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The Role of Strategic Information Systems in Achieving Competitive Advantages in Palestinian Enterprises

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This thesis was submitted in partial fulfillment of the requirements for the Master's degree in Strategic Planning and Fundraising

July/2019

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Declaration

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Maha Hamayel

Acknowledgment

First and foremost, I am especially indebted to Dr. Khalid Rabayah, my supervisor, for taking the time to guide and limitlessly supporting me in providing me with valuable guidance in supervising this research. His patience, motivation, enthusiasm, and immense knowledge, and his guidance helped me throughout this research and writing this thesis. I could not have imagined having a better advisor and mentor.

I am particularly grateful to the business owners/managers who have shared with me their experiences. Without their participation, this research could not have been accomplished.

I would also like to thank many of the invisible people, friends, colleagues, and the many acquaintances from Arab American University who were always providing words of encouragement and help. Their contributions, regardless of how small, meant a lot to me in diverse ways.

I must express my gratitude to my best friends Saja and Safa, for the stimulating discussions, for the sleepless nights working together to meet deadlines, and for all the fun we have had in the last three years. Also, I thank my friends Laila and Salam who have always been a constant source of support and encouragement.

Last but not least, I must express my very profound gratitude to my small family, my darling mother, my dear sisters Haneen, Abeer, and Hiba, and my loving husband Tareq for providing me with unfailing support and continuous encouragement throughout my years of study, and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. They are the most important people in my world, and I dedicate this thesis to them. Thank you.

Abstract

Information systems (IS) are being widely used by enterprises of all sizes and types to develop and expand their activities and automate their operations proficiently, for the purpose of maximizing their profit and increasing their market share. However, little is known about how domestic Palestinian enterprises are using and utilizing IS, especially in the course of improving their business processes and enhancing their strategic position in contemporary times. The aim of this research is to analyze the role of strategic IS in achieving competitive advantages for Palestinian enterprises. A sample of 103 enterprises participated in the study via filling up a questionnaire which consisted of 12 paragraphs related to the use and utilization of IS.

The data analysis results showed that Palestinian enterprises participated in the study maintained high level of IS adoption and utilization. About 86% of the sample does endorse all technical solutions included in the study. The study also reported that enterprises do have high level of IS usage and utilization in the major core business processes practiced by enterprises. An average utilization level of 80% is recorded for the sample. The data analysis results showed that information system do have significant impact on all listed business core processes including; innovation and creativity, operation effectiveness, operation cost, information quality, communication and information exchange, eexpandability, employees' effectiveness, facilitation of decision making and achieving of strategic goals. A regression model was also built out of the collected data, to see which of the included impact of IS are significant in influencing achieving the strategic goals of the enterprise, three were found to impact the role of IS in achieving the strategic goals of the enterprise. These are expandability of the enterprise, human resources effectiveness, and information quality.

Results can benefit enterprises in various sectors to enhance their adoption strategies of IS. Also, the results will increase the level of awareness of the importance of using information system in various kinds of business operations. Finally, this study will help future studies especially within Palestine context to make further studies on strategic information system and research competitive advantages or other advantages in various fields.

Keywords: Strategic Information system, Competitive advantages, Enterprise performance, Strategic management.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Abbreviations	
IS	Information System
IT	Information Technology
SIS	Strategic information systems
MIS	Management information systems

Chapter 1: Introduction

1.1 Overview

Considering the ever-changing global economy, enterprises are facing an increasing number of challenges such as globalization, privatization, tough competition, and a growing demand from consumers, incorporated with fast-paced technological advancements. Referring to these challenges, management within enterprises needs to realize that information systems (IS) or information technologies (IT) are not simply methods to run and maintain daily tasks and operations for enterprises. Management needs also to come to the realization that wisely utilizing technological systems can, to a great extent, alter a company's long-term strategic position in national, regional, and global markets. As a result, it is becoming more and more important that management establishes new and unique tactics, as well as adjusting the hierarchical structure of a company for planning and strategic decision-making in the long-term in contrast to functional decision-making. Thus, if a company wants to remain prosperous, then management should take into consideration information systems as a mechanism used to gain competitive advantage to overpower their stronger competitors. Therefore, IS that allows companies to gain competitive advantages are often referred to as strategic information systems (SIS). (Maharaj & Brown, 2015).

SIS can be defined as an information technological system that establishes or boosts a company's competitive advantage, or one that alters the structure of the industry the company operates in by essentially modifying how business is carried out. Alshubaily and Altameem (2017) state that any type of information system assists a company in achieving competitive advantage, decreases a company's competitive disadvantages, and satisfies the company's other main objectives.

Accordingly, any information system that is capable of modifying a company's goals, processes, products, or strategic networks to assist the company in realizing a competitive advantage or to diminish a disadvantage is considered a SIS. (Alshubaily & Altameem, 2017)

To be able to manage IS, it is imperative that a suitable strategy be determined that clearly outlines the systems and offers a means of managing them. SIS is one such effective method of developing and sustaining IS that reinforce the operations of a company as a whole. With SIS, management can be assured that the new systems are established in a way that will help a company achieve its strategic objectives (Issa-Salwe & Aloufi, 2011).

1.2 Background and Context

Achieving competitive advantage is critical for enterprises as it occurs when it is capable of generating more economic value than other competing enterprises (Barney and Hesterly, 2011). Being familiar with the level of competition in the market as well as with the industry forces, can help formulate a suitable business strategy in order to obtain sustainable competitive advantage. The process of creating a strategic plan is associated with the strategic management process as a technique to achieve the goals and aims of an enterprise in order to attain the missions and visions to sustain a competitive advantage.

An enterprise's information systems and information technology may be motivated by the business strategy of an enterprise to fulfill a business-orientated demand and be able to provide new products or services to acquire a reasonable competitive advantage (Altamony, Masa'deh, 2012).

Nowadays, information systems are generally regarded as a fundamental tool for improving the competitiveness of the economy. It has been agreed upon that IS has a major effect on the

profitability and strategic positioning of an enterprise that enables high performance achievement and substantial productivity in our current era with many challenges resulting from rapid and continuous changes in scientific and technological developments. Faced with these challenges, an efficient strategic planning process is needed to improve and develop the performance of the enterprise. Furthermore, it is an urgent necessity if an enterprise wants to increase its competitiveness and enhance its performance to ensure it has secured its access to customers in the age of technological breakthroughs, and has provided fast and advanced information services, (Drnevich and Croson, 2013).

Strategic management is sort of a special kind of administrative action in managing the long-term improvement and development of an enterprise. Subsequently, strategic management has particular data requirements and utilization of different kind of data processing techniques different from those used in operational and central-level administration forms. Strategic managment is also essential to address the challenges, and needed to achieve the enterprise mission and goals (Drnevich and Croson, 2013).

Today, enterprises face many challenges that require them to have a strategic approach in their work that sets the visions and prospects to be able to achieve their objectives, and thus ensure their survival and continuity in a changing and complex environment. Ali, Green, and Parent (2009) assert that information technology matters to the business achievement, since it directly influences the operations through which they make and realize an incentive to gain a benefit. Hence, information systems are considered essential for an enterprise's business-level strategy (Drnevich and Croson, 2013).

Based on the importance of information systems as well as the effects of their use on strategic planning and management to create strategic information systems in the enterprise attempt to achieve a competitive advantage, we need to explore how enterprises are affected by information systems and how it is been used by local Palestinian businesses, at the same time trying to assess how IS contributes to the performance of enterprises, within the Palestinian context.

1.3 Problem Statement

The potential impact of strategic information systems on an enterprise is numerous, rendering it difficult to evaluate its present and future implications. Moreover, the utilization of digital technologies has led to real changes to the concepts of administration and management. For example, global competition has affected all economic, social, and administrative aspects of life, resulting from the rapid spread of technological developments, especially in regards to information and communication technology. Thus, it is very important to focus on strategic information systems that will achieve competitive advantages for enterprises. One of the effective tools to achieve a strategic position through strategic management is through the use of information systems.

Many researchers have analyzed the role of strategic information systems in achieving a strategic position within the marketplace, therefore, achieving a competitive advantage for the enterprise. Concerning Palestine, however, there are very few studies that examine strategic information systems, where only a small number of these studies discuss the role of achieving competitive advantages through strategic information systems.

Therefore, this study will attempt to fill the gap other studies have not explored, particularly within the Palestinian context with a particular focus on Palestinian enterprises, their competitive advantages, and how information systems have affected each enterprise.

1.4 Objectives of the Study

The general objective of this study is to analyze the role strategic information systems play in achieving strategic competitive advantages in Palestinian enterprises. Specific objectives of this study include:

i. To review the competitive advantages which IS applications are able to provide for enterprises, which advantages are actually achieved, and what prevents enterprises from realizing other benefits of IS.
ii. To examine the usage of IS in Palestinian enterprises.
iii. To analyze IS infrastructure within Palestinian enterprises.
iv. To study the impact IS having on the following competitive advantages of an enterprise: innovation, decision-making, operation efficiency, information quality, operation costs, efficiency of employees, enterprise expansion, efficiency of human resources, communication and data transformation, and achieving the strategic aims for the enterprise.
v. To determine the relationships between different competitive advantages and whether they impact each other.

This study will also answer the following research questions regarding the effect of information systems on achieving competitive advantages for Palestinian enterprises:

1. Do Information systems positively affect enterprise innovation and creativity?

2. Do information systems improve the process of and outcome from decision-making?
3. Do information systems have a moderate influence on the quality of information?
4. Do information systems have a moderate influence on operational quality?
5. Is information systems positively associated to the efficiency of the enterprise's employees?
6. Do information systems improve the cost effectiveness of the enterprise?
7. Is there a significant relationship between information systems and business expansion?
8. Do information systems have a significant impact on the efficiency of human resources and their sources in the enterprise?
9. Do information systems positively affect the efficiency of communication and data transfer in the enterprise?
10. Is establishing short and long-term business goals require an effective use of information systems?

It is expected that this research will be a significant addition to the literature, both for researchers and practitioners, who are interested in the subject matter.

1.5 Significant of the study

This study will contribute to the body of knowledge on the issue of the role of strategic information systems in achieving competitive advantages for enterprises on the theoretical and practical levels.

Regarding the theoretical level, this study will attempt to determine which of the potentials or standard benefits of information systems on competitive advantages are achieved within Palestinian enterprises, which are not affected by information systems, and what competitive

advantages are not achieved. This study will also try to explore what competitive advantages affect the achievement of strategic goals by an enterprise. A model has been developed for this study which can be used to understand and explore the role strategic information systems play and how they impact the competitive advantages of an enterprise to achieve its strategic position.

On the practical level, the study will help business managers and owners understand the inter-relationships between information systems and competitive advantage. It will also help businesses achieve competitive advantages via implementation and usage of information systems in their businesses and management operations.

1.6 Scope and Limitations of Study

This research will examine the role of strategic information systems in achieving competitive advantage in Palestinian enterprises; however, only enterprises within the West Bank. Hence, the findings and results from this research may not necessarily be applicable to enterprises in other countries.

1.7 Thesis Structure

The remainder of this thesis is organized into seven chapters as shown in Figure 1 below:

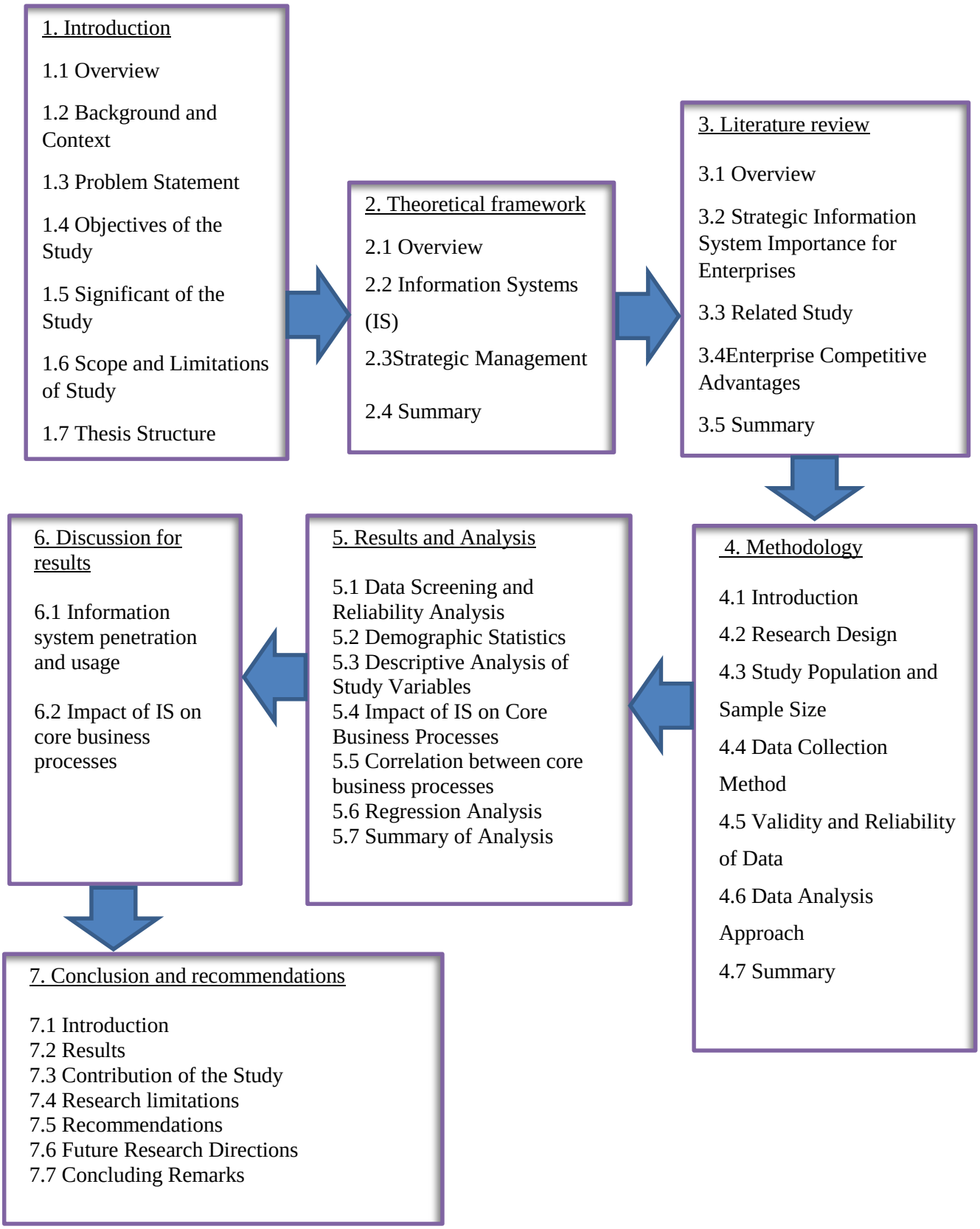

Figure 1: Thesis Structure

Chapter 2: Theoretical Framework

2.1 Overview

This chapter discusses four main themes. The first theme reviews information systems and information technology. The terms information systems (IS) and information technology (IT) are often used interchangeably. Although both of these domains deal with computers, they have different characteristics and specific career paths. This section also clarifies the features and employment of information systems, and then goes on to review the relationship between information systems and management. Moreover, this chapter illustrates the different ways information systems affect each enterprise, as well as the strategic role of information systems, and finally, the success and failures of information systems. The second theme reviews strategic management in comparison with management, and also in comparison with strategic planning. It then proceeds to provide a historical overview of strategic management. It also discusses the role of strategic management in creating competitive advantages. The third theme relates to the role of information systems in strategic management. The last theme discusses the competitive advantages of enterprises.

2.2 Information Systems (IS)

Most enterprises today are seeking for new dimensions to use information technology and information systems. The new dimensions are focusing on the use of IS and IT which has become a strategic and competitive weapon; they are impacting how the enterprises think and perform, run their business functions, and link their business operations through their own effective means (Bobb & Harris, 2011).

Information is essential to enterprises operating in all sectors. Information can be delivered at the right time to the right people, thus enabling the right decisions to be made quickly and easily.

Before the age of information technology, enterprises used to rely on past information and their own experiences due to the limited and lengthy process of information gathering. In the present day, information systems and technology are now used by management to improve their operations and to become more efficient and effective in managing the day-to-day activities of an enterprise in a more strategic way using information system components as shown in figure 2. (Sevrani, Kordha, & Gorica, 2011).

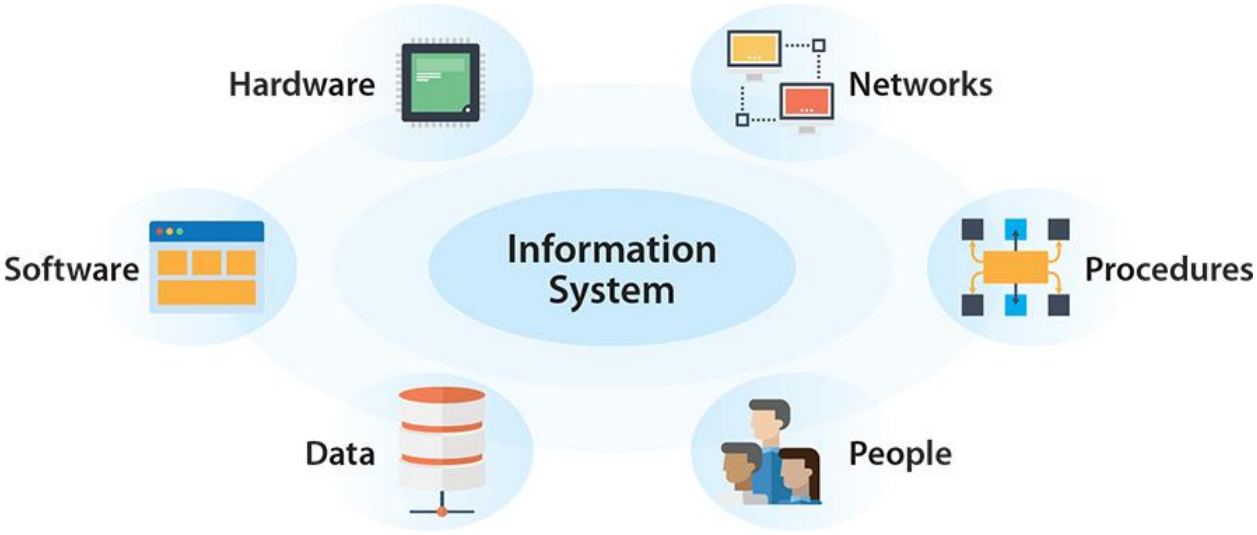

Figure 2: Information system components "https://www.iacademy.com/lesson/business-information-management/1630"

2.2.1 Information Technology vs Information Systems

There are several views regarding the definition of information Systems. Boell and Cecez-Kecmanovic (2015) identified four different views in which information systems are distinguished by: a view from a technological perspective that stresses the technological facet; a view from a social perspective stressing the sociocultural feature; a view from a socio-technical

perspective stressing the interrelationships between technology and social features, and a view from a process perspective stressing the activity orientation of information systems.

Based on the definition from a technology perspective, it is where information systems employ computer hardware and software; manual operations; prototypes for analysis, planning, control and decision-making; and a database. In the social view, an information system is regarded as a social system which has incorporated information technology. The role of IT in IS is quickly increasing. However, this incorporation does not inhibit IS from being a social system, as it is also impossible to actually design a vigorous, practical IS, while integrating substantial amounts of IT without treating the information system as a social system. Regarding the socio-technical perspective, the field of IS not only evaluates the IT system or the social system, but, also examines the situation that develops when the two systems come into contact. For the process perspective, an information system is a functional system whose operations and activities are dedicated to handling data; in other words, it deals with the following processes: collecting, transferring, preserving, recovering, controlling, and demonstrating information (Boell & Cecez-Kecmanovic, 2015).

Sabherwal and Chan (2001) state that an information system is exhibited through a structure that evaluates the extent to which the system is utilized to back the operations of a business that emphasizes productivity, and coherence, in addition to the internal and external operations of the business, the future of the business, risk avoidance, and innovativeness of the business. This definition has focused on the IT system with regards to business activity of the enterprise. Meanwhile, Palmer and Markus (2000) claim that information systems used in the retail business is dependent upon information technology employed in sustaining long-term customer-supplier relationship, ensuring a smooth business transaction, and upholding customer service. This

definition is not correlated with retail-specific measures of enterprise performance. Bergeron, Raymond, and Rivard (2004) assert that the processing of information in regards to decision-making and uncertainty by an enterprise has been utilized as a basis for an enhanced understanding of the extent of fit between strategy and structure. Strategic change warrants the demand for additional information and a considerable amount of effort to gather, interpret, and a combination of the two, thus leading to a change in structure, thereby improving the competitive advantage of an organization. This alignment is positively related to the performance of an enterprise.

Information technology (IT) can be perceived as a distinctive asset in an enterprise that originated towards the end of the 20th and early 21st centuries. As per Grant (2016), IT-based assets can be distinguished as: tangible assets that involve the physical segments of an IT framework; human IT assets that include specialized and administrative IT abilities of individuals; and intangible IT asset which include information resources, synergy, and customer orientation.

Information technology increases an enterprise's ability to manage its activities locally, nationally, and globally. First, it can power an enterprise enabling it to spread its business operations to a wider geographic scope, thereby creating a competitive advantage for the enterprise. Second, information technology can also establish new dimensions and lines of new business products and services for newly-established businesses by forming derived demand for new products or services that are complementary to older products or services.

The management of information technology is no longer the main task of the data processing department. Furthermore, enterprises must utilize information technology with a modern

comprehension of the requirements for creating competitive advantage. Enterprises need to distribute the responsibilities for systems development to more generally match the enterprise. In the meantime, general administrators must be incorporated into the process to guarantee that cross-utilitarian linkages, which are more conceivable to realize information technology, are exploited. This does not mean that a central information-technology function should play an unimportant role. As opposed to controlling information technology, however, an information system administrator should facilitate the style and principles of the numerous applications throughout the whole enterprise, in addition to providing assistance and training in framework improvement. Except in the case that the various uses of information technology within an enterprise are compatible with one another, numerous advantages may be unrecoverable (Porter & Millar, 1985).

2.2.2 Features and Employment of Information Systems

The use of information systems has become one of the most indispensable elements to improve the efficiency of the functions of an enterprise. It offers great opportunities to facilitate their strategic contributions and development to value-added services instead of focusing on daily and routine tasks/operations (Adeoti-Adekeye, 1997).

The concept of information systems includes all the tools and techniques used by information systems to carry out various types of computer activities and applications, including computer hardware, computer software and computer programs. Today, it is considered to be the most important strategic resource for the enterprise, as it is an essential source of excellence and its superiority over competitors, as well as a true source of establishing value. This is why it has become increasingly important to incorporate with the functions of the enterprise to ensure the survival and continuity of the enterprise. (Sambamurthy, Bharadwaj, & Grover, 2003).

As per the above, the functions of the enterprise have been found to play an important role in IT. Especially with regards to the future of the enterprise by which information systems achieve the strategic objectives, and by making enabling sound decisions be made when implementing the business operations. (Sambamurthy, Bharadwaj, & Grover, 2003).

2.2.3 Relationship between IS and Management Information Systems

Management information systems (MIS) is a collection of sub-structures that are interconnected and interact in a way that achieves a unified goal, which is to process information systems into the data required by an enterprise with utmost precision while implementing its business operations. Furthermore, it is defined as a system that employs methods to ensure that all management are provided with the appropriate updated information needed from both, internal and external sources, which would facilitate information throughout all the departments and would enable management to make timely and effective decisions regarding planning, directing and controlling the activities of the enterprise (Argyris, 1991).

The value of any data or information results from the activities that management arranges because of the utilization of that data. Afterwards, data specialists need to recognize the types of functions and capacities which management is required to perform with the goal that they can deliver valuable and usable data. The elements of management can be categorized into five areas: planning; basic management; enterprise and co-coordinating; authority and inspiration; and control. Clearly, the importance given to every area varies from manager to manager and is particularly subject to the level of the director in the enterprise. There are clear contrasts in data requirements between managers at the operational level or transactional level (Harsh, 2005).

2.2.4 Information Systems and Changes in Enterprise

The success of an information system can be realized by measuring its effects on results. The aims of MIS should be to achieve an improvement in the enterprise's financial performance. Using financial performance as an indicator of the success or failure of an IS has various advantages. On the one hand, performance measurement is critical to the success of the enterprise because it creates understanding, shapes behavior, and improves competitiveness (Almazan, Tovar, & Quintero, 2017).

The information system of an enterprise shows both the human and physical means that are responsible for handling an enterprise's information, playing a significant role and being the reason for possessing a competitive advantage. Data systems utilize computer hardware, databases, programming, methods, examination models, and basic management regulatory procedures. Usually, information systems are designed within each functional area to help and increment their productivity and operational viability (Almazán, Tovar, & Quintero, 2017).

At present, enterprises are committed to associate with each other and to enterprises operating in different sectors so as to allow enterprises the chance to expand their customer base, share the costs of performing certain tasks, and may have more access to market strategies, among others. In this way, the requirement for investing in information systems is a non-arguable fact, yet its high cost involves the interest of the enterprise in having an effective usage and partnering with institutional targets. Nevertheless, research has shown that a sole investment in information systems and in new administration devices does not ensure the advantageous results on an enterprise (Adebisi, 2016).

The quality of data is the most vital point of reference for client fulfillment and for the utility of the information system, given that clients believe the accessibility and precision of the data to be a key component for the successful execution of a framework, trailed by the nature of the framework, and the services provided. However, by thinking about the three components, which are the quality of the service, information, and systems, the impact of those components on fulfillment and the utility of users can be considered to be between significant and direct, which permits management to come to the conclusion that more help for the benefit of management for the measurements of the nature of the IS, could add to a superior individual implementation (Adebisi, 2016).

This creates proposals for the designers of the framework that need to address the necessities of the end users and fully utilize the fulfillment, security, accessibility, speed, and accuracy of the data to expand clients' needs, however, uniquely to enhance the intention of use of the system.

2.2.5 Strategic Role of IS

Planning and decision-making have properly been known as the essential responsibilities of management and these responsibilities occur at each level of management, and normally the kind of planning and basic management will change between each level of management. Planning is the way towards choosing ahead of time what could possibly be done and how it is to be completed. The planning procedure brings with plans which are predetermined courses that reflect hierarchical destinations, and these plans are actualized by choices and activities. Accordingly, viable planning and basic management are inseparably linked, for without choices and activities, the planning procedure is a sterile exercise (Adeoti-Adekeye, 1997).

The Information systems help enterprises at being strategic. So that an enterprise is:

I. Clear about its goals because the information system has delivered precise and directive information about the tasks and their purpose.

II. Aware of the existing resources to follow the indicated goals and objectives.

III. Conscious of matters and can respond to the dynamic environment. The strategic roles of IS can be classified into:

i. Strategic Management

ii. Strategic planning

iii. Strategic operations.

2.2.6 Success and Failure of IS

Research into the successes and failures of information systems have been undertaken by many prominent researchers. The overall advancement of information systems (IS) is to always be capable. Nevertheless, research on information systems has found that they are not always effective. The failure rate has been found to be high, while other research has found IS to fulfill the expectations of the enterprise. Generally, the success of an information system is only a hypothesis that seeks to provide an explanation of the accomplishments of an IS by recognizing, portraying, and clarifying the connections among the most basic measurements of progress along which IS are ordinarily assessed. Information systems in enterprises offer many examples of an IS's successful implementation that provides benefits for the enterprise and its employees, including enhancing the performance and profitability of the enterprise. However, several examples of the failure of IS have been illustrated which have caused negative outcomes for the enterprise in terms of financial debt and other risks. Some of the factors for the failures are because of the information system's need to improve its awareness concepts and sensibilities (Dwivedi et al, 2015).

The assessment of an information system’s achievement ought to be conducted from both, a small and full-scale view, to generate a total outline as an analysis unit for the enterprise. In this way, the achievements of an IS ought to be considered in the multi-level (e.g., employees, groups, enterprises). Information systems regularly acknowledge that information technology (IT) has turned into a tool in which to deliver exact, dependable and timely information through the development of an IS. For an IS to be judged successfully, however, it needs to fulfill extra criteria at the current moment. For instance, at an expansive level, it is normal that it turns into a key segment in accomplishing the enterprise's main goal and more specifically, improve efficiency and encourage value transmission. Indeed, even some examination of the literature on IS reveals that enterprises have used various replacement measures for the achievement and successes of information systems (Nguyen, Nguyen, & Cao, 2015).

What is likewise apparent is that studies on the success of information systems are implemented on private sector organizations, while analyses on public sector organizations have somewhat been ignored. In general, the conclusion can be made that there are very few studies looking into how to realize an information system’s success within a public organization. However, information systems are crucial in boosting the effectiveness and efficiency in the transfer of public services, administering vital information necessary in making decisions that might impact the population, as well as the devising of public policy. The increase of public investment in information technologies indicates the prospect for enhancing organizations operating in the public sector (Elpez & Fink, 2006).

2.3 Strategic Management

2.3.1 Management vs. Strategic Management

From a theoretical and practical perspective, strategy is directly linked to business and corporate management. The field of strategic management is a fairly new subject that does not have a consolidated theory endorsing its growing application. The term strategic management is certainly challenging to explain as the term strategy is. Strategic management was first coined as strategy management at the beginning of the 1980s. It was later rearticulated as strategic management and was defined as a mechanism that is associated with entrepreneurship, particularly with the improvement and development of a business, in addition to the renewal and employment of strategy, which serves as a guide to a business's operations. The field of strategic management has swiftly grown over the past few decades. Predominantly, the emphasis of strategic management has quickly shifted from the primary 'financial budgeting' during the late 1950s, in the direction of globalization and the evolving business at the present moment (Jofre, 2011).

Strategic management is a process that is assigned the challenging task of what to do, how to do it, where to do it, when to do it, and for whom to do it. On the other hand, strategic management is a continuous technique that includes formulating methodologies to accomplish the objectives and targets, in view of the observed results through management information systems. Management information systems are essentially concerned with the way applicable data is gathered, handled, and transmitted to help manage the activities of an enterprise. In this way, the accomplishment of basic management, which is the core commanding process, is mostly very reliant on available data and somewhat on the capacities of parts of the procedure. Regardless of the numerous researches that have been conducted on the topic of the key basic management

systems, yet, what is actually known about the vital basic management processes and the factors influencing it is very minimal.

2.3.2 Strategic Planning vs. Strategic Management

Strategy has received considerable attention in the management literature. There is currently vast research on the concept of strategy, as is the literature on strategic management. An enterprise needs a general characterized view of its central goal, and a unique location that is suitable to its current situation, including the degree to which it is developing and in which direction. Such a view of the missions characterizes the enterprise's procedures. An enterprise, likewise, needs a way to deal with administration itself that will bridle the interior energies of the enterprise to the acknowledgment of its main goal and mission.

The planning strategy can be implemented in a steady and predictable condition. Researchers contend that such situations are winding up progressively, that certain situations make the planning phase redundant, is covered by the conventions of planning and the rules of correspondence. Furthermore, those who are not engaged in the planning of the business strategy are never dedicated to its implementation. The second approach underscores the speed of response and adaptability to empower the enterprise to work best in a domain that is quickly changing and basically operating in an unpredictable environment.

Management is characterized by its function as those activities that serve to guarantee the essential objectives of the enterprise, as set by the strategy, are accomplished, and as a gathering of senior workers in charge of executing this capacity. This study has defined vital administration as all that is important to position the enterprise in a way that will guarantee its long survival in an unstable situation. A strategy is an enterprise's method of indicating how it generates exceptional value, and hence, pulls in the custom that is its backbone. To comprehend

the strategy of a specific enterprise, one must comprehend, unless one is in an entrepreneurial phase, the factors that have made the enterprise what it is today (Athapaththu, 2016).

2.3.3 Strategic Management: A Historical Overview

Historically, perspectives of strategy fall into two categories. There are the individuals who compare strategy with planning. As indicated by this viewpoint, data is accumulated, filtered and broken down, assumptions are made, and senior supervisors ponder about what the best course for the enterprise is. This is the best known way to deal with systems. Other researchers have a less organized perspective of procedures as being more about the procedures of administration. As indicated by this second point of view, the key vital issue is to set up an arrangement of administration that will encourage the ability of the enterprise to react to a domain that is basically mysterious, unpredictable, and, along these lines, not manageable to a planning approach. The particular view is that great strategic management really incorporates components of every point of view. There is no best ideal method for strategy.

2.3.4 Strategic Management's Role in Creating Competitive Advantage

As an enterprise strives in the modern era to gain financial success, several enterprises have realized that the global economy has made their missions and tasks more challenging than ever before. Presently, successful managers are familiar with the significance of generating a business culture that establishes trust, regards employees as respectable associates, and supplies all employees with the necessary tools that will allow them to continuously develop their skills. Enterprises achieve a competitive advantage when they offer different types of a service or product that meets clients' needs at lower prices, and is not provided by competitors (Caldwell & Anderson, 2017).

Strategic management strives to achieve high performance for enterprises. Numerous enterprises can manage short-term and long-term tasks with high performance, however, only a select few are able to support the business over a more extended timeframe. To be effective over the long-term, enterprises must not exclusively have the capacity to execute current operations to fulfill a current market; instead, they should adjust those operations to satisfy new and evolving markets and consumer demands. Previous researches uncovered that enterprises that participate in strategic management outperform those businesses that do not employ MIS. The fulfillment of a suitable match, or ‘fit’, between an enterprise's domain and its methodology, structure, and procedures positively affect the enterprise's implementation policies. A survey of nearly 50 corporations in a variety of countries and industries found that the three most highly rated benefits of strategic management are (Caldwell & Anderson, 2017):

- Clearer feelings of strategic vision for the institution.
- Sharper focus on what is strategically-critical.
- Improved comprehension of a quickly-evolving condition.

Therefore, strategic management with its process in launching and achieving an enterprise’s goals will enable an enterprise to initiate new opportunities and to utilize unique resources in order to differentiate the enterprise from its competitors by meeting the needs of customers. This will be the start of achieving a competitive advantage for an enterprise, innovate new products and services, and generate good decision-making processes to perform operations in an efficient and effective manner.

2.4 Summary

In summary, as previously noted, information systems (IS) are essentially involved with the way data is gathered, handled, and transferred to help operate activities in an enterprise. Within these lines, when you build your choices with respect to information accessible through management information systems, they reflect data that initiates from the activities of your enterprise.

Management information systems take information produced at the employed level and arrange it into helpful forms for the enterprise. Management of information in a strategic way regularly contains figures, costs, ventures and workforce information. In the event that a manager must know how much benefit his/her enterprise has made every year for the last five years to come to a specific decision, strategic management is able to provide such exact reports with that data. Strategic management in this way is utilized throughout all levels in an enterprise (Dimitrios, Sakas, & Vlachos, 2013).

Chapter 3: Literature Review

3.1 Overview

Information systems (IS) includes many types of information technologies, such as personal computers, software development, databases, the Internet, cell phones, communication systems and many more, to achieve particular responsibilities, communicate with and notify different characters in different enterprises or social contexts. Generally, the information system field is the main part of the development, utilization, implementation effect, and impact on enterprises and society. However, the information system field does not only involve technological and computational parts of information technology. What is more important for information systems is rather the means by which it is assigned and allocated what enables enterprises to fulfill several actors, such as individuals or enterprises with information requirements in regards to particular goals and performances of the enterprises (Boell & Cecez-Kecmanovic, 2015).

3.2 Strategic Information System Importance for Enterprises

The idea of strategic information systems (SIS) was presented without precedent for the field of information systems in the mid-1980s by Dr. Charles Wiseman (Liang & Tang, 1992). The strategic information systems have been set up as a center action in the administration and administration of information technology in enterprises. Besides, they have turned into an exceptionally difficult subject for researchers and professionals in the ongoing years (Al-Aboud, 2011; Maharaj & Brown, 2015). Vital information systems are basic to enable enterprises to prevail in the presently highly-focused worldwide business conditions, so in his study the focus will be on competitive advantages of IS in business.

Information systems are being used widely in many enterprises to develop and expand their activities and automate their operations efficiently. It is known that the main objective for enterprises is to maximize their profit and market share. To accomplish this goal, enterprises have to be responsive to changes in the environment, specifically to the revolution in information systems. Previous research has showed that the adoptions of information systems has increased enterprise performance and achieve their goals effectively. It is essential to adopt and implement information systems in order to gain competitive advantages and to survive in the market with this advancement in the products of information systems (Kharuddin, Ashhari, & Nassir, 2010).

Expansion and open markets nowadays have improved many enterprises' operations. They generate new ways of making the right business decisions. Well-organized and effective enterprise procedures and activities have a high demand; local enterprises do not just compete with one another, but with international enterprises which are maintained with big resources to generate high quality products for affordable prices. This will lead to an increase in the pressure on local enterprises, including their management to increase the enterprise's operations efficiency through approving decision-making (Kharuddin, Ashhari, & Nassir, 2010).

Referring to the economic view, information systems (IS) help enterprises manage accounting and finance functions effectively. Via information systems, enterprises are eligible to analyze and manage financial and non-financial performances. Global financial market information is available on the internet to efficiently diversify risks. Regarding this, systems experts with high technical skills have artificial intelligence helping the enterprises to assist in decision-making. Where there is communication between information systems and other inputs of the enterprise, these will be generating operations efficiently to provide the enterprise more advantages than labor (Altaf & Khalil, 2016).

3.2.1 Management information systems

Management information systems (MIS) is characterized everywhere as the investigation of computer-based data frameworks in business and administration. Moreover, there is a more extensive perspective of information systems (IS) which incorporates a comprehension of the administration and hierarchical measurements and also specialized measurements of the frameworks as data frameworks proficiency. Thus, Laudon and Laudon (2016) have given a view to adding, working up, and uniting such an information systems education for present and future supervisors, which are to be incorporated with some real difficulties concerning: a) data framework ventures, b) key business, c) globalization, d) data foundation, and e) morals and security. (Hoque, Hossin, & Khan, 2016).

3.2.2 Importance of integrating information systems into enterprise operations

Several researchers have indicated the importance of integrating information systems into business operations, since the process of integration is gaining more and more attention (Issa, Ahmed, Aloufi, & Kabir, 2010; Gaines et al, 2012; indicate that the enterprises in the present age of information technology need to utilize information systems successfully, which requires a great deal of understanding the enterprise, administration, and information technology that shape the frameworks of the business. It additionally requires an understanding that the mission of the information systems itself is transformed and advanced from an attention on productivity and capability to an emphasis on enterprise execution, as the establishment for intensity in a quickly-changing environment (Gaines et al, 2012). Along these lines, the best directors ought to understand that the information systems alone cannot give a persisting business advantage. Keeping in mind that the end goal is to acquire the competitive advantage; it is vital to create proper methodologies assisting in utilizing the IS/IT based frameworks in a viable manner and

provides the means to oversee them to accomplish this objective, an expanding number of enterprises are rushing to create information systems strategies (ISS) by applying one procedure or approach of strategic information systems planning (SISP) (Hoque, Hossin, & Khan, 2016), which causes them to change their traditional data frameworks to strategic information systems (SIS).

The fundamental task for enterprises is to accomplish a competitive advantage through acts of innovation (Porter, 1990). Four main topics are important in analyzing the factors affecting an enterprise's performance, information system usage, information systems investment level, information system awareness, and information systems in decision-making. Some researchers analyzed the effects of these factors on information systems and future trends, as well as the effects of them on an enterprise's performance through strategic management (Zehir, Muceldili, Akyuz, & Celep, 2010).

3.3 Achieving Competitive Advantaged through IS

Information systems can achieve competitive advantages for an enterprise and enhance its focused position in the market. Enterprises can accomplish manageable competitive advantages utilizing data innovation in a fitting method to realize the business necessities. Enterprises need to know how to apply this technology in their own hierarchical procedures and activities. This awareness is essential to the hierarchical achievement. Evidence shows that implementation of productive business strategies utilizing information systems has prompted the change of enterprise proficiency and effectiveness (Zehir, Muceldili, Akyuz, & Celep, 2010).

Enterprises are a sequence of resources and abilities which are utilized to deliver operations and services, in order to have the capacity to compete in the market. Maintainable competitive

advantages at enterprises are made through an equivalent and one of a kind combination of the enterprises' assets and abilities. (Baltzan & Phillips, 2009)

Increasing competitive advantage is basic for enterprises. Baltzan and Phillips (2009) characterize competitive advantage as something valued by an enterprise's clients more than the comparative contributions from its competitors. Competitive advantages are commonly referred to as competitors who frequently look for approaches to duplicate the competitive advantage. Keeping in mind the end goal to remain ahead of the competition, enterprises need to consistently develop new competitive advantages. (Baltzan & Phillips, 2009)

Enterprises can utilize information systems to generally move the cost of business operations, to reduce the expenses of business, and to bring down the expenses of clients or suppliers, i.e., utilizing the online business-to-buyer and business to plans of action, e-acquirement frameworks to decrease working expenses. Also, enterprises can utilize information systems to create specific highlights i.e., utilizing the web live-chatting frameworks and relational enterprises to more promptly realize and be responsive in serving clients; applying innovation to offer effective operations, guaranteed customer service and so achieve the enterprise's strategic goals (Booth, Roberts, Sikes, 2011); applying advanced and developed measures for online tasks to serve customers (i.e., more exact and efficient methods for estimating productivity and viability of promoting) (Manyika, 2009).

3.4 Related Studies

3.4.1 Research conducted in Malaysia

A research conducted in Malaysia reached the result that information system operations have a significant positive impact on enterprise performance, which was analyzed using quantitative and

qualitative criteria. Performance can be assessed by the business process performance, for example, customer service reliability, flexibility of operation, and data sharing efficiency. The study focused on the adoption and the role of the strategic information system; information systems have changed the structures, including the enterprise processes and operations. This has enabled enterprises to think about expansion, reducing the number of staff and management level, expanding the internal and external hierarchical structure and furthermore reducing communication costs. The difference among enterprises is profitability and ideal performance which is because of the variation in managerial skills, instead of the differences at the level of information systems. Managers, who can compose and oversee separate activities, are superior to others by utilizing information systems through an appropriate context which will experience a larger amount of productivity and a more ideal performance. This study can be made in other developed countries and the outcomes may be comparable (Kharuddin, Ashhari, & Nassir, 2010).

3.4.2 Research conducted in Spain

Another study was made on a Spanish enterprise; the results of this study have had huge implications for enterprises as interest in new information systems and management strategies which should be adopted in a fundamental manner, efficient operations with business methodology, which will lead to a unique position of enterprise with respect to enterprises' managers, and so achieve competitive advantages by gaining enterprise position. As indicated by the resource based approach, enterprises must form their strategies as per their assets and capacities with their strategic goals with a primary one, which assures the business to take a strategic position in the market. Also, perform the most level of significant value for clients.

Dealing with this significant value is equivalent to the sustainable competitive advantages in view of the properties and capacities (Kovacheva, 2008).

3.4.3 Research conducted in Jordan

A study conducted in Jordan concludes that the strategy of an enterprise implies its system of how to adopt competitive advantages. This process depends on expectations about how competition in a business is probably going to develop. At the point when this theory is steady with the actual advancement of competition in that business, an enterprise's strategy will probably have the capacity to generate competitive advantages. Nonetheless, numerous enterprises utilize the strategic management process for the preparation of strategies involved in selecting, executing and evaluating the strategy of the enterprise. (Altamony, Masa'deh, Alshurideh, & Obeidat, 2012).

3.4.4 Research conducted in Turkey

Furthermore, a study conducted in Turkey, started that not all strategies are selected along like this. Current changes in strategies made by the enterprises, for instance, Avon and Amazon. A few strategies arise after unexpected changes occur due to industry competition criteria and they need to respond to these changes. However, the strategic management procedure needs enterprise to take actions and involve in writing down SWOT analysis to conclude internal and external environment before applying any strategic decision, which will begin with identifying the general environment of the enterprise measuring competition and conditions that may affect the enterprise. Also, adjusting information technology and information system strategies in a way that supports the enterprise's strategies and operations, by content linkage, involves stability between enterprise strategy and information systems strategy. Then by timing the linkage, it involves information systems plan if they were developed before, after or simultaneously with

enterprise plans. Finally, personal linkage which is concerned with the number of participants involved in the two planning strategy, enterprise and information system (Morteza, & Tang & Norzima, 2012)

3.4.5 Research conducted in Saudi Arabia

A study was carried out in the banking sector in Saudi Arabia. The researchers stated that the enterprises must be engaged in strategic information systems in light of their effect on the progression, development and survival of them with regards to competition. The researchers also highlighted that the enterprises must develop the awareness of strategic information systems to enhance the productivity of tasks and upgrade the nature of data at the most minimal cost and quickest time to empower the enterprise to accomplish the competitive advantages. Also, the researchers underscored the significance of creating specific managerial units in parts of information system frameworks that are dependent on more extensive and more far reaching capacities than the divisions of Management Information Systems (MIS) (Alshubaily & Altameem, 2017).

3.4.6 Research conducted in USA

Improving Performance is a critical issue for enterprises today. Successful planning is essential to the success of the capacity strategic impact of an IS system. IS planning must be done in alignment with the business planning in an enterprise. Enterprises should utilize successful implementation with the right goals needed so that there is a linkage between enterprise business strategy and its needs. A survey was conducted in Hawaii for STC employees, results showed that enterprise employees had a clear vision and awareness for the importance of IS and how it help them to be more creative and encourage their innovation. (Bygstad & Gronli, 2011).

3.5 Enterprise Competitive Advantages

The importance of competitive advantage has vastly increased in the last decade. The introduction of this term was a concept that was attributed to Barney (1991). The term of competitive advantage is commonly accepted in the world of science research.

Flint (2000) states that competitive advantage that is able to be sustained, is currently an explanation of obscurity. The strategy of enterprises has turned into an equivalent word for competitive advantage, where the essential mission of strategic management is to assemble and maintain an enterprise's competitive advantages, which should make it conceivable to accomplish better than expected consequences of its business actions and activities. If so, improvement of competitive advantage is equivalent to the achievements by a given enterprise. Despite this, the idea of competitive advantage is commonly acknowledged in the management sciences. It has an unchallenged centrality for the hypothesis and concept of strategic management (Cegliński, 2017).

Competitive advantage is detected when activities of a given enterprise are more valuable and profitable than other competitors of the enterprise in the market, which is another reason when it outperforms other enterprises because of its own competitive advantages, besides the other activities of the enterprise (Huff & Terjesen, 2009; Cegliński, 2017).

Porter and Millar (1985) assert that competitive advantage becomes generally out of the value an enterprise can make for its clients that exceed the enterprise's expense of creating it. Research in strategic management has moved toward understanding the key components of strategic management that can create competitive advantages and clarify the enterprise-level systems for

accomplishing competitive advantages dependent on the structure of principle for competitive facilities (Fiegenbaum, Armstrong, & Ryan, 2004).

3.5.1 Achieving Innovation

Innovation is an important competitive advantage for enterprises. They can utilize information systems to characterize and create new services and administrations, and to be developed and implemented in the market, or to change business forms by means of automation (i.e., utilizing advanced displaying and reenactment of item configuration to decrease the time and cost to the market (Chui & Fleming, 2011). They likewise can take a view at new activities of setting up clear online enterprises with corresponding tasks. In the meantime, the Internet and broadcast communications systems give better abilities and chances to development. Combinational development and open advancement are two great illustrations. There are an extensive number of segments on the systems that are exceptionally costly, or to a great degree distinctive before the foundation of the systems and enterprises could join or recombine segments/parts on the systems to make new developments (Manyika, 2009).

The fundamental tasks for enterprises are to accomplish competitive advantage through acts of innovation (Porter, 1990). Porter further expresses that utilizing new advancements and doing things in other ways is important to accomplish competitive advantage. Such capabilities can possibly make a competitive advantage and accordingly enterprises must distinguish, in essence, their abilities, how they can utilize them, and the estimated foundation that can be accomplished through this procedure (Adhikari, 2011).

3.5.2 Achieving Decision Making

These days, enterprises must be competitive and create efficient choices so as to accomplish their objectives and goals. Strategic information systems and decision system making may allow the

achievement of this effort. Strategic information systems do affect an enterprise's strategic objectives, as it contains stages which are connected with the decision-making procedure and adds to the decision-making process (Kitsios & Kamariotou, 2016).

Moreover, enterprises are looking for methods and techniques to achieve competitive advantages. Hovenkamp (2008) states that this can be achieved through creative design that is not only limited to aesthetics, but should include all action needed to change the existing situation into a more favorable one. Therefore, enterprises that are looking for competitive advantage need to release fundamentally innovative products such as goods, ideas, and services. This will transform the conventional ways of doing business.

3.5.3 Achieving Operational Efficiency

Strategic information systems have achieved global approval as the software that would determine high profits, increase enterprises' efficiencies and productivities, as well as to organize their operations efficiently. The implementation of information systems can fundamentally generate direct operational benefits, or may indirectly speed up enterprise growth by building it ability and capacity around technology.

3.5.4 Achieving Efficiency of Human Resources

Because of information systems, a number of enterprises need to change their business models to an information systems orientation business model in order to take advantage over their competitors. Delivering the right data to the right individual at the workplace is the primary goal for information systems. Beside this, they require tools for strategic planning. If the plans are presented on paper, managers might have issues with operating in the business. Information systems have prepared the necessary tools to allow managers to analyze plans easily and reliably. Also, information systems will allow data to be transferred easily in the enterprise hierarchy,

between employees and between employees and management, and assure the quality of information and the business operations are running efficiently in order to achieve the enterprise's strategic plans. This will save time and improve the enterprise's performance, and hence, maintain the accuracy of operations and reduce the costs of human errors (Altaf & Khalil, 2016).

3.5.5 Achieving Communication and Data Transformation

Strategic plans provide a road map showing the directions and instructions for systems development to better make use of information systems resources containing assets, personnel IS, and time for arranging specific missions. All these benefits assure that strategic information systems planning are essential for enhancing the performance and sustainability of the enterprise. Strategic planning should be a full plan to adapt the competency of enterprises' competitiveness, therefore, achieving competitive advantages for the enterprises (Issa-Salwe & Aloufi, 2011).

3.5.6 Achieving Operational Costs

Managing information systems will achieve competitive advantages in eight ways according to Oz (2008), which are the reduction in costs, imposing increased barriers to entry, establishing high switching costs, creating new products or services, differentiating products or services, enhancing products or services, and establishing alliances with other organizations, suppliers, retailers, etc.

Nowadays, numerous countries are shifting from industrial economies into knowledge economies (this will depend on the ability to create knowledge). Computers and high-tech industries contribute to the growth of knowledge by coding the knowledge into digital form to be transmitted to the world (Berisha-Shaqiri, 2015).

3.5.7 Achieving Expansion

Regarding expansion, enterprises can utilize information systems to extend local and global activities and operations, in addition to differentiate and incorporate into different items and administrations, i.e., setting up worldwide intranet and worldwide task stage; building up channel systems to pick up growth (Rigby, 2011).

One of the most important features of the existing trends and new stages of national economics is globalization; enterprises are becoming more and more intense due to enterprise expansion (Koyluoglu, Duman, & Beduk, 2015). Expansion refers to the most critical strategy used by any enterprise, but it needs to transform into a valuable and significant strategy. Nevertheless, expansion has formed the way enterprises are being administered regarding competitive advantage. There is the risk and fear of losing control of the enterprise's culture, and may have lack of resources, skills and potentials. Hence, it is a challenge for enterprises to adopt strategic information systems in order to achieve competitive advantages, and so that they may be able to apply structural business and cultural changes to respond to business expansion and globalization, in addition to create and discover opportunities for new venture creations to remain competitive (Ahamat, Dirir, & Robani, 2017).

3.5.8 Achieving Strategic Goals

Strategic planning and the strategic goals of enterprises begin with identifying the needs which may be the basis for the problems in their current systems, or an opportunity or instructions from management. Accordingly, planning requires formal goals being formulated and the gain approval of strategic information systems. It is valued for its capability to substantially provide to enterprises due to its identification with the most needed systems development to invest.

Strategic information systems deliver directions and supervisions on how enterprise information systems infrastructure should be developed over time.

As a result, this study will focus on these competitive advantages to be studied in Palestinian enterprises: innovation, decision-making, operational efficiency, information quality, operational costs, efficiency of employees, enterprise expansion, efficiency of human resources, communication and data transformation, and finally, achieving strategic goals for the enterprise as shown in table 1.

3.6 Summary

In summary, through reviewing the literature, most of the previous research on the impact of information systems on achieving competitive advantages on enterprises, discussed strategic information systems and its impact on enterprise performance and strategic position after adopting competitive advantages. They also discussed enterprise innovation, decision-making, operation effectiveness and information efficiency. Referring to related studies, several studies were conducted in developed countries, some in developing countries and the Arab world. When it comes to Palestine, there is a lack of studies in this field, especially when it comes to studying the impact of strategic information systems on achieving competitive advantages. The previous discussion leads to the following central research gap, which is taking Palestine for this research to discuss the following research question: “What is the role of strategic information system in achieving competitive advantages for Palestinian Enterprises?

Table 1: Comparison between related studies for each competitive advantages with main results

Competitive Advantages	Related Study	Main Results
Innovation	Porter, 1990	Enterprises can accomplish manageable competitive advantages through utilizing data innovation in a fitting method to realize the business necessities.
Decision Making	Kitsios & Kamariotou, 2016	Strategic information systems and decision system making may allow the achievement of enterprises to be competitive and create efficient choices.
Operational Efficiency	Kharuddin, Ashhari, & Nassir, 2010	Information systems are being used widely in many enterprises to develop and expand their activities and automate their operations efficiently.
Information Quality	Altaf & Khalil, 2016	Information systems will allow data to be transferred easily in the enterprise hierarchy, between employees and between employees and management, and assure the quality of information and the business operations are running efficiently in order to achieve the enterprise's strategic plans.
Operational Costs	Altaf & Khalil, 2016	Information systems help enterprises manage accounting and finance functions effectively. Via information systems, enterprises are eligible to analyze and manage financial and non-financial performances
Efficiency Of Human Resources	Dwivedi et al, 2015	Information systems have prepared the necessary tools to allow managers to analyze plans easily with reliably. Also, information systems will allow data to be transferred easily in the enterprise hierarchy, between employees and between employees and management, and assure the quality of information and the business operations are running efficiently in order to achieve the enterprise's strategic plans.
Enterprise Expansion	Rigby, 2011	enterprises can utilize information systems to extend local and global activities and operations, in addition to differentiate and incorporate into different items and administrations, i.e., setting up worldwide intranet and worldwide task stage; building up channel systems to pick up growth
Communication And Data Transformation	(Kharuddin, Ashhari, & Nassir, 2010).	Information system operations have a significant positive impact on enterprise performance. Performance can be assessed by the business process performance, for example, data sharing efficiency.
Achieving Strategic Goals	Kovacheva, 2008	Enterprises must be competitive and create efficient choices so as to accomplish their objectives and goals. Strategic information systems may allow the achievement of this effort.

Chapter 4: Methodology

4.1 Overview

The purpose of this study is to determine the role of strategic information systems in achieving the competitive advantages at Palestinian enterprises. This chapter describes the required steps to execute this research which are presented in each section. It is divided into five main sections: first, a complete description of the research design, study population, and sample which also shows the research target group. Afterwards, data collection methods are followed by validity and reliability of data collection methods. Finally, at the end of this chapter the approach to data analysis will be discussed.

4.2 Research Design

After discussing the previous three chapters (introduction for the study, theoretical framework, and literature review), this section describes the research design obtained from other studies and the most appropriate method to achieve the wanted results.

This is an explanatory and exploratory study which will test the research hypotheses which were concluded in the theoretical section to explore the impact of information systems on the competitive advantages of Palestinian enterprises. To fulfill this purpose, a quantitative research design has been chosen. A questionnaire was used as a key tool to gather the data from the study sample, the structure of the questionnaire with the affecting variables is shown by Figure 3 below and the questionnaire is presented in appendix 1. The results were then analyzed. This study aims to determine the role of strategic information systems on achieving competitive advantages at Palestinian enterprises, which are innovation, decision-making, operational efficiency, quality of information, operational cost, efficiency of employees, enterprise expansion, efficiency of human resources, communication and information transformation, and achieving strategic goals at

Palestinian enterprises. These competitive advantages require interaction with enterprises in the data collection stage to enable the researcher to gather information about each enterprise, and to understand how information systems affect the competitive advantages of each enterprise. Therefore, a questionnaire was required to gather this information for analysis. Also, from the review of similar studies, it is noted that many studies used the qualitative method to analyze the role by using questionnaire to collect the necessary data.

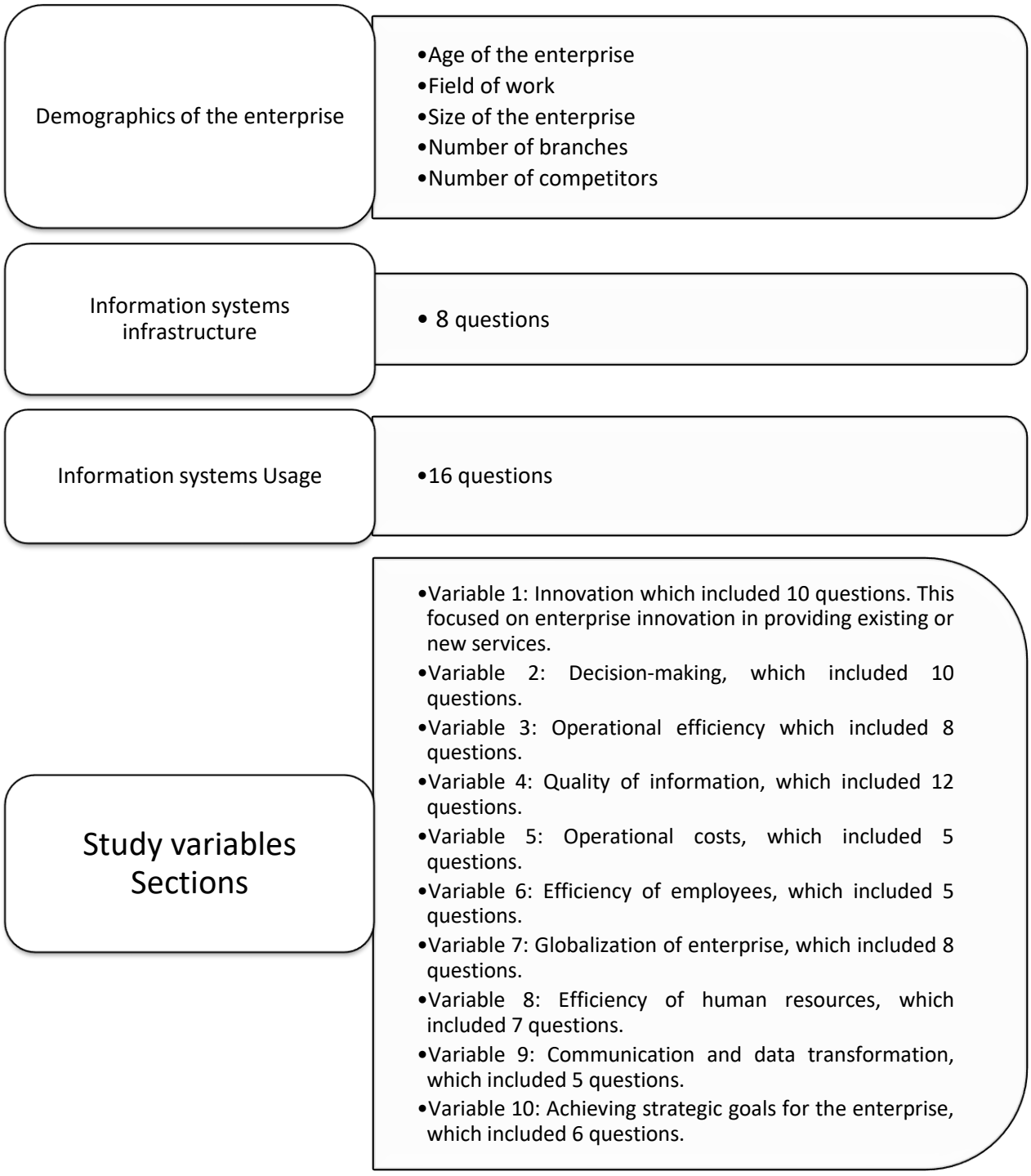

Figure 3: Survey Structure

4.3 Study Population and Sample Size

This section explains the study sample for this study. The purpose of this study was to find the impact of strategic information systems on achieving competitive advantages at Palestinian enterprises. The chosen enterprises for this study are the large and well-known enterprises in Palestine as these enterprises are the traded enterprises in Palestine as announced by Palestine Exchange (PEX). The sector of each enterprise is as follows with some examples of the enterprises taken: telecommunications and IT (Paltel, Jawwal, Oredoo), banking (AIB, Arabic Bank, Al-Quds Bank), insurance (Tamkeen, Trust), business (AAU, Birzeit University, Coca-Cola, Sonoqrot), and software development (Trigger, Asal, Exalt). These sectors were chosen according to the importance of the role of information systems in these sectors referring to data from literature review.

After selecting the enterprises for this study, a purposive sampling was used to select managers in the core enterprises of the departments who are responsible and have knowledge of information systems performance, and who could also make a meaningful contribution to this research based on their experiences and roles. For each enterprise, between one and three questionnaires were distributed for the purpose of variety of the data for each enterprise, since more than three questionnaires will lead to duplicate data for each enterprise, and because three managers are enough to reflect the knowledge of their enterprise and IS's impact on it.

The first section in the questionnaire was in regards to the demographic data within the enterprise, and included the following questions:

- Age of the enterprise: The purpose was to understand whether the age of the enterprise has any effect on the competitive advantages, including the impact of information systems on them.
- Field of work: To recognize the enterprise's sector to be able to make the required analysis.
- Size of the enterprise: To determine whether the number of employees will affect the purpose of the study.
- Number of branches: Being familiar with the number of branches for each enterprise.
- Number of competitors: Being familiar with the number of competitors for each enterprise.

103 questionnaires were distributed to the sample population as table 2 below shows:

Table 2: Survey Distribution

Field	**Questionnaire Distributes**
Telecommunication and IT	22 Questionnaires
Banking	30 Questionnaires
Insurance	15 Questionnaires
Business	26 Questionnaires
Software Development	10 Questionnaires
Total	103 Questionnaires

4.4 Data Collection Method

The data was collected through a scientific questionnaire which was designed for the purpose of this study. Soft and hard copy forms were distributed to the targeted sample where the communication was face-to-face. The questionnaire was designed to cover the impact of information systems as has been previously mentioned. The first section of the questionnaire concerned the demographics of the enterprise: age, size, field, the number of branches and the

number of competitors. The question was an open-ended question; no choices were provided. In the data analysis section, the demographics were categorized.

The next two sections were in regards to the information systems infrastructure in the enterprise, which included 8 questions, and about the sectors of information systems used in the enterprise, which included 16 questions.

The last section was a set of questions assigned for each study variable. There was a ten-study variable in this study; this section included 76 questions and was distributed as follows:

- Variable 1: Innovation which included 10 questions. This focused on enterprise innovation in providing existing or new services.
- Variable 2: Decision-making, which included 10 questions.
- Variable 3: Operational efficiency which included 8 questions.
- Variable 4: Quality of information, which included 12 questions.
- Variable 5: Operational costs, which included 5 questions.
- Variable 6: Efficiency of employees, which included 5 questions.
- Variable 7: Globalization of enterprise, which included 8 questions.
- Variable 8: Efficiency of human resources, which included 7 questions.
- Variable 9: Communication and data transformation, which included 5 questions.
- Variable 10: Achieving strategic goals for the enterprise, which included 6 questions.

Respondents were asked to indicate their responses on a seven-scale rating, the Likert Scale, which ranged from “strongly agree” to “strongly disagree”, as is shown in Table 3:

Table 3: Likert Scale

Respond	Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
Degree	7	6	5	4	3	2	1

4.5 Validity and Reliability of Data

Validity is the accuracy of the information generated, while reliability can also be thought of as the extent to which data are reproducible. It refers to the consistency of a measure. Before data was collected, a pre-test (pilot) was implemented to validate the questionnaires and answers, and to ensure that it can be properly understood and filled. It was designed to include the entire aspects and characteristics for the purpose of carrying out the survey and include a review of the survey questionnaire.

Validation of tools was performed by testing it on a sample to determine whether questions are suitable for this research, and if they help to reach the needed results. Also, an online survey questions marked all fields as required so there is no missing data. For face-to-face interviews, the researcher assured all data were understood and filled. Reliability for this study was conducted by a sample that entered the data. They were all managers or had a sufficient amount of knowledge in their line of work, and can respond to survey questions with all credibility.

After data was collected and submitted, the data was checked to investigate any missing data or outliers. Then, tests were performed to check the validity and reliability of the data using the SPSS software.

4.6 Data Analysis Approach

Data was collected from a scientific questionnaire. After the data was collected, the researcher reviewed the data and organized it to be sorted in a data file, so the data is able to be transcribed.

Then the research objective was revisited to classify the questions that can be answered through the collected data.

The data was statistically analyzed using the Statistical Package for Social Sciences (SPSS). This systematic review aimed to identify and categorize outcome measures validated into the research subject to assure a significant relationship between the variables, in addition to answer the following research questions regarding the effect of information systems on the competitive advantages of Palestinian enterprises:

1. Do Information systems positively affect enterprise innovation and creativity?
2. Do information systems improve the process of and outcome from decision-making?
3. Do information systems have a moderate influence on the quality of information?
4. Do information systems have a moderate influence on operational quality?
5. Is information systems positively associated to the efficiency of the enterprise's employees?
6. Do information systems improve the cost effectiveness of the enterprise?
7. Is there a significant relationship between information systems and business expansion?
8. Do information systems have a significant impact on the efficiency of human resources and their sources in the enterprise?
9. Do information systems positively affect the efficiency of communication and data transfer in the enterprise?
10. Is establishing short and long-term business goals require an effective use of information systems?

Also, the below hypothesis are to be tested using correlation test:

i. There is a significant relationship between information effectiveness and information transfer when using information systems in the enterprise.

ii. There is a significant relationship between employee efficiency and operational efficiency when using information systems in the enterprise.

iii. There is a significant relationship between decision-making with operational efficiency and innovation when using information systems in the enterprise.

iv. There is a significant relationship between operational efficiency with innovation and information effectiveness when using information systems in the enterprise.

v. There is a significant relationship between enterprise expansion with operational cost and information effectiveness when using information systems in the enterprise.

4.7 Summary

In summary, this chapter discusses research methodology to show how the required data was collected and analyzed for research questions purposes and to test research hypothesis related to this study. The chapter first discussed research design, after that it talked about study population and how data were collected and what the sample size approach is. The chapter then describes data collection method used, followed by validity and reliability of data. Finally, data analysis approach are discussed.

Chapter 5: Results and Analysis

5.1 Overview

This chapter discusses the results of the data analysis for the study of the role of information systems in achieving competitive advantages for businesses within the Palestinian context. The chapter starts with discussing the validity and reliability of the collected data. It then proceeds with listing the descriptive statistics of the study sample. After, the chapter discusses the descriptive analyses of the major constructs included in the study. The core part of this study involves building a model for enterprise effectiveness. Regarding the use of information systems, it will be discussed in detail as it represents the major contribution of this thesis.

5.2 Data Screening and Reliability Analysis

This section is meant to examine the credibility, validity and suitability of the data set for further analysis. More specifically, this section will detect any missing data, outliers, as well as testing the normality and homogeneity of the data through the use of SPSS software and AMOS. This step is crucial in preparing the collected data for the upcoming analysis. The subsequent sections present the findings of the above mentioned tests.

5.2.1 Missing data

All the questionnaires collected in the course of the study were screened for any missing responses prior to the data entry. Though this step is rather trivial, it is considered serious to smooth data entry.

The next step was to search for any missing data, as Hair et al. (2010) considers missing data a serious problem in the course of data analysis. Hair argues that missing data might affect the results of the study and objectives. Some data analysis techniques like the Chi-Square and the

Goodness-of-Fit measurement cannot indeed be computed with the existence of any missing data in the dataset.

Additionally, it is important to decide on the type of missing values and to determine whether the missing values occurred unintentionally or intentionally. To that end, if the missing values are randomly distributed within the dataset, they can be considered random and can be ignored. However, if the missing values are non-randomly distributed, then we need to question this phenomenon and it might be that the generalizability of the results will be questioned (Pallant, 2010). Schumacker and Lomax (2004) recommended that the percentage of missing data up to 5% is to some extent tolerable. Upon examining our dataset using SPSS, it has been observed that there is no any missing data for any of the variables included in the study. This means that the dataset can be considered acceptable for further analysis.

5.2.2 Outliers

An outlier is described as any observation with a unique characteristic that markedly distinguishes it from the other observation (Hair et al, 2006). Hence, discovering and handling outliers is rather important for any professional data analysis. Outliers will definitely affect the normality of the data, and that will impact the results of many data analysis techniques and tests. Tabachnick and Fidell (2007) recommend that extreme outliers should be detected and removed from the dataset. Hair et al. (2006) suggested two ways to identify an outlier and how to remove them.

There are two kinds of outliers that can be defined: univariate outliers which deal with single variables. Many references do not consider the Likert Scale variables as having outliers unless the responses are mistakenly entered into the dataset. The dataset was tested using SPSS and

some of the values were found to be located outside the acceptable range, as defined by the boxplot by the maximum and minimum. Some of these outliers are located in the Organization Size (OrgSize), which is expressed by the number of employees. Cases numbered 64, 47, and 46 are identified as mild outliers, with Orgsize ranging between 2000 and 2500. Cases numbered as 91, 67, 76, 74, and 75 were identified as extreme outliers, with Orgsize of 3000 employees which were recorder for Telecommunication enterprise. The other variable which also contained outliers is the Organization's Age (OrgAge). For this variable, 3 cases are identified as mild outliers, indicated by 90, 39, and 10, while 6 cases are indicated as extreme outliers identified as 93, 2, 63, 4, 64, and 46. Since we do not have a large dataset, the mild cases will be kept, while the extreme cases will be omitted from the dataset.

The second kind is the multivariate outliers, which refer to records that do not fit the standard sets of correlations exhibited by the other records in the dataset, with regards to the causal model.

5.2.3 Normality Test

According to Hair et al. (2010), testing the presence of normality is essential in a multivariate analysis. In other words, if the data is not normally distributed then it may affect the validity and reliability of the results. The Kolmogorov-Smirnov test confirms that all variables do not have a normal distribution since all p-values are less than 0.05. A nonparametric test for the statistical analysis must be used. For further confirmation and validity, this research has conducted another test to emphasize that the data are not normally distributed. The reason behind these results may refer to the small sample size the researcher has dealt with as shown in table 4 and 5. Also table 5 shows some negative values for Skewness and Kurtosis which means that the distribution is highly skewed.

Table 4: Results of normality test for the scale variables

Scale variable	Skewness	Kurtosis	Kolmogorov-Smirnov Normality test (P-value)	Normality
Organization Age	2.254	4.881	0.00	Not normal
Number of employees	2.045	3.634	0.00	Not normal
Number of branches	2.692	14.743	0.00	Not normal
Number of competitors	3.944	15.874	0.00	Not normal

Table 5: Results of normality test for the lateral variables (Constructs)

Construct	Skewness	Kurtosis	Kolmogorov-Smirnov Normality test (P-value)	Normality
Level of usage of IS	-.696	-.517	0.00	Not Normal
Impact of IS on innovation	-1.433	1.995	0.00	Not Normal
Impact of IS on decision making	-.443	-.571	0.00	Not Normal
Impact of IS on operation effectiveness	-1.402	3.483	0.00	Not Normal
Impact of IS on Information quality	-1.495	4.030	0.00	Not Normal
Impact of IS on operation cost	-.375	-.454	0.00	Not Normal
Impact of IS on Employee efficiency	-.744	.582	0.00	Not Normal
Impact of IS on organization expandability	-.949	1.288	0.00	Not Normal

Impact of IS on human resources effectiveness	-.283	-.249	0.00	Not Normal
Impact of IS on internal communication and information sharing	-.724	-.259	0.00	Not Normal
Impact of IS on achieving organization strategic goals	-.518	.163	0.00	Not Normal

5.2.4 Reliability Test

As for reliability, it refers to the fact that a scale should systematically reflect the construct it is measuring. Reliability analysis calculates a number of commonly used measures of scale reliability, and also provides information about the relationships between individual items in the scale.

The reliability of the constructs in the main study was checked by Cronbach's Alpha. SPSS was used to analyze the reliability tests of the main study, as presented in Table 6 below.

This study used two methods of measuring the consistency of the questionnaire. One method measures the correlation between the different items of the same construct to ensure that the number of items that are supposed to measure the same construct produce similar scores.

1. Cronbach's Alpha test: it was used to measure the stability of questionnaire, and the results are clarified in table 6 below:

Table 6: Validity Test of the Study Lateral Variables (Constructs)

Construct	**Items**	**Cronbach Alpha**	**Result**
Level of usage of IS	16	0.92	Reliable

Impact of IS on innovation	10	0.93	Reliable
Impact of IS on decision making	10	0.91	Reliable
Impact of IS on operation effectiveness	8	0.92	Reliable
Impact of IS on Information quality	12	0.86	Reliable
Impact of IS on operation cost	5	0.69	Fairly Reliable
Impact of IS on Employee efficiency	5	0.83	Reliable
Impact of IS on organization expandability	8	0.92	Reliable
Impact of IS on human resources effectiveness	7	0.74	Reliable
Impact of IS on internal communication and information sharing	5	0.91	Reliable
Impact of IS on achieving organization strategic goals	6	0.86	Reliable
Questionnaire	100	0.98	Reliable

From Table 6, it is clear that the value of Cronbach's Alpha of the entire questionnaire is 0.97, indicating that the reliability is very high for the questionnaire (note that a reliability coefficient of .70 or higher is considered "acceptable") (Craig, 2003). Additionally, the Coefficient Alpha for all constructs is within the acceptable range, suggesting that the data has a relatively high internal consistency. Although Cronbach's Alpha Coefficient for operation cost is 0.69, yet, the value is very close and is within the acceptable range, being very near to 0.7. The results of this test allow us to go ahead and complete the analysis.

5.3 Demographic Statistics

In this section the demographics of the study sample are shown through the descriptive analysis of the dataset collected from the study sample. The study included age, work field, size as expressed by the number of its employee, number of branches, and the number of competitors for the enterprises (as shown in Table 7). These variables were selected, as we think that they

might impact the level of IS adoption, and how IS might influence different aspects of the enterprise.

Table 7: Data Demographic Statistics for Organizations

Demographic Characteristics		**Percentage**
Business Age	<10	25.2%
	Between 10 and 20	21.3%
	Between 20 and 30	38.8%
	>30	14.6%
Business Field of work	Telecom and IT	21.4
	Banking	29.1
	Insurance	14.6
	Businesses	19.4
	Software Development	9.7
Business Size	<50	8.7%
	Between 50 and 100	6.8%
	Between 100 and 200	24.3%
	Between 200 and 500	29.1%
	>500	31.1%
Business Branches	>5	30.1%
	Between 5 and 10	10.7%
	Between 10 and 20	32.0%
	Between 20 and 30	18.4%
	<30	8.7%
Business Competitors	>5	33.0%
	Between 5 and 10	28.2%
	Between 10 and 15	29.1%
	<15	9.7%

Table 7 summarizes the demographic data of the participating enterprises. The results clearly exhibit a fair distribution among different fields of private enterprises, ranging from their age, to their field of work, size, the number of branches, and the number of their competitors. The ages are fairly distributed with about 46% being below 20 years, while 53% are above 20 years old. It is worth mentioning here that some enterprises included in the study are 90 years old and above, and these represent the outliers which might create some issues in the upcoming analysis of the dataset.

In terms of size, about 10% of the sampled businesses are small enterprises with less than 50 employees, while 32% of the enterprises employed between 50 and 200 employees. 61% of the enterprises are considered to be large enterprises with employees over 200. Very few enterprises do have over 200 employees, and again these might create some issues in the upcoming analysis as they represent extreme outliers.

The field of work of the enterprises included in the study included 6 different areas; yet, the distribution of these areas in the sample is not very successful. This is due to the fact that some enterprises selected to participate in the study refused to fill up the questionnaire. As for the number of branches, 30% of enterprises have 5 branches or less, and the majority of the enterprises have about 10–20 branches. The larger enterprises which have more than 30 branches constitute about 9% of the sample. Finally, 33% of the sampled enterprises have 5 or less competitors, while 57% of the enterprises have between 5 to 15 competitors. Moreover, 9% of the enterprises have more than 15 competitors. This variable was included in the study, as it is believed that the level of competition significantly impacts the level of IS penetration and how information systems are utilized by that enterprise.

Table 8: Summary of the Enterprises' Demographic Statistics

	Enterprise Age	Enterprise Size	Enterprise Branches	Enterprise Competitors
Mean	24.1	590	15.0	12.0
Std. Deviation	21.4	723	13.0	19.0
Minimum	1	5	0	0
Maximum	94	3000	100	100

Table 8 summarizes the basic statistics of the enterprises included in the study. It is quite evident from the table that a high level of variation in the study sample does exist, as is expressed by the standard deviation, especially in the size of the enterprise which has a standard deviation of 723. Also, for age maximum age was recorded for Birzeit University which is 94 years. This is one reason why the collected data is not normally distributed.

5.4 Descriptive Analysis of Study Variables

In this section the intention is to illustrate and discuss the outcomes of the descriptive analysis carried out on the dataset. The results include the constructs' mean, standard deviation, standard error, minimum and maximum value, as well as the scatter plot. The section discusses also the results of IS penetration and usage, and then proceed, to discuss the impact of IS on different aspects of the enterprise.

5.4.1 Information System Penetration and Usage

The survey included one separate scale variable to measure IS penetration among the enterprises, and what type of IS they do have. Also, another to measure the level of usage or utilization of these technologies as reported by the managers or representatives of the enterprises. To measure

IS penetration, the questionnaire requested to answer questions related to the possession of an array of technologies typically included as parts of an IS. It is believed that the array is not complete, and more technologies might be included, however, the list incorporated contained wide spectrum ranges from simple to sophisticated technologies.

Table 9: IS Penetration

Number	Questions	Does exist	Does not exist	Mean/2.0	Std. Deviation
1	Ownership of PCs	99	4	.96	.194
2	Ownership of large area network	97	6	.94	.235
3	Ownership of Website	101	2	.98	.139
4	Ownership of Facebook Page	101	2	.98	.139
5	Ownership of Email	103	-	1.00	.000
6	Ownership of Data Base	103	-	1.00	.000
7	Ownership of Web Server	98	5	.95	.216
8	Ownership of Enterprise Resource Planning	101	2	.98	.139

Table 9 above details the IS infrastructure and technological solutions included in the study. It is quite apparent that enterprises included in the study do have very high level of IS infrastructure, as most of the included enterprises do own simple, as well as sophisticated IS technological solutions. This can be explained by the fact that most enterprises covered in the study are classified as medium or large enterprises. We can conclude from table 9 that 86.4% of all enterprises do have all technological solutions included in the study, however, only 13.6% own less than complete array of technologies.

One might ask, is there a difference in the level of penetration of enterprises belonging to different fields of work? The answer to this question is given by Table 10 below. It is quite

obvious that almost no difference is recorded among the enterprises in reference to their field of work.

Table 10: Basic Statistics of IS penetration of Enterprises in Different Fields of Work

Enterprise Field of work	N	Mean/8.0	Std. Deviation
Telecom and IT	22	8.0	.00
Banking	30	8.0	.00
Insurance	15	8.0	.00
Business	20	7.8	.72
Software development	19	6.8	.79
Total	103	7.8	.57

Though the technical solutions penetration indicates the level of utilization of these technologies by enterprises, it is rather more informative to investigabte the level of usage of these technologies in the course of business processes performed by these technologies. To that end, a separate scale was designed to measure the technological level of utilization by the sample. The level of utilization was measured by a five level Likert scale, which 5 corresponds to always use, 4 heavily use, 3 sometimes used, 2 rarely used, and finally 1 corresponds to not in use. Table 11 below summarizes the main statistics expressed by the mean and the STDEV of each of the indicators included in the study. Note that the mean is measured with a reference to 5, which indicates always in use. The results revealed a high level of usage and utilization of IS in the major business processes as practiced by the sample. Most of the utilization level is around 4/5, which means that IS is utilized by about 80% (or often used) on average by Palestinian enterprises represented in the sample.

Table 11: Basic Statistics of Indicators Used to Measure Information System Usage

indicator	Questions	Mean /5.0	STD EV
1	IS are used to communicate between employees	4.1	1.3
2	IS are used to communicate with customers	4.2	1.1
3	IS are used to provide services to customers	4.3	0.9
4	IS are used to protect company information	4.6	0.7
5	IS are used to record knowledge experiences	4.0	.88
6	IS are used in marketing operations	4.1	.83
7	IS are used in financial and accounting operations	4.4	.79
8	IS are used to reduce operational costs	4.0	.93
9	IS are used in staff training operations	3.9	.92
10	IS are used to obtain information about competitors	3.8	1.07
11	IS are used for financial transfers and corporate accounts management	4.6	.69
12	IS are used to communicate with partners and suppliers	4.3	.79
13	IS are used to manage the assets of the enterprise	4.4	.84
14	IS are used to save time on the enterprise	4.1	.83
15	IS are used in data analysis, processing and conversion	4.3	.78
16	IS are used in human resources management	4.3	.82

The utilization array includes customer care, marketing, financial and accounting, human resources management, data analysis, and communication with partners and suppliers, among other services. It is remarkable to see that the utilization level is almost the same among all services included in the study. The dispersion among the results is not that high, with a standard deviation around 0.8, which means that 68.2% of enterprises do have their level of utilization ranges between 3/5 (sometimes) used to 5/5 (always) used.

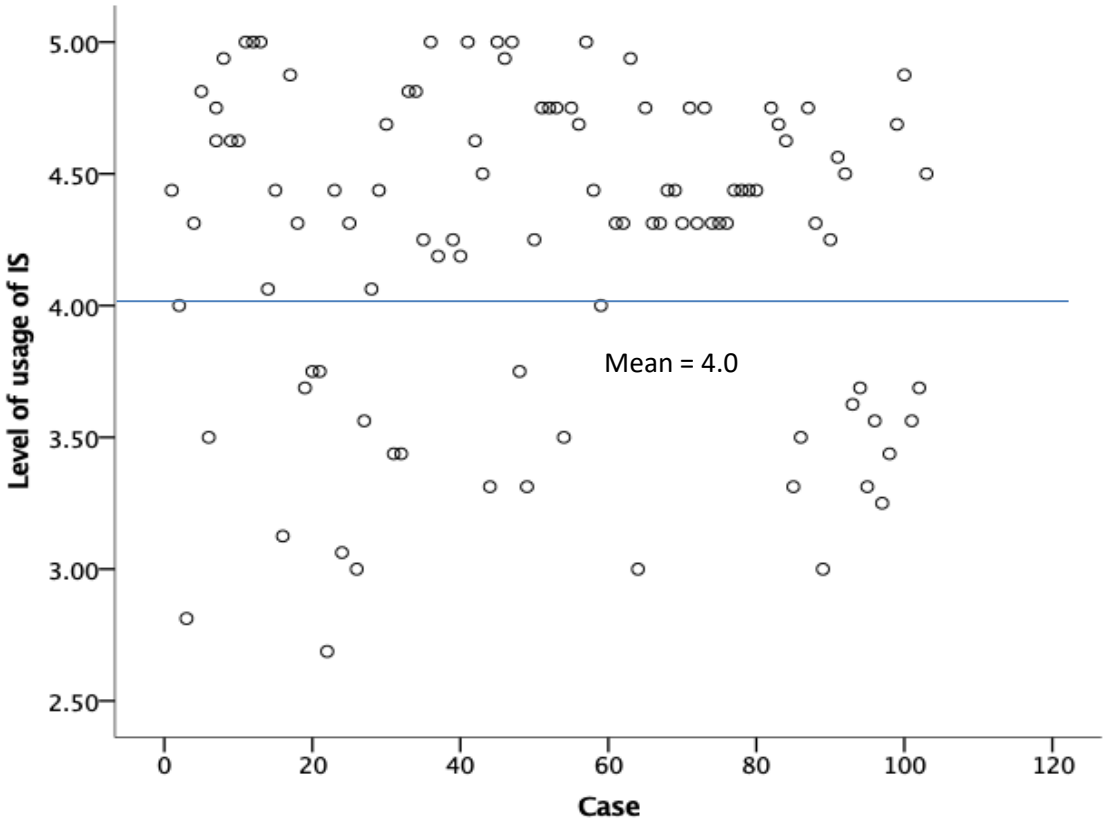

Figure 4: Average Level of Usage of IS among Enterprises (Scatter Plot)

Figure 4 above shows how the mean level of utilizations is distributed for all enterprises included in the study. The line shown in the figure is the mean of the means of all enterprises. Note that most enterprises do have a utilization level between 4/5 and 5/5.

Table 2: Basic Statistics of Utilization Level Recorded for Enterprises Belonging to Different Fields of Work

Enterprise Field of work	**Mean/5.0**	**N**	**Std. Deviation**
Telecom and IT	4.1	22	.19
Banking	4.1	30	.62
Insurance	4.2	15	.58
Business	4.2	20	.70

Software development	3.8	14	.55
Total	**4.2**	**103**	**.60**

No significant differences in the utilization level are recorded for enterprises belonging to different fields of work, as is shown by Table 12. Most of them recorded values around 4.0/5.0. This clearly demonstrates that the types of businesses have an impact on the level of IS penetration, as well as the level of utilization of IS in their core businesses.

5.5 Impact of IS on Core Business Processes

This section is meant to discuss the results of the data analysis related to how IS influences the performances of the core businesses, as reported by the participants of the sample. To have a clear and detailed idea about how IS impacts the effectiveness of core operations, 9 different areas were investigated, as listed below;

1. Innovation and creativity
2. Operation effectiveness
3. Operation cost
4. Information quality
5. Communication and Information exchange
6. Expandability
7. Employees' Effectiveness
8. Facilitation of Decision making

9. Achieving of Strategic goals

These areas have been selected as they are commonly reported by the literature to be used for that purpose (Mahmood, Salehi, & Marziyeh, 2010). For each of the above mentioned area, a scale was developed, which consists of questions that measure some aspect of each of these areas. How IS has impact the above mentioned area will be detailed below.

5.5.1 Impact of IS on Innovation and Creativity

As depicted in Table 13, IS significantly helps in promoting innovation among enterprises included in the study. In fact, all aspects of innovation were reported to be significantly improved by the use of IS, ranging from 6.4/7.0 in case of advertising, down to 6.0/7.0 for developing new services. This result confirms that companies are satisfied with the use of IS in promoting innovation in all aspects of their businesses.

Table 3: Impact of IS on Innovation and Creativity

Innovation Aspect	Mean/7.0	Std. Deviation
IS helps in developing new channels for advertising	6.4	0.90
IS helps in developing new approaches to manage operations	6.4	0.93
IS increases speed of response to customers	6.3	0.97
IS helps in developing new methods for customer services	6.3	0.98
IS helps in developing new products	6.3	0.89
IS helps in developing new techniques in marketing	6.1	0.96
IS helps in developing new services	6.0	1.20

5.5.2 Impact of IS on Effective Decision-Making

The topic has analyzed how IS impact the decision-making processes as reported by the sample. The overall trend is that IS significantly enhances decision-making processes, including the

decisions' effectiveness, speed, quality, and also IS improves monitoring and creating an environment where decisions can be made decentralized (see Table 14 for details).

Table 4: Impact of IS on Decision-Making

Decision making aspect	Mean/7.0	Std. Deviation
IS enhances effectiveness of decisions	6.3	0.83
IS speeds up decision making	6.2	0.96
IS facilitates decision making	6.1	0.91
IS improves quality of decisions	5.9	1.00
IS facilities monitoring of decisions	5.6	1.15
IS decentralizes decision making	5.7	1.23

5.5.3 Impact of IS on Information Quality

Generally speaking, information plays an increasing role in all kinds of business operations, including, sales, marketing, finance, management, planning, etc. This is why this aspect is included as one of the major issues to be investigated in the course of this research. Additionally, information processes, such as acquisition, transmission, and storing, etc. are among the major services provided by IS. The basic statistics of this aspect is depicted in Table 15.

Table 5: Impact of IS on Information Quality

Information quality aspect	Mean/7.0	Std. Deviation
ISI facilitates information storage and retrieval	6.54	.714
IS facilitates information exchange	6.44	.805
IS facilitates information gathering	6.43	.887
IS improve data analysis	6.35	.767
IS reduces time to obtain information	6.33	.789
IS improves quality of information	6.33	.814

IS improves information utilization	6.28	.873
IS improves information dissemination	6.19	.857
IS facilitates information leakage	4.14	2.145

As is with other aspects, managers were substantially positive in regards to how IS impacts information quality. All investigated items recorded scored higher than 6.0/7.0, implying that their impressions are slightly higher than assumed. One exception is recorded among all items, which investigates the IS facilitation of information leakage. Respondents are neutral in that regard, with an average score of 4.1/7.0.

5.5.4 Impact of IS on Cost Reduction

Enterprises of all types and sizes exert all efforts to reduce costs and minimize expenses. This is why it is decided to include this feature in the study. Can IS work to reduce expenses? This question will be discussed in this subsection. Table 16 below, details the results of the descriptive data analysis, where 5 aspects of the issue is reported.

Table 6: Impact of IS on Cost Reduction

Expenses reduction aspect	**Mean/7.0**	**Std. Deviation**
IS reduces cost of information processes	5.87	.956
IS reduces operational cost	5.85	.942
IS reduces marking cost	5.76	1.184
IS reduces the need for human resources	5.23	1.272
IS reduces financial risks	5.07	1.492

As is shown by Table 16, cost reduction is positively reported by participants and averaged around 5.5/7.0, which indicates an attitude slightly higher than agreed to some extent. However, the impact of IS on different cost reduction aspects varies from 5.07/7.0 to 5.87/7.0 with the

highest corresponding to reduction in cost of information processes, and the lowest corresponds reduction of financial risks, and the reduction of the need for human resources.

5.5.5 Impact of IS on Enterprise Expansion

Expansion is definitely among the goals each and every enterprise wants to achieve, and it definitely will be affected by how IS solutions are integrated into the enterprise operations. The issues we investigated in this regard are detailed in Table 17, including customer base, marketing channels, and market share, among other issues.

Table 7: Impact of IS on Enterprise Expandability

Cost Reduction Aspect	**Mean/7.0**	**Std. Deviation**
IS increases customers base	6.19	.956
IS helps developing an international standard products	6.16	.784
IS helps keeping tracks of competitors	6.11	.979
IS increases marking channels	6.08	.857
IS helps enterprise expansion	6.07	.803
IS helps opening new markets	5.98	.848
IS increases market share	5.88	.840
Average	**6.1**	**0.87**

As is detailed by the results, IS significantly affects expansion of enterprises included in the study. The strongest impact was recorded in expanding the customer base, and the lowest is in market share. The average impact on this feature is recorded around 6.1/7.0, corresponds to strongly agree, with a standard deviation of 0.87.

5.5.6 Impact of IS on Human Resource Performance

Employees in different positions and levels have to positively interact and utilize IS in the course of doing their jobs. A major concern for enterprises' owners and managers is how the

performance of their employees get affected by IS, and this is why this aspect is included in the study. How impacts HR performance IS is detailed in Table 18.

Table 8: Impact of IS on HR Performance

Human Resources performance aspects	Mean	Std. Deviation
IS enhances HR performance speed	6.23	0.73
IS improves HR communication	6.21	0.86
IS reduces HR mistakes	6.21	0.86
IS helps HR training	6.17	0.87
IS improves HR productivity	6.04	0.69
IS enhances HR skills	5.92	0.99
IS reduces HR time wasting	4.20	2.22
Average	**5.90**	**1.03**

As is detailed by Table 18, seven aspects of this issue were investigated, ranging from performance speed, communication, productivity, skills, etc. Participants in the study, were strongly positive in regards to the impact of IS on their employees performance in all aspects of this issue, but they are reluctant in regards to the issue of time wasting. Most HR performance recorded responses than 6.0/7.0, which corresponds to agree. The only exception is time wasting, with an average of 4.2/7.0, which corresponds to neutral. Remark also the wide dispersion is also recorded for the time wasting issue, with a value of 2.2. So, 68.2% of the samples responses range between strongly agree to disagree.

5.5.7 Impact of IS on Information Sharing and Exchange

In subsection 5.4.3, the impact of IS on information quality was discussed, and concluded that a strong positive attitude is recorded there. IS too, impacts the information exchange and sharing among different units in the enterprise, and with the outside world as well. Among the aspects

included in the study and detailed in Table 19, are information exchange, coordination among enterprise units, and information acquisition.

Table 9: Impact of IS on Information Exchange and Sharing

Information sharing and exchange aspects	**Mean/7.0**	**Std. Deviation**
IS facilitates information acquisition	6.31	.76
IS facilitates coordination among departments	6.30	.83
IS facilitates information exchange	6.22	.90
IS improves communication with customers	6.17	.87
IS improves communication	6.11	.77
Average	**6.2**	**0.77**

The overall impact of IS on information exchange and sharing is strong as viewed by the participants with an average value of 6.2/7.0, and standard deviation of 0.77. The impact of IS of on the issues related to information exchange is rather homogeneous ranging from 6.1 to 6.3. This again confirms that intuitive conclusion that one major motive behind IS acquisition is information processing, storing, sharing and use of this information in achieving competitive advantages.

5.5.8 Impact of IS Achieving Strategic Goals

The overall impact of IS on the enterprises' performances is evaluating by assessing IS impact on achieving the enterprise strategic goals. Five various aspects were included in this construct, see Table 20 below. The second item in the construct directly asks about how participants see IS in achieving the preset strategic goals of the enterprise.

Table 20: Impact of IS on Achieving Enterprise Strategic Goals

Achieving strategic goals aspects	**Mean/7.0**	**Std. Deviation**

Strategic goals cannot be achieved without IS	6.1	0.81
IS facilitates achieving strategic goals	5.9	1.07
there exists an association between IS use and expansion	5.9	0.90
there exists an association between IS use and enterprise growth	5.9	1.07
IS works to achieve expected revenue	5.7	1.13
Average	**5.9**	**1.0**

The overall recorded impression in regards to this issue is 5.9/7.0, corresponds to agree on how IS impacts achieving the strategic goals preset by the enterprise. The reaction 68.2% of participants' ranges between strongly agree to agree to certain extent that strategic goals cannot be achieved without the utilization of an effective IS. Growth and expansion were also linked with the use of an effective IS. This, as will be detailed by the chapter of discussion confirms that local enterprises do consider IS as a strategic option, without which these enterprises can achieve their strategies, particularly, growth and expansion.

5.5.9 Impact of Business Type on View of how IS Impact Enterprises

As is detailed by the preceded subsections, IS was significant positive viewed by the owners and managers of the enterprises, as recorded by their responses to the different issues included in the study. The question that varies now is, do the participants' responses affect the type of businesses they run? To answer this question, the study incorporated 5 different types of enterprises in the study, as are detailed in Table 21. The enterprises indicated by the types of businesses include retail and wholesale, and manufacturing. Table 21 details the scaled indicators used to measure all aspects included in the study, ranging from innovation, to decision making, and ends up to achieving strategic goals.

Table 10: Impact of IS as Viewed by Enterprises of Different Types

Impact of IS on	Telecom and IT		Banking		Insurance		Business		Software development		Overall	
	Mean	STDEV	Mean	STDEV	Mean	STDEV	Mean	STDEV	Mean	STDEV	**Mean**	**STDEV**
Innovation	6.8	0.3	6.3	0.7	6.2	0.6	6.2	0.8	5.5	1.0	**6.3**	0.46
Decision making	6.4	0.6	5.9	0.6	6.0	0.9	5.9	0.9	5.7	1.0	**6.0**	0.26
Information Quality	6.4	0.3	6.0	0.8	6.0	0.7	6.1	0.7	6.2	0.7	**6.1**	0.17
Operation Cost	5.7	0.5	5.3	0.9	5.8	0.9	5.7	0.8	5.4	0.9	**5.6**	0.22
Expandability	6.5	0.5	5.9	0.8	5.8	0.6	6.1	0.5	6.0	0.8	**6.1**	0.27
HR Effectiveness	6.1	0.3	5.7	0.8	5.7	0.8	5.8	0.7	6.0	0.9	**5.9**	0.18
Information Transfer	6.7	0.3	6.1	0.7	5.9	0.8	6.2	0.6	6.0	0.9	**6.2**	**0.23**
Strategic Goals	6.4	0.7	5.9	0.7	5.8	0.8	5.5	0.9	5.8	0.8	5.9	0.20

To test the homogeneity of variances among the different variables tested in the study among the different types of enterprises, we used SPSS to test their variances as recorded by the sample. Table 22 depicts the results of the test. As exhibited by the table, only impact of IS on Innovation, Operation Cost, HR Effectiveness, and Information Transfer do not have homogeneity in their variances; others, like Decision-Making, Information Quality, Expandability, and Strategic Goals achievement are homogeneous in their variances across the different enterprises types.

Table 11: Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Impact of IS on Innovation	7.541	4	96	.000
Impact of IS on Decision Making	2.030	4	96	.096

Impact of IS on Information Quality	1.656	4	96	.167
Impact of IS on Operation Cost	2.468	4	96	.050
Impact of IS on Expandability	1.443	4	96	.226
Impact of IS on HR Effectiveness	4.144	4	96	.004
Impact of IS on Information Exchange	5.196	4	96	.001
Impact of IS on Strategic Goals	.445	4	96	.776

To test whether we do have a significant difference in the means of the effects of IS with respect to enterprise type, we run One-Way ANOVA test. The results of the tests are depicted in Table 23.

Table 12: One-way ANOVA Test on Variability of Impact of IS on Different Enterprise Aspect

Test scaled variable	F	Sig.
Impact of IS on Innovation	8.275	.000
Impact of IS on Decision Making	2.372	.058
Impact of IS on Information Quality	1.453	.223
Impact of IS on Operation Cost	1.560	.191
Impact of IS on Expandability	2.692	.036
Impact of IS on HR Effectiveness	1.032	.395
Impact of IS on Information exchange	3.756	.007
Impact of IS on Strategic Goals	3.462	.011

The table above shows that 4 enterprise aspects do have significant difference in the impact of IS on these aspects, including innovation, expandability, information transfer, and achieving strategic goals. However, no variability is recorded in the impact of IS on other issues, like

decision-making, information quality, operation cost, and HR effectiveness. These aspects do have high level of agreement on how IS impact them in the course of businesses regardless of what types of business they are undertaking.

5.5.10 Impact of Enterprise Age on the View of How IS Impacts Enterprises

In this subsection, the intention is to examine how the age of the enterprise affects the view of how information systems impact enterprises. To that end, we used three age categories, less than 10 years, Between 10 to 20, larger than 20 years old. One way ANOVA is used to that end.

Table 13: One-way ANOVA Test on Variability of Impact of IS as Function of Enterprise Age

Test scaled variable	F	Sig.
Impact of IS on Innovation	2.342	.101
Impact of IS on Decision Making	1.241	.294
Impact of IS on Information Quality	.672	.513
Impact of IS on Operation Cost	.353	.704
Impact of IS on Expandability	.137	.872
Impact of IS on HR Effectiveness	.189	.828
Impact of IS on Information Exchange	3.073	.051
Impact of IS on Strategic Goals	1.806	.170

The results of the ANOVA test clearly indicates that there is no difference in the impact of IS on the different business aspects measured in the study as indicated by Table 24. Note that all p-values (Sig.) are larger than 0.05, which a significant difference might be recorded. So the conclusion out of this test is that the way how IS impacts enterprise major aspects is not affected by the age of the enterprise.

5.5.11 Impact of Enterprise Size on the View of How IS Impact Enterprises

This subsection is added to test whether there is a significant difference in how IS might impact business aspects of the enterprises, in regards to the enterprise size. To that end the enterprise sizes were divided into 4 categories, less than 100, between 100 and 200, between 200 and 300, and larger than 300. One way ANOVA was used in the test, with the results show in Table 25.

Table 14: One-way ANOVA Test on Variability of Impact of IS as Function of Enterprise Size

Test scaled variable	F	Sig.
Impact of IS on Innovation	2.584	.058
Impact of IS on Decision Making	.346	.792
Impact of IS on Information Quality	.977	.407
Impact of IS on Operation Cost	.993	.399
Impact of IS on Expandability	.701	.554
Impact of IS on HR Effectiveness	.698	.556
Impact of IS on Information exchange	2.954	.036
Impact of IS on Strategic Goals	1.674	.178

As is clear from Table 25, there is almost no impact from the enterprise size on the way these enterprises view IS, as measured by the different aspects included in the study. Only the scaled variable measuring information exchange has a p-value (Sig.) below 0.05 indicating a significant difference with regards to enterprise size. This once more confirms what has been found in former subsections, where minor impact is recorded with regards to various features of the enterprise. Accordingly over again, IS is a strategic business option regardless of the enterprise size.

5.5.12 Impact of Enterprise Competitors on the View of How IS Impacts Enterprises

To the impact of level of competition on how managers of enterprises reacted in regards to the view of IS in regards to the various issues of businesses, we tested the correlation between the respondents level of agreements with the number of competitors exists for the contributed enterprises in the sample. The level of correlation and their significance level are listed in Table 26. The table clearly shows no correlation, evidenced by the values of Pearson's correlation coefficients and the p-value (sig.). This again indicates that none of the tested constructs vary with the level of competition the enterprise is experiencing.

Table 15: Correlation Test between Levels of Agreement and Number of Competitors

Tested scaled variable	**number of competitors**	
	Pearson Correlation	Sig. (2-tailed)
Impact of IS on Innovation	0.12	0.23
Impact of IS on Decision Making	0.14	0.18
Impact of IS on Information Quality	-0.04	0.68
Impact of IS on Operation Cost	0.03	0.73
Impact of IS on Expandability	0.04	0.70
Impact of IS on HR Effectiveness	-0.03	0.74
Impact of IS on Information exchange	-0.03	0.76
Impact of IS on Strategic Goals	-0.13	0.20

The same result is reached with the use of one-way ANOVA, which indicates that enterprises grouped by different number of competitors do not experience significantly different level of impact from IS to the tested scaled variables. Exception from this rule is impact of IS on

enterprise expandability, and impact of IS on information exchange, which they recorded less than 0.05 significant level, see Table 27 for details.

Table 16: One-Way ANOVA Test on Variability of Impact of IS as Function of Enterprise Competition Level

Tested scaled variable	F	Sig.
Impact of IS on Innovation	2.5	.115
Impact of IS on Decision Making	.02	.887
Impact of IS on Information Quality	.33	.567
Impact of IS on Operation Cost	.50	.483
Impact of IS on Expandability	4.83	.030
Impact of IS on HR Effectiveness	2.57	.111
Impact of IS on Information exchange	5.83	.018
Impact of IS on Strategic Goals	.157	.693

5.6 Correlation between core business processes

In this section the intention is to show and discuss the correlation between core business competitive advantages. After applying correlation tests, it was concluded that not all have correlation between each other, so this section will include only positive correlation between processes. The section will discuss the results of the correlation and test research hypothesis as shown in table 28.

Table 17: Correlation between core business processes

Correlations			
		Information Effectiveness	Information Transfer
Information Effectiveness	Pearson Correlation	1	.615
	Sig. (2-tailed)		.000

		Employee Efficiency	Operation Efficiency
Employee Efficiency	Pearson Correlation	1	.662
	Sig. (2-tailed)		.000
		Innovation	Operation Efficiency
Decision Making	Pearson Correlation	.662	.770
	Sig. (2-tailed)	.000	.000
		Information Effectiveness	Innovation
Operation Efficiency	Pearson Correlation	.749	.680
	Sig. (2-tailed)	.000	.000
		Information Effectiveness	Operation Cost
Enterprise Expansion	Pearson Correlation	.674	.688
	Sig. (2-tailed)	.000	.000

1. **Correlation between Information Effectiveness and Information Transfer**

Table 28 shows that there is a correlation between Information Effectiveness and Information Transfer (Sig. (2-tailed) <0.05) Also the correlation is strong (Person Correlation = 0.61). This means that Information Transfer have a positive impact on Information Effectiveness.

2. **Correlation between Employee Efficiency and Operation Efficiency**

There is a correlation between Employee Efficiency and Operation Efficiency (Sig. (2-tailed) <0.05) Also the correlation is strong (Person Correlation = 0.66). This means that Employee Efficiency do positively affect Operation Efficiency.

3. **Correlation between Decision Making with Operation Efficiency and Innovation**

There is a correlation between Decision Making with Operation Efficiency (Sig. (2-tailed) <0.05) Also the correlation is strong (Person Correlation = 0.66). This means that Decision Making do positively affect Operation Efficiency. Also there is a correlation between Decision Making and Innovation; strong correlation (Person Correlation = 0.77). Innovation is positively affected by decision making.

4. **Correlation between Operation Efficiency with Innovation and Information Effectiveness**

There is a correlation between Operation Efficiency and Innovation (Sig. (2-tailed) <0.05) Also the correlation is strong (Person Correlation = 0.68). This means that Innovation has a positive impact on Operation Efficiency. Also there is a correlation between Operation Efficiency and Information Effectiveness; strong correlation (Person Correlation = 0.74). Operation Efficiency is positively affected by Information Effectiveness.

5. **Correlation between Enterprise expansion with Operation Cost and Information Effectiveness**

There is a correlation between Enterprise expansion and Operation Cost (Sig. (2-tailed) <0.05) Also the correlation is strong (Person Correlation = 0.68). This means that Operation Cost has a positive impact on Enterprise expansion. Also there is a correlation between Enterprise expansion and Information Effectiveness; strong correlation (Person Correlation = 0.67). Enterprise expansion is positively affected by Information Effectiveness.

5.7 Regression Analysis

In this section the plan is to investigate how the various impacts of IS on performance work to achieve the strategic goals of the enterprise. So the dependent variable of this regression analysis is the Impact of IS in achieving the strategic goals of the enterprise, while the independent variables are the remaining other variable, including IS infrastructure, level of usage, Impact of IS on innovation, on decision making, on information quality, on operation cost, etc.

5.7.1 Multiple Regression Assumptions

Before the regression analysis, we need to examine the regression assumptions, to check whether the regression analysis is valid, in the case of our data.

1- Linearity. For the regression analysis to be valid, a linear relationship is to be assumed between the dependent variable “Achieving Strategic Goals” and the other variables. This assumption is checked, by plotting the scatter diagram among the variables, as is shown by Figure 5 below. It is quite clear that a linear relationship does exist between the dependent variable and other independent variables, and even among the independent variables. This means that this condition is meant and we can readily continue to test other assumptions.

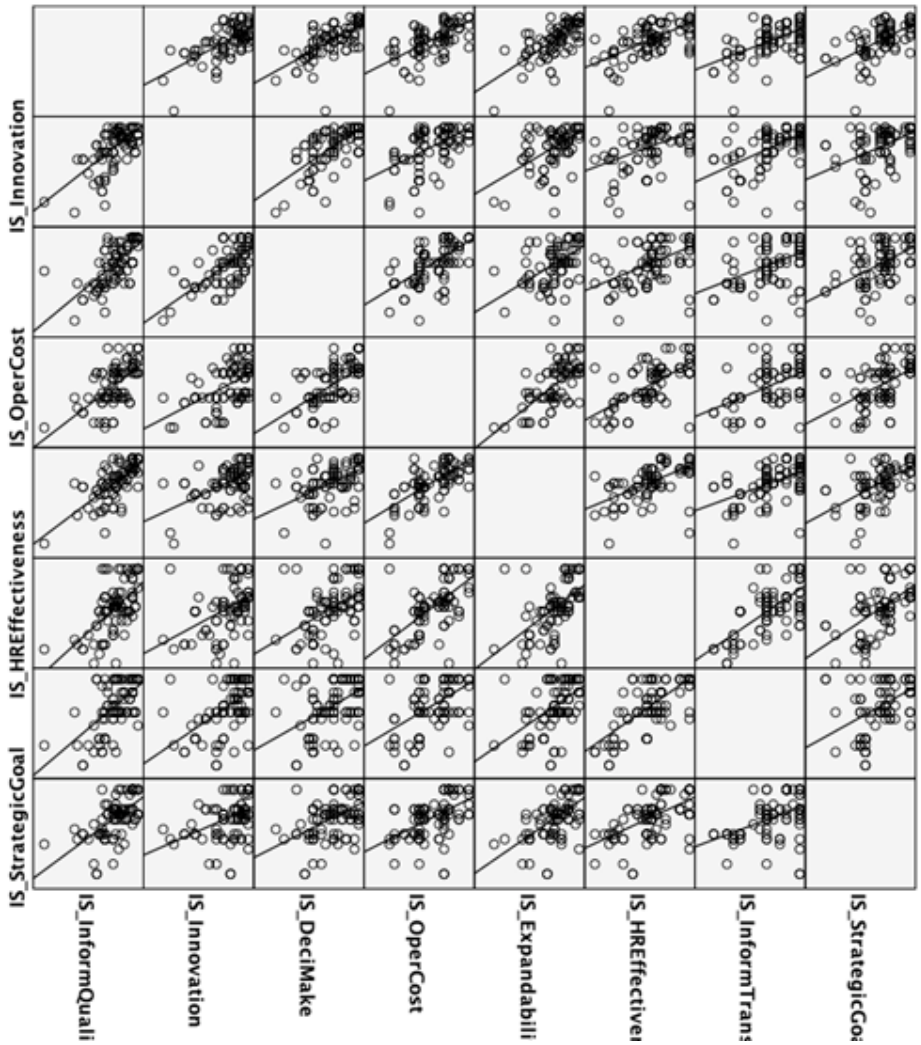

Figure 5: Scatter Plot Matrix among the Variables of the Study

2- Multivariate Normality: the multiple linear regression analysis requires that the errors between observed and predicted values (i.e., the residuals of the regression) should be normally distributed. This assumption may be checked by looking at a histogram of residuals as shown by Figure 6 below, which shows that the residual is rather normally distributed, which allows us to continue checking other assumptions.

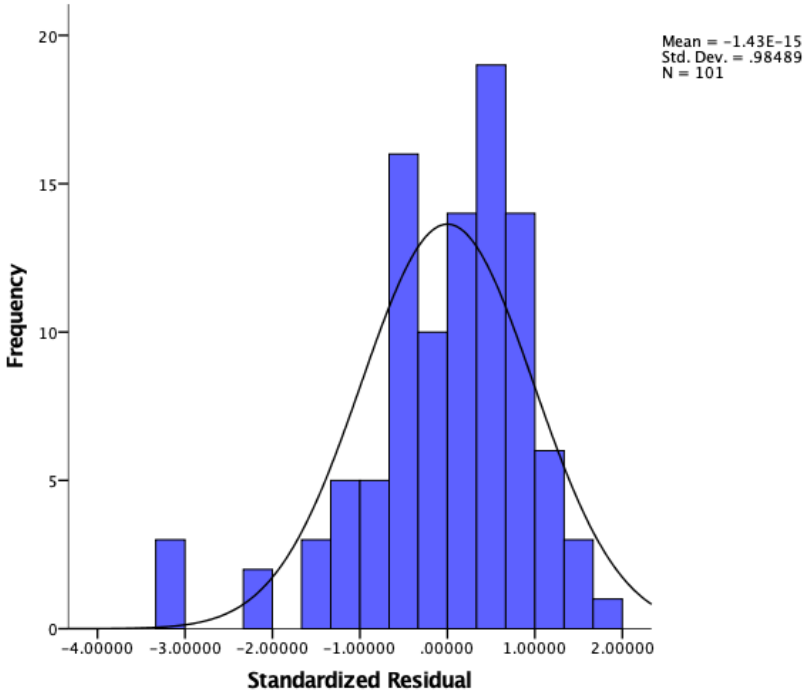

Figure 6: Distribution of the Standardized Residual of the Model vs. the Normal Distribution

3- Heteroscedasticity: This assumption states that the variances of error terms are similar across the values of the independent variables. A plot of standardized residuals versus predicted values can show whether points are equally distributed across all values of the independent variables. Figure 7 below shows almost randomly distributed points, which again fulfills the requirements to do multiple regressions.

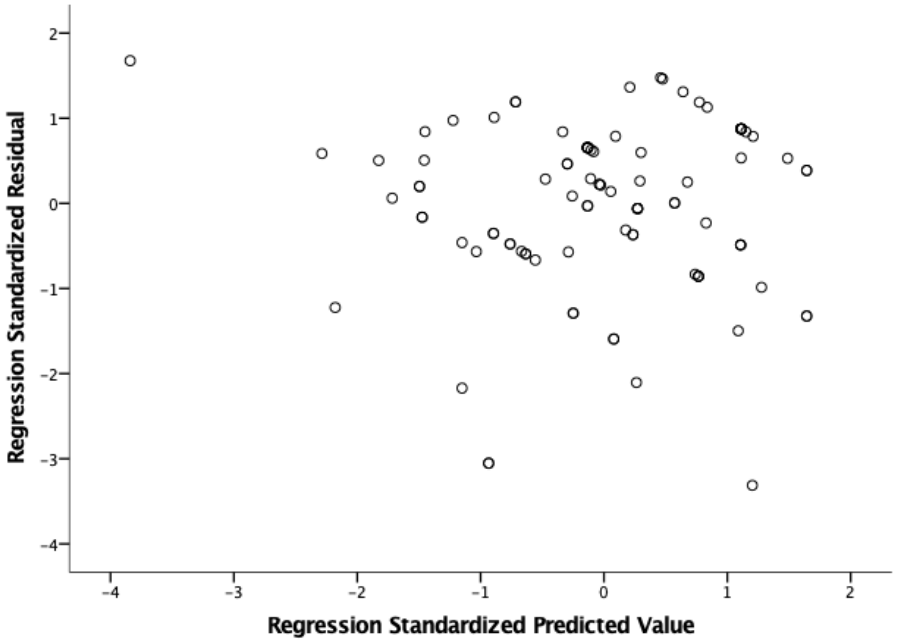

Figure 7: Standardized Residual vs. Standardized Predicted Values

4- No Multicollinearity—multiple regressions assume that the independent variables are not highly correlated with each other. This assumption is tested using Variance Inflation Factor (VIF) values. As will be shown later in the upcoming results section, VIF was found to support no co-linearity problem with the tested variables.

In conclusion, all assumptions required to do regression are met by the dataset, and hence, we can go ahead and do the regression analysis.

5.7.2 Regression Analysis

To build the regression model for the study, we used SPSS multivariate regression, and selected the stepwise regression method, since it only includes those variables that do have significant impact on the dependent variable. What stepwise method does, is that it looks at the Pearson correlation matrix, and it selects the variable with the highest correlation and puts into the

regression analysis, and names it Model 1, and then takes the next strongest variable or the next higher predictor, and names it Model 2, and so on, till it finds an un-predictor variable and then stops the analysis.

Table 18: Correlation Matrix between Dependent Variable and Independent Variables

Variable	**Correlation Coef.**	**P-value (Sig.)**
IS infrastructure	.101	.157
Level of usage of IS	.333	.000
Innovation	.438	.000
Decision Making	.511	.000
Information Quality	.608	.000
Operation Cost	.511	.000
Expandability	.610	.000
HR Effectiveness	.558	.000
Information Transfer	.456	.000

As is seen from Table 29, all variables do have significant correlation with the dependent variable except IS infrastructure, with Expandability having the highest correlation coefficient and Level of Usage has the lowest significant correlation. Independent variables themselves are correlated with each other. This kind of correlation among the independent variables will be excluded when multiple regressions is conducted.

The stepwise multiple regression analysis detected only three independent variables that do have significant predicting power of the dependent variable, which is achieving strategic goals via IS.

Table 30: Model Summary of the Regression Model of the Ability of IS to achieve Strategic Goals

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.610[a]	.372	.366	.62799	
2	.663[b]	.440	.428	.59641	
3	.683[c]	.467	.450	.58483	1.563
a. Predictors: (Constant), Expandability					
b. Predictors: (Constant), Expandability, HR Effectiveness					
c. Predictors: (Constant), Expandability, HR Effectiveness, IS Information Quality					

The summary of the extracted model is depicted in Table 30 above. The R value is the correlation between the predicted variable (achieving Strategic goals) and the predicting variables, which in our case are Expandability, HR effectiveness, and Information quality. Other independent variables included in the study do not have any significant prediction power on the dependent variable, and this is why they are excluded from the study. The overall prediction power of the regression model is the value of the R-square and adjusted R-square. Adjusted R-square is more accurate since it accounts for the effect of the number of variables, and the sample size. Accordingly, the constructed model out of these independent variables was able to predict the variability of the dependent variable “achieving Strategic goals” by 45%.

The Durbin-Watson value is used to check whether we have a meaningful serial correlation in the analysis. A value of 1.56 is acceptable for the model not to have the serial or autocorrelation problem.

Table 31: Regression Coefficients, Significance, and Collinearity Statistics of the Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	.440	.597		.737	.463					
Expandability	.345	.121	.305	2.859	.005	.610	.279	.212	.482	2.073
HR Effectiveness	.255	.108	.230	2.358	.020	.558	.233	.175	.580	1.724
IS Information Quality	.305	.138	.250	2.218	.029	.608	.220	.164	.431	2.320

The prediction model is detailed in Table 31, where the Constant is associated with the intercept of the model with a value of 0.44; the unstandardized coefficients of the model of each independent variable are shown as well. These values allow us to create the prediction model for the role of IS in achieving the strategic goals, in terms of the independent variables of Expandability, HR effectiveness, and Information quality. That model can be described in terms of these variables as:

Achieving Strategic goals = 0.44 + 0.345 Expandability + 0.255 HR effectiveness + 0.305 Information quality

Other variables included in the study, mainly Impact of IS on Innovation, Decision Making, Operation Cost, and Information exchange are found not to have any statistically significant prediction power, therefore, will be excluded from the model. The table also gives the standardized beta coefficients which measure the variation in terms of standard deviation, and it again indicates that Expandability has indeed the strongest prediction power. Table 31, lists the

significance level of the coefficients of all the tested independent variables, and as can be seen from the table that are all significant with values less than 0.05, which indeed guaranteed by using the stepwise regression model.

Table 31 also details the part and partial correlation in addition to the zero-order correlation. The zero-order correlation is just the person correlation coefficients without fixing for any impact. The partial correlation is the association of the independent variable on the dependent variable excluding any linear effect other independent variables might have on the independent variable in the question. So the partial correlation coefficient between expandability and Strategic goals achievement solely is 0.279. Which means that an increase of 1 unit of Expandability would lead to an increase of 0.279 units in achieving strategic goals using IS.

The last two columns in the table are detailing the co-linearity of the model. The two parameters are linked with each other's and indeed they are reciprocal of each other's. A VIF value of 4.0 might be problematic, but it becomes serious when the value reaches 10. Luckily, we do not have any co-linearity problem with our model, since all values are far away from 10. The same applies to the Tolerance parameter, where co-linearity becomes a problem when we have a tolerance value that is below 0.2, and again we have all our tolerance values above 0.2, consequently no tolerance problem.

5.8 Summary of the analysis

In summary, this chapter discussed all the required test and analysis for data from sample size to figure out the results of research questions and to test research hypothesis. Starting with Data screening and reliability analysis, then descriptive analysis were used, and then tests to show the impact of core business processes. Followed by Correlation between core business processes. Finally, regression analysis was used. Following points are the conclusion results for this chapter:

- Enterprises have very high level of IS infrastructure; 86.4% of all enterprises do have all technological solutions included in the study.
- There is almost no difference is recorded among enterprises in reference to their field of work.
- The level of competition significantly impacts the level of IS penetration and how information system is utilized by that enterprise.
- There is almost no difference is recorded among level of penetration of enterprises in reference to their field of work.
- The results revealed a high level of usage and utilization of IS in the major business processes as practiced by the sample. Most of the utilization of IS level is around 4/5, which means that IS is about 80% utilized, (or often used) on average by Palestinian enterprises represented in the sample.
- 68.2% of enterprises do have their level of utilization of IS ranges between 3/5 (*sometimes)* used to 5/5 (*always)* used.
- No significant difference in utilization of IS level is recorded for enterprises belonging to different field of work
- The business type has almost no impact on the level of IS penetration, as well as the level of utilization of IS in their core business.
- IS is significantly helping in promoting innovation among enterprises included in the study.

- IS significantly enhances decision making processes, including the decisions' effectiveness, speed, quality, and also IS improves monitoring and creating an environment where decisions can be made decentralized.
- Four enterprise aspects do have significant difference in the Impact of business type on view of how Information system impact enterprises, including Innovation, expandability, Information Transfer, and achieving strategic goals.
- There is no difference in the impact of IS on the different business aspects measured in the study.
- There is almost no impact from the enterprise size on the way how these enterprises view IS, as measured by the different aspects included in the study.
- Enterprises grouped by different number of competitors do not experience significantly different level of impact from IS to the tested scaled variables. Exception from this rule is impact of IS on enterprise expandability, and impact of IS on information exchange.

Regression Model

Correlation between the predicted variable (achieving Strategic goals), and the predicting variables, which are in our case, Expandability, HR effectiveness, and Information quality:

$$\textit{Achieving Strategic goals} = 0.44 + 0.345\ \textit{Expandability} + 0.255\ \textit{HR effectiveness} + 0.305\ \textit{Information quality}$$

After analyzing the dataset and made the appropriate tests, below research questions regarding effect of information system on core business processes of enterprise are answered:

1. **Information System may positively affect enterprise innovation and creativity.**

Participants in the study view information systems as having a strong positive impact on the enterprises innovation and creativity, with mean 6.2 out of 7 and Std. Deviation 0.76. This result

conforms that companies are satisfied to the use of IS in promoting innovation in all aspects of their businesses.

2. **Information system may improve the process of and outcome an effective decision making.**

Participants in the study views information systems as having a rather positive impact on most of enterprises decision making, with mean 5.9 out of 7 and Std. Deviation 0.8. The overall trend is that IS significantly enhances decision making processes, including the decisions' effectiveness, speed, quality, and also IS improves monitoring and creating an environment where decisions can be made decentralized.

3. **Information system may have a moderate influence on Information Quality.**

Information system has a positive impact on enterprise information quality, with mean 6.1 out of 7 and Std. Deviation .62 Enterprises' managers were substantially positive in regards to how IS impacts information quality.

4. **Information system may have a moderate influence on operation effectiveness.**

Information system has a positive impact on operation effectiveness in enterprises, with mean 6.2 out of 7and Std. Deviation .68

5. **Information system significantly affects enterprise operations cost reduction.**

Information system significantly affects enterprise operations cost reduction, with mean 5.5 out of 7 and Std. Deviation .78. The impact of IS on different cost reduction aspects, varies from 5.07/7.0 to 5.87/7.0. With the highest corresponds to reduction in cost of information processes, and the lowest corresponds reduction of financial risks, and the reduction of the need for human resources.

6. **There is a significant relationship between information system and business expansion.**

Information system significantly affects expansion of enterprises included in the study, with mean 6.1 out of 7 and Std. Deviation .7. The strongest impact was recorded in expanding the customer base, and the lowest is in market share.

7. **Employees in their different positions and tasks have to positively interact and utilize IS in the course of doing their jobs as information system impact their performance.**

Information system positively impact employees' efficiency, with mean 6.11 out of 7 and Std. Deviation .068. Participants in the study, were strongly positive in regards to the impact of IS on their employees performance in all aspects of this issue

8. **Information system may positively affect the efficiency of communication and information sharing and exchange**

Information system has a positive impact Communication and information sharing and exchange among different units in the enterprise, with mean 6.2 out of 7 and Std. Deviation .7

This confirms that one major motive behind IS acquisition is information processing, storing, sharing and use of this information in achieving competitive advantages.

9. **Creating business short and long term business goals value requires effective use of information systems.**

Information system has a positive impact on achieving strategic goals for the enterprises, with mean 5.9 out of 7 and Std. Deviation .74. The reaction 68.2% of participants' ranges between strongly agree to agree to certain extent that strategic goals cannot be achieved without the utilization of an effective IS.

Also, below hypothesis were tested and accepted:

i. There is a significant relationship between Information Effectiveness and Information Transfer when using information system in enterprise.

ii. There is a significant relationship between Employee Efficiency and Operation Efficiency when using information system in enterprise.

iii. There is a significant relationship between Decision Making with Operation Efficiency and Innovation when using information system in enterprise.

iv. There is a significant relationship between Operation Efficiency with Innovation and Information Effectiveness when using information system in enterprise.

v. There is a significant relationship between Enterprise expansion with Operation Cost and Information Effectiveness when using information system in enterprise.

Chapter 6 Discussion

6.1 Overview

This chapter discusses the results from chapter 5 and how these results impact the enterprises. First the intention is to discuss the descriptive analysis of the study and how information system penetration and usage do affect enterprise performance. Then it discusses business advantages of IS influence on the performance of core businesses done for the enterprises.

6.2 Information system penetration and usage

In our study enterprises have very high level of IS infrastructure; 86.4% of enterprises do have all technological solutions included in the study. Also, Results revealed a high level of usage and utilization of IS in the major business processes as practiced by Palestinian enterprises represented in the sample. This will indeed dramatically influence the concept of enterprises activities and IS will be the tool to improve enterprise transactions. Utilizing IS for these enterprises are a strategic business element, enabling the reengineering of business activities, re-designing of the enterprise structure, and redefinition of market and industries. IS infrastructure can help enterprises to improve the competitive advantage and enhance performance, hence save money and gain more profit.

Information system infrastructure needs to be established and founded in the enterprises to generate significant choices for future corporate development. This needs extensive planning with reliable implementation to process strategic enterprise initiatives and acquisitions. When forming information system to support business process and management architecture for enterprises, it needs to work with enterprise system architecture. Obviously, long term strategic plan need to be considered when designing the architecture of IS whatever the business type was.

Using information system will impact many factors in the enterprises; it will impact human resources including managers and employees, it will improve the efficiency of the employees by facilitating the implementation of required tasks and motivate them, thus increasing their creativity. For managers, IS will help monitoring and evaluating employee performance. Also, will improve communication between employees and increase their productivity with reducing errors and increasing accuracy in work. Furthermore, it will improve customer service, manage the assets of the enterprise, marketing operations and improve data analysis, processing and conversion. This will contribute to enterprises to be more competitive, more effective and efficient and so deal with global economic changes with high performance and gain needed profit.

6.3 Impact of IS on core business processes

In this study, the results showed that information system do have significant impact on all mentioned businesses core processes which are: Innovation and creativity, Operation effectiveness, Operation cost, Information quality, Communication and Information exchange, Expandability, Employees' Effectiveness, Facilitation of Decision making and Achieving of Strategic goals.

For Innovation; information system is promoting innovation in all aspects of the businesses in sample study. Information system will enhance the process of producing new ideas and then work forward achieving them and put them in practice. Thus, increasing the enterprise ability to reach what is new and add value faster than other competitor in the market. Having a strong IS infrastructure will place the innovation into practice to execute and find new method of processing the work and develop new services and products in order to get the best results. This will help develop new channels for advertising with new approaches to manage operations in

order to develop new products and techniques to provide new services and enhance enterprises competitiveness by performing better than other firms in ranging from new services development to customer service and information input. (Habis & Khaled & Atef, 2016).

For the operation effectiveness and cost, IS is an online tool which involves minute to minute operations. Enterprises may invest and spend resources and wasted money on performance measurement system and never find system that ensures enterprise operational performance enhances incrementally. So, it is important to evaluate if the adoption of information system leads to improvement in operations efficiency and cost reduction which will optimize procedures to lead to less inventory needs, lower labour cost, lead time, overheads and operating expenses. (Oliveira & Gamboa & Fernandes, 2015).

Decision making is the key to the long term survival of enterprises. Process of good decisions is not sufficient; the enterprises need to make them quickly as well. Results showed that IS has transformed the enterprises structure and improved decision making process. It is frequently identified that information systems is a tool to assist managers by using available information for action and to facilitate decision making and one of the main roles of information systems has been to improve decision making. Managers who recognize what IS is, and what IS can and cannot do, are in the best place to help their enterprises succeed and make better decisions. IS significantly enhances decision making processes, including the decisions' effectiveness, speed, quality, and also IS improves monitoring and creating an environment where decisions can be made decentralized. (Berisha-Namani & Qehaja, 2013)

Results show that enterprises gives a great deal of attention to how they set about capturing, storing and processing the information that they use in their processes and decision making. Additionally, it has become widely recognized that information, and information systems that

handle it, are key resources of enterprises. When it comes to information quality and exchange, it has significant, positive impact on firm performance which is facilitated by business value. Information is the key for enterprise resource, and all kinds of business data are used increasingly in strategic information systems, IS reduces the time to obtain these data and improves data analysis and quality, thus improves data utilization. Superior information quality will impact operational, tactical and strategic level. These impacts include customer satisfaction, reduce operational costs and increase the ability to make and execute strategies.

As results of this study showed that IS do significantly impact Employees' Effectiveness, most study cases confirmed that IS enhance their communication and productivity, enhance their skills and reduce their mistakes. This will help employees to be more willing to run their roles which results in the enhanced human resources productivity. In addition, IS as a set of created ideas delivered through software systems to employees and enterprises will play a significant role in human resources development. Information system plays an important role in training, developing professional skills with innovation and exploring spirit between employees with facilitating standard thinking; all these benefits from IS with lead to develop the enterprise or the society in many fields achieving balanced involving human development. (Rezaei & Rezaei & Zare & Akbarzadeh & Zare, 2014)

Main findings of this study concluded that IS is targeted to improve internal efficiency and cost reduction, the objective of strategic IS investment is market expansion, for instance increasing marking share, discovering a new channel to customers, producing new business, or restructuring a business. IS has improved operations effectiveness and efficiency. Accordingly, this will reduce operations cost, increase profitability and increase revenue. The introduction of this supported information system will perform as strategic goal and maintain competitive

advantages and sustain enterprise continued growth to reach help enterprise expansion and develop products and services. (Dmitrij & Vida, 2013). These changes to the enterprise's operational practices, business system and ICT infrastructure have improved operational processes and efficiency of the enterprise. Consequently, this has reduced operating and transaction costs, increased turnover and enhanced profitability. The introduction of this fully supported and integrated IT system will serve as a strategic tool for enterprise to sustain its continued growth and maintain its competitive advantage as one of the leading enterprises.

From study results, information systems have an effective role on the enterprise performance and its value, which need to be from main goals in enterprise strategic plan, many enterprises rushed to discover, develop and benefit from information systems to achieve its objectives. IS will help the process of strategic planning to process enterprise goals in today complex market with competitive economy

In conclusion, the relationship between information system and enterprise productivity and performance has been an important topic in research for years. Our current era faces important and difficult challenges by means of the continuous growths which are witnessed by the enterprises, in both public and private. Especially, after globalization and huge development in technology, especially communications and information revolution. Enterprises need to invest and use information system in developing their businesses and improve productivity to serve operations and keep up with the facing competitors in the market. Achieving to perform in information society, seeks to innovation with cooperative efforts, where "current economy become not depending on traditional means of production which are capital, land, labor and human resources, but it's reliance has become on knowledge and information systems" (Al Tai, 2009)

Chapter 7: Conclusion and Recommendations

7.1 Overview

This chapter concludes the research work for this study, along with the main results and findings. It also includes the study limitations and a list of some recommendations for future work.

Although the role of strategic information systems in achieving enterprise competitive advantages is widely investigated in many studies, but this study contributes new outcomes regarding research topic in Palestine, which has not been previously covered by any other researchers. The examined research is very critical regarding the depth of its outcomes. It supports strategic information system in order to achieve enterprise competitive advantages and so reach sustainable growth and development to the enterprise.

7.2 Conclusion

This subsection includes the main findings and results of the research questions and tested hypotheses.

- Information systems positively affect enterprise innovation.
- Information systems improve the process of and outcome from decision making.
- Information system has a moderate influence on Information Quality.
- Information system has a moderate influence on operation Quality.
- Information system is positively associated to the Efficiency of the enterprise's employees
- Information system improves cost reduction of the enterprise.
- There is a significant relationship between information system and business expansion.

- Information system has a significant impact on the efficiency of human resources and their sources in the enterprise.
- Information system positively affects the efficiency of communication and information sharing and exchange in the enterprise
- Creating business short and long term business goals value requires effective use of information systems.
- There is a significant relationship between Information Effectiveness and Information Transfer when using information system in enterprise.
- There is a significant relationship between Employee Efficiency and Operation Efficiency when using information system in enterprise.
- There is a significant relationship between Decision Making with Operation Efficiency and Innovation when using information system in enterprise.
- There is a significant relationship between Operation Efficiency with Innovation and Information Effectiveness when using information system in enterprise.
- There is a significant relationship between Enterprise Expansion with Operation Cost and Information Effectiveness when using information system in enterprise.

7.3 Contribution of the Study

This study and its findings clearly explained the impact of strategic information systems on achieving competitive advantages. Results showed that enterprises in various sectors used IS applications which were provided for enterprises to achieve competitive advantages and results showed which advantages are actually achieved. Also, IS infrastructure was analyzes within Palestinian enterprises. Further, the survey can be used to study the usage and penetrations of information systems, therefore, this survey increased the awareness of the importance of using

information systems and generating future managerial decisions and procedures, in an attempt to enhance and maximize information systems effectiveness to increase profits, and to lead the enterprise to success. This can be done through achieving all competitive advantages and constructed plans to include information systems in decision-making processes and develop human resources and information quality reaching to enterprise expansion with sustainable growth and development. Also, this will increase the work toward enterprise's strategic plans and goals that will be easy to implement by using information systems.

In addition, this study will help future studies especially within the Palestinian context to conduct further studies on strategic information systems and research competitive advantages in various fields.

7.4 Research Limitations

This study provides major findings that information systems play in achieving enterprise competitive advantages, but it is important to identify some of the research limitations. The main limitation was the sample size of the enterprises which included only medium to large enterprises, while small enterprises were not included in this research sample. Including small enterprises in the study may have caused unclear results and minor errors.

Also, this research focused on five main sectors: Telecommunications and IT, Banking, Insurance, Businesses and Software Development. However, there are other fields that were not included in this study.

Last research limitation was that not all competitive advantages were included in this study, research took what suit research topic within Palestine context the best.

7.5 Recommendations

- To study each enterprise sector individually, as each field has its own needs that may not be proportional to the other, then conclude what necessary programs, which in turn lead to increased efficiency and productivity and effectiveness and reduce the human resources and easy access to information for each field.
- Administrative management should be convinced with the importance of information systems and to recognize the activation of decentralization.
- Increase interest in the information systems field and increase the reliability of computerized systems to increase the support of software programs.
- Keep track of the constant developments in information systems and to allocate budgets for development departments in enterprises and work on motivating employees.
- Always with the development of the enterprise through the performance of information systems must be accompanied by technical support, which meets any request or modification or development that simulates the requirements of the user and to meet what is required

7.6 Future Research Directions

This research topic is vital and is the first research performed on the subject of strategic information systems in Palestine, and its impact on achieving enterprise competitive advantages. Future research should consider the following:

- Study an enterprise's strategic plans and then study how they are planning to use information systems in order to achieve competitive advantages.
- Take small enterprises as a sample case study to determine whether they use information systems strategically to achieve competitive advantages.
- A study on the awareness of strategic information systems in each field of work.

- A study to investigate enterprises' strategic plans and implementation to achieve competitive advantages.
- Study other different competitive advantages in the enterprises.

7.7 Concluding Remarks

From this study the most significant findings will help Palestinian enterprