tradeoffs among system projects to a low extent (39.2%).

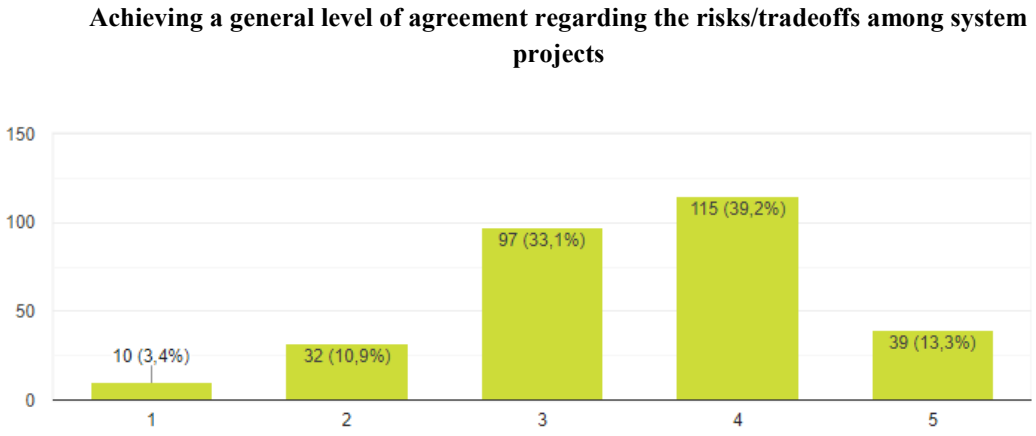

Figure B38. Achieving a general level of agreement regarding the risks/tradeoffs among system projects

Figure B39 presents that the majority of IS executives established a uniform basis for prioritizing projects to a low extent (45.1%).

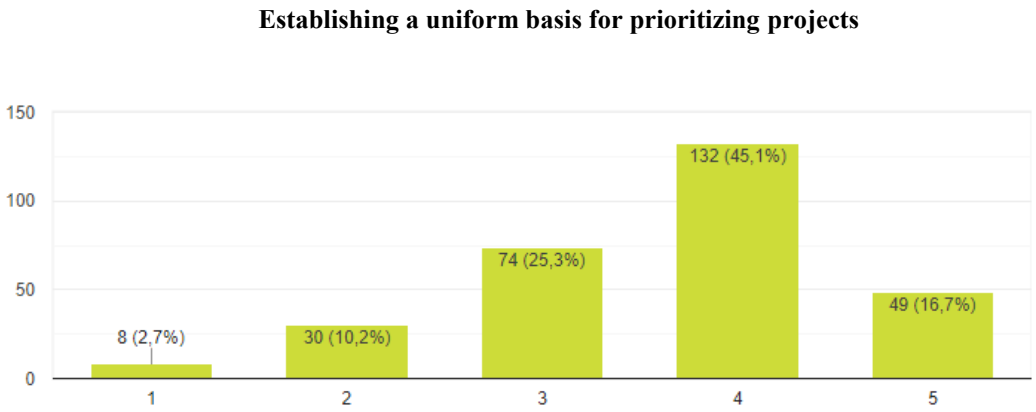

Figure B39. Establishing a uniform basis for prioritizing projects

Figure B40 presents that the majority of IS executives maintained open lines of communication with other departments to a low extent (43%).

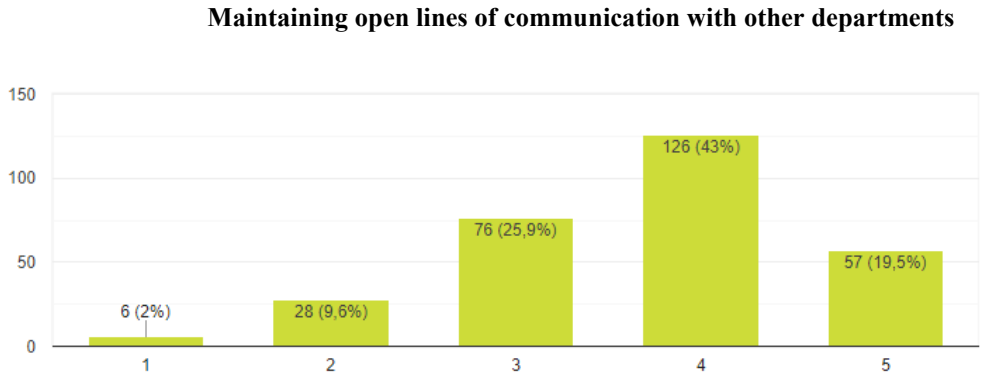

Figure B40. Maintaining open lines of communication with other departments

Figure B41 presents that the majority of IS executives coordinated the development efforts of various organizational subunits to a low extent (42.3%).

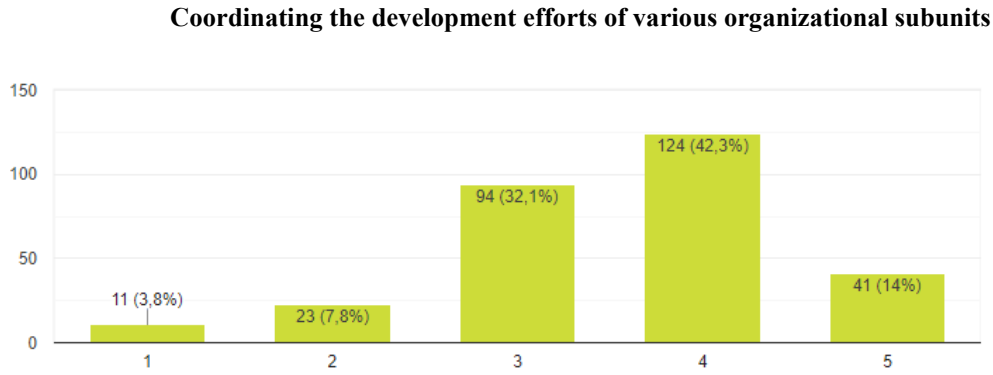

Figure B41. Coordinating the development efforts of various organizational subunits

Figure B42 presents that the majority of IS executives identified and resolving potential sources of resistance to IS plans to a low extent (42.3%).

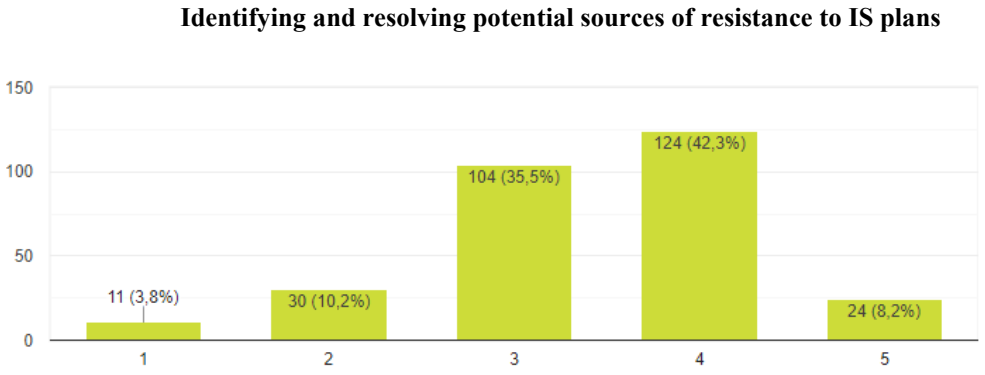

Figure B42. Identifying and resolving potential sources of resistance to IS plans

Figure B43 presents that the majority of IS executives developed clear guidelines of managerial responsibility for plan implementation to a low extent (41.6%).

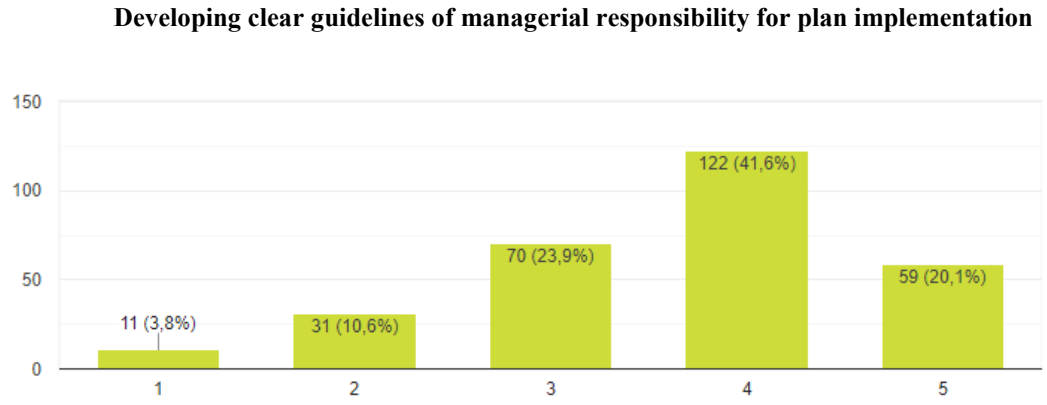

Figure B43. Developing clear guidelines of managerial responsibility for plan implementation

Capabilities

Figure B44 presents that the majority of IS executives developed the ability to identify key problem areas to a low extent (46.8%).

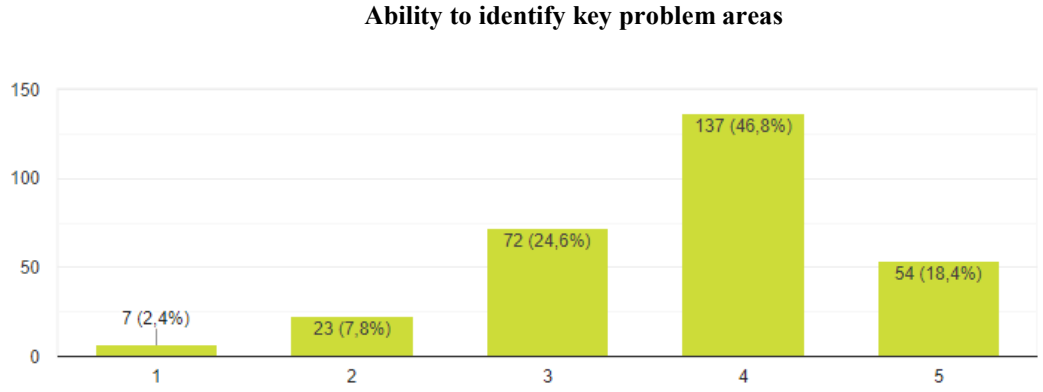

Figure B44. Ability to identify key problem areas

Figure B45 presents that the majority of IS executives developed the ability to identify new business opportunities to a moderate extent (53.2%).

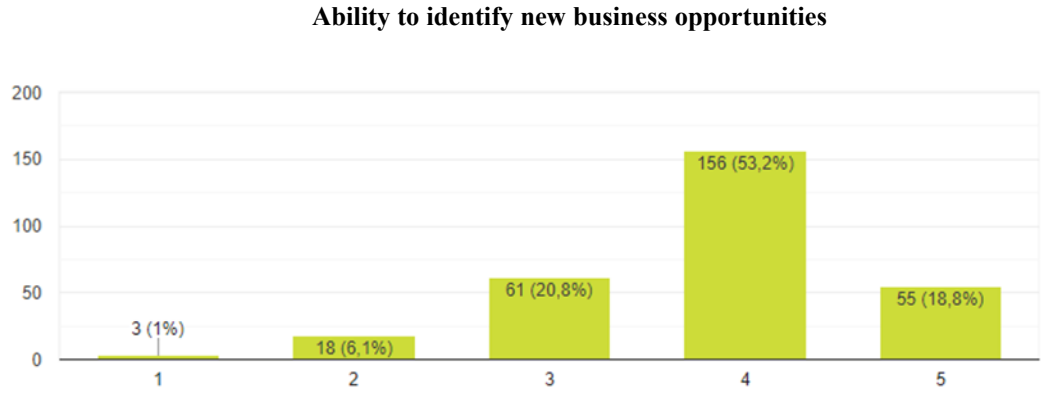

Figure B45. Ability to identify new business opportunities

Figure B46 presents that the majority of IS executives developed the ability to align IS strategy with organizational strategy to a low extent (39.9%).

Figure B46. Ability to align IS strategy with organizational strategy

Figure B47 presents that the majority of IS executives developed the ability to anticipate surprises and crises to a low extent (42.7%).

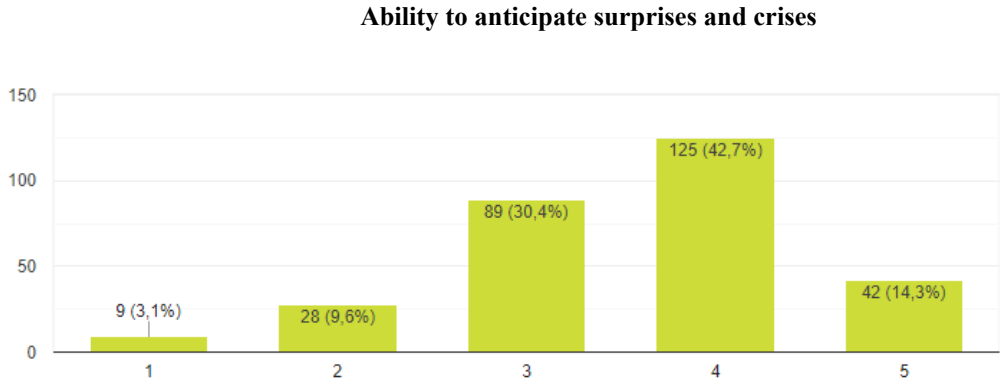

Figure B47. Ability to anticipate surprises and crises

Figure B48 presents that the majority of IS executives understood the business and its information needs to a low extent (48.5%).

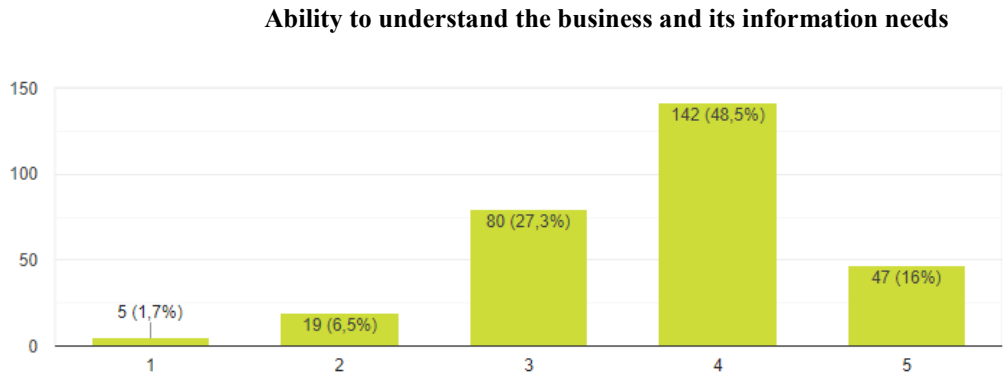

Figure B48. Ability to understand the business and its information needs

Figure B49 presents that the majority of IS executives had the flexibility to adapt to unanticipated changes to a low extent (43%).

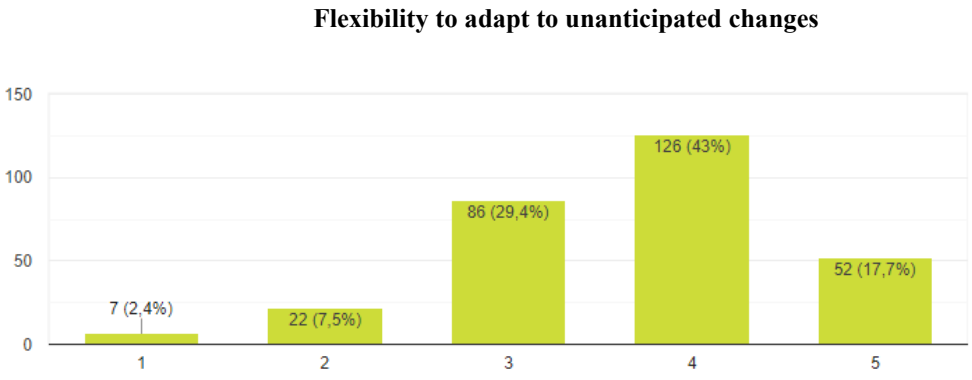

Figure B49. Flexibility to adapt to unanticipated changes

Figure B50 presents that the majority of IS executives had the ability to gain cooperation among user groups for IS plans to a low extent (44.4%).

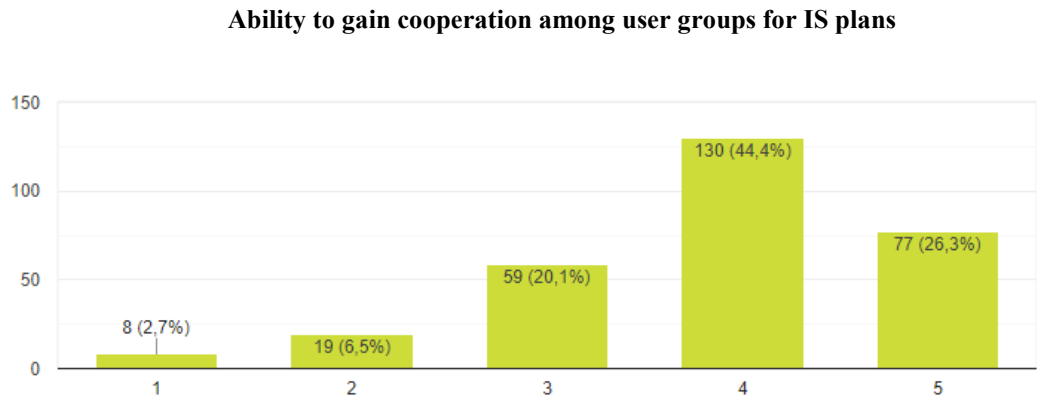

Figure B50. Ability to gain cooperation among user groups for IS plans

Performance

Figure B51 presents that firm's profitability was increased to a low extent (43%).

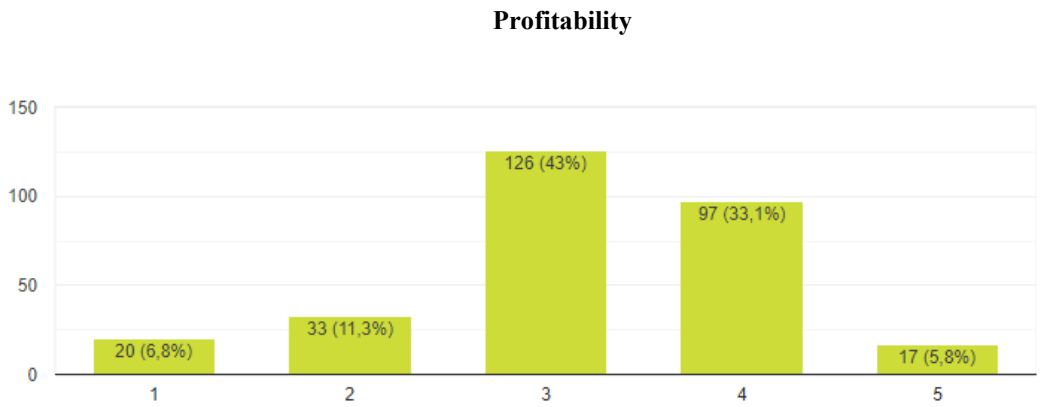

Figure B51. Profitability

Figure B52 presents that firm's sales were increased to a low extent (43.3%).

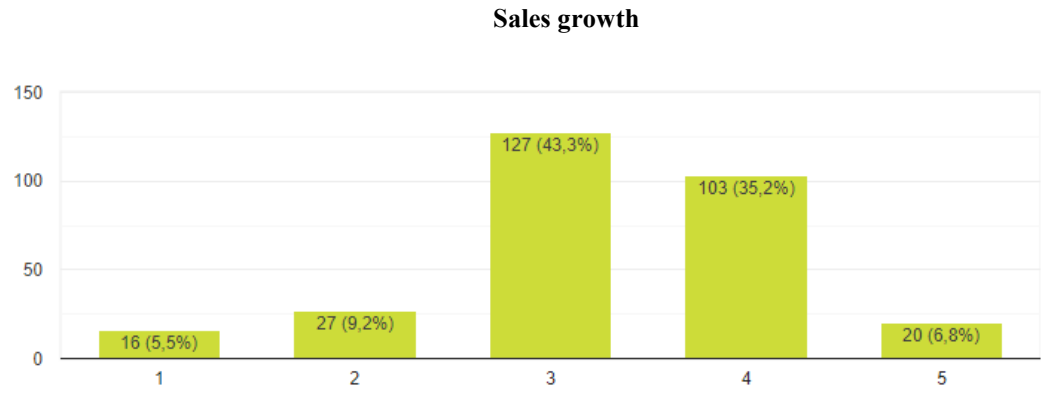

Figure B52. Sales growth

Figure B53 presents that firm's market share was increased to a low extent (45.1%).

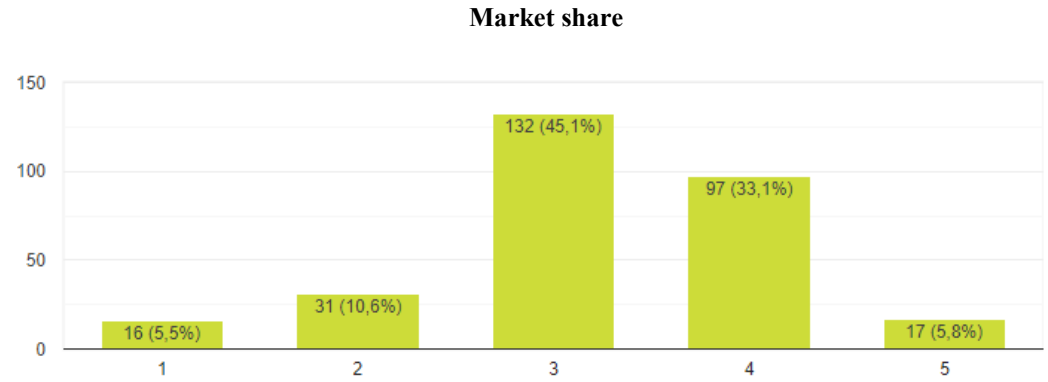

Figure B53. Market share

Figure B54 presents that flexibility in work was increased to a moderate extent (53.6%).

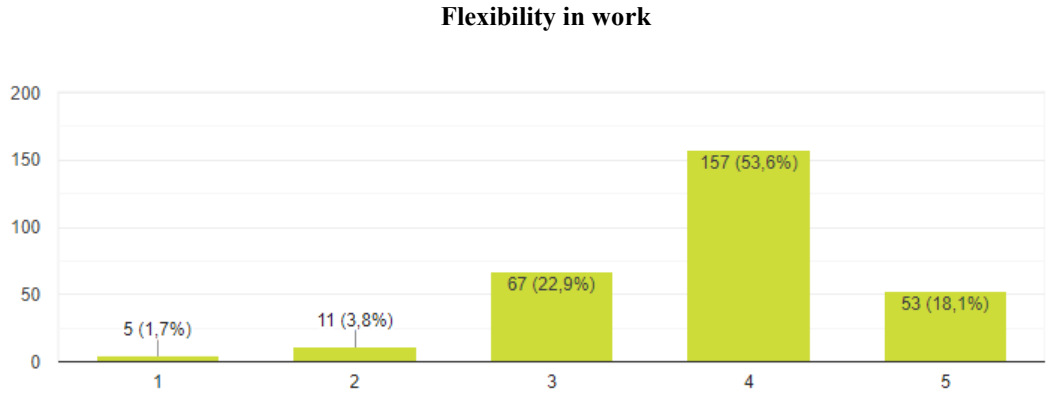

Figure B54. Flexibility in work

Figure B55 presents that opportunities for new ideas were increased to a low extent (48.1%).

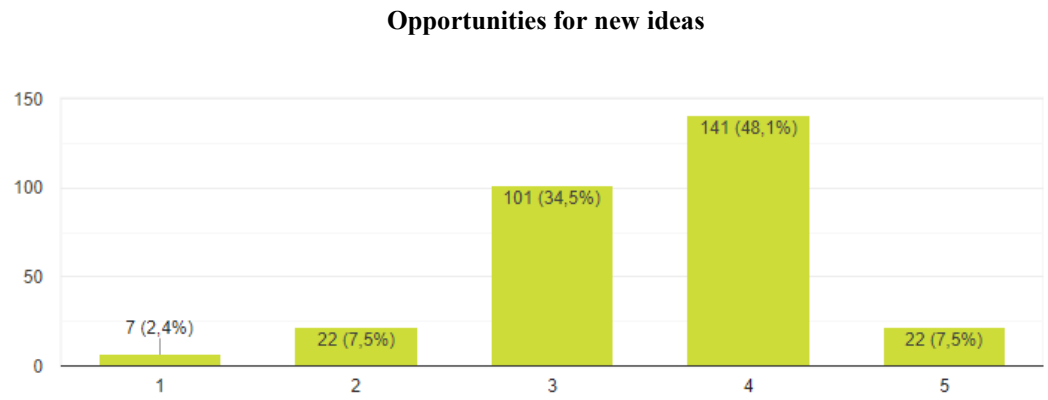

Figure B55. Opportunities for new ideas

Figure B56 presents that innovative new product development process was increased to a low extent (41.3%).

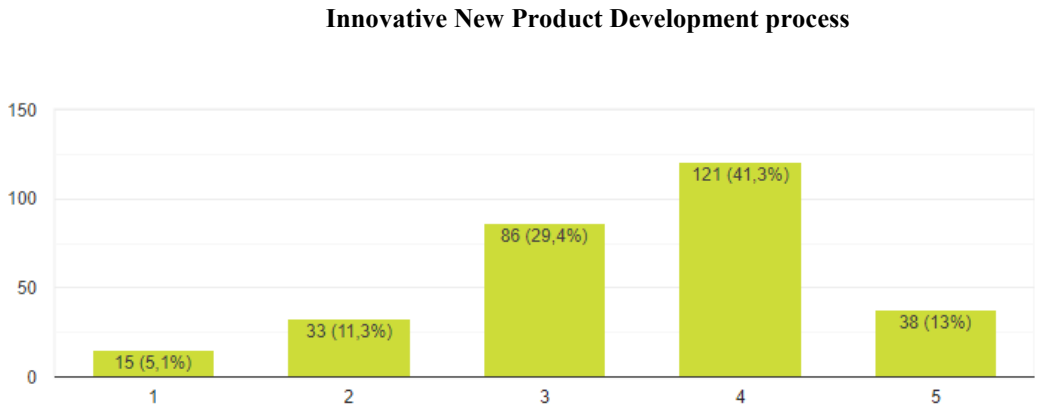

Figure B56. Innovative new product development process

Figure B57 presents that the level of customers' satisfaction was increased to a low extent (48.1%).

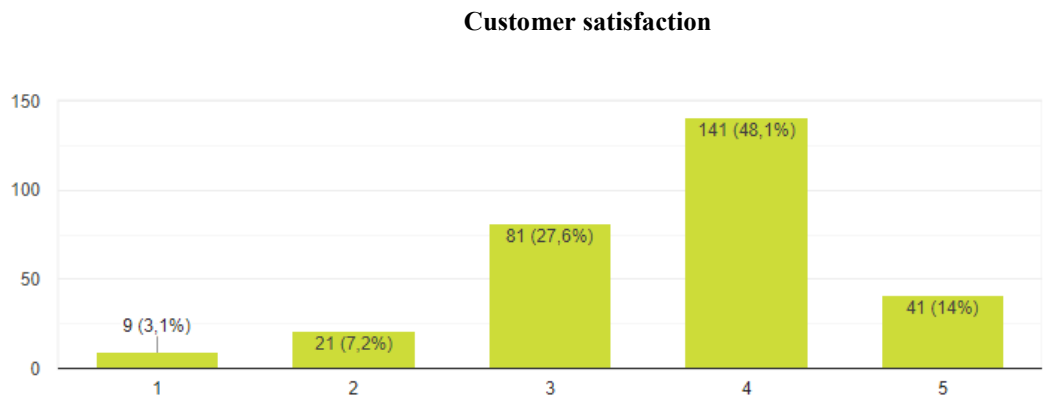

Figure B57. Customer satisfaction

IT executives' satisfaction

Figure B58 presents that the level of satisfaction with the increase of company's profitability was increased to a low extent (43.3%).

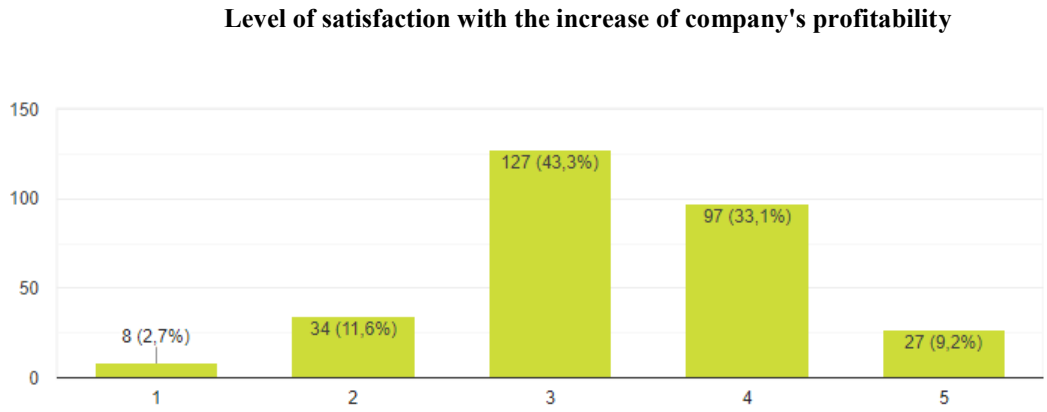

Figure B58. Level of satisfaction with the increase of company's profitability

Figure B59 presents that the level of satisfaction with the increase of company's sales was increased to a low extent (42.3%).

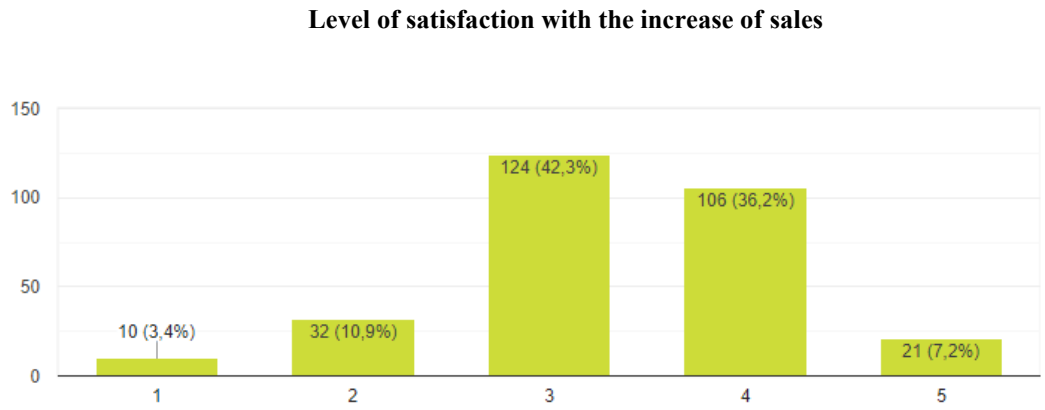

Figure B59. Level of satisfaction with the increase of sales

Figure B60 presents that the level of satisfaction with the increase of market share was increased to a low extent (46.1%).

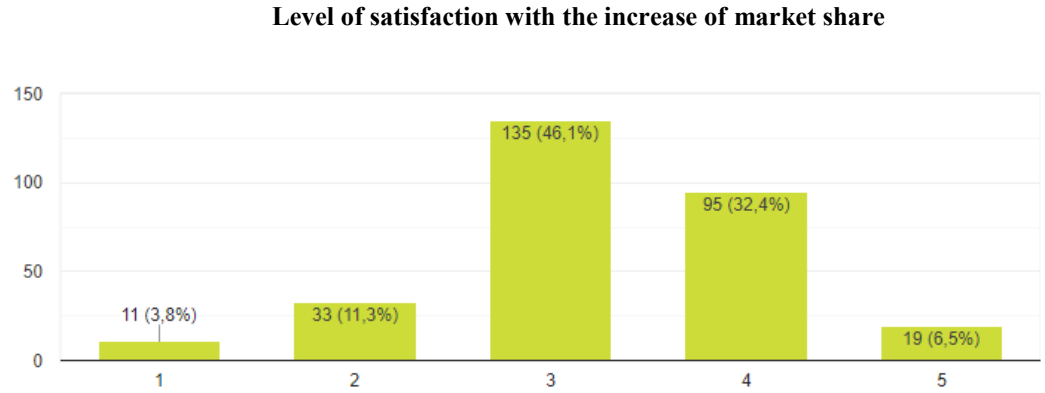

Figure B60. Level of satisfaction with the increase of market share

Figure B61 presents that the level of satisfaction with the increase of flexibility in work was increased to a moderate extent (53.6%).

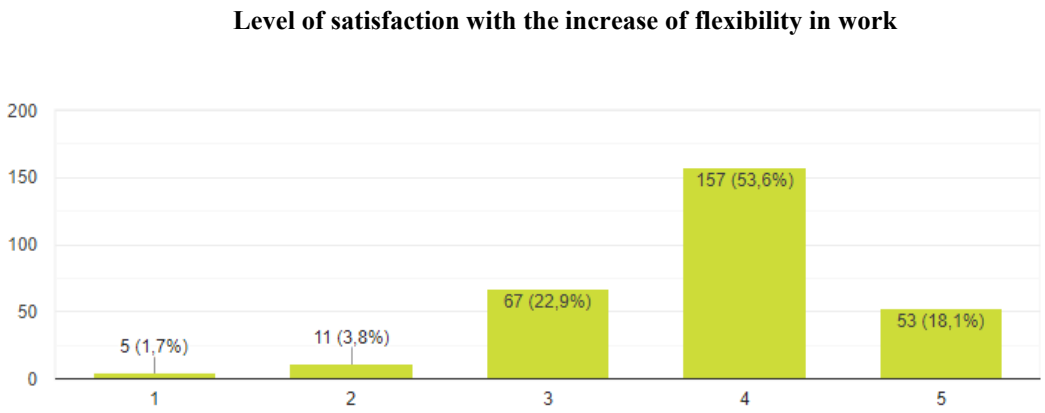

Figure B61. Level of satisfaction with the increase of flexibility in work

Figure B62 presents that the level of satisfaction with the increase of opportunities for new ideas was increased to a low extent (48.1%).

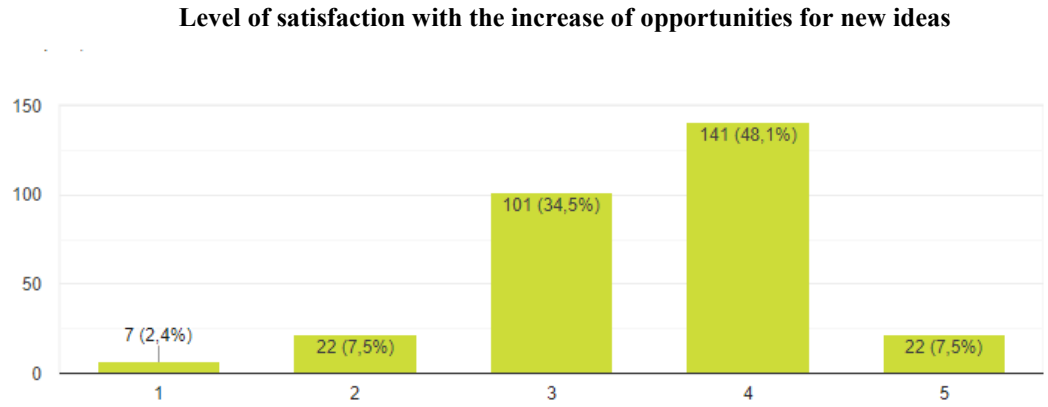

Figure B62. Level of satisfaction with the increase of opportunities for new ideas

Figure B63 presents that the level of satisfaction with the innovative new product development process was increased to a low extent (41.3%).

Level of satisfaction with the innovative new product development process

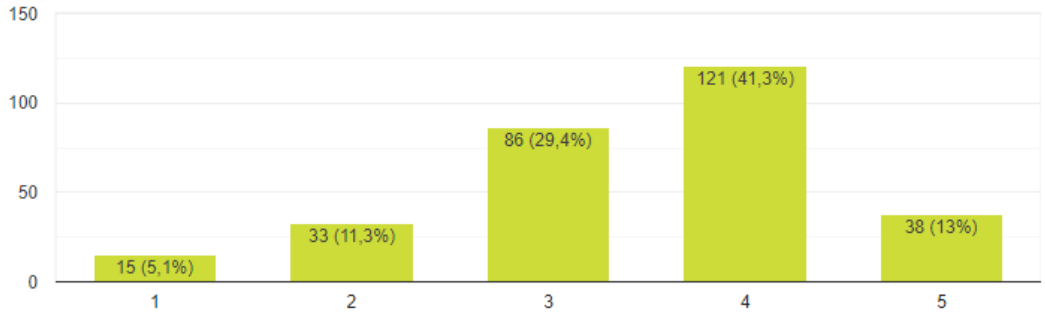

Figure B63. Level of satisfaction with innovative new product development process

Figure B64 presents that the level of IT executives' satisfaction with the increase of customers' satisfaction was increased to a low extent (43%).

Level of IT executives' satisfaction with the increase of customers' satisfaction

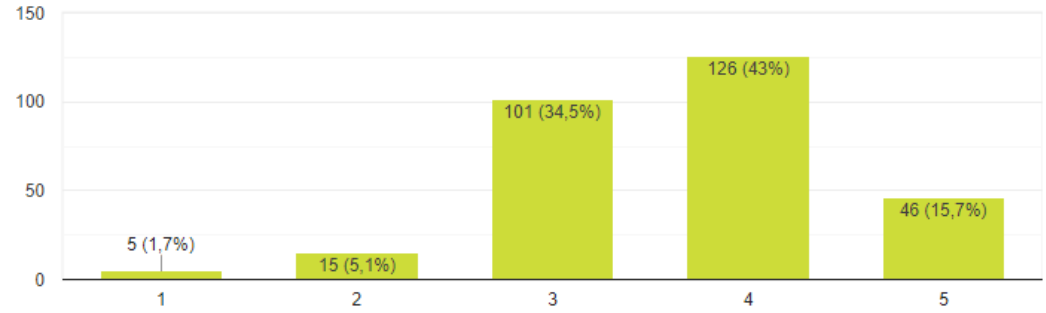

Figure B64. Level of IT executives' satisfaction with the increase of customers' satisfaction

Figure B65 presents that the level of IT executives' overall satisfaction was increased to a moderate extent (53.9%).

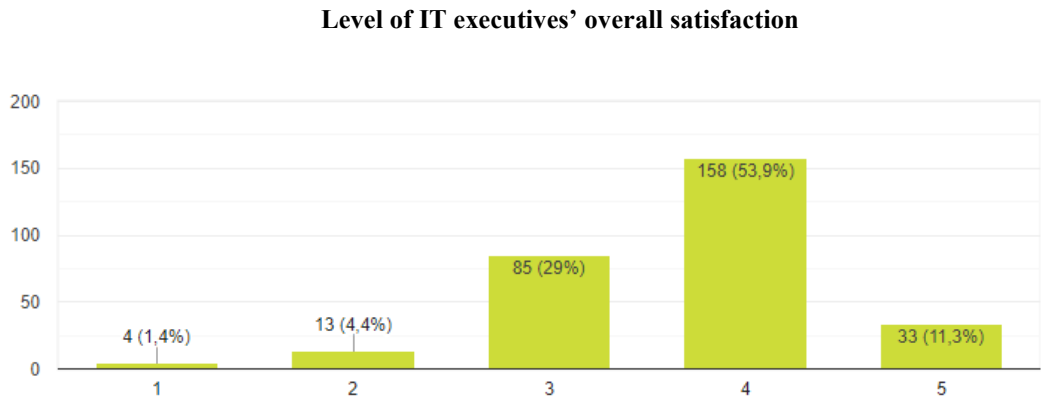

Figure B65. Level of IT executives' overall satisfaction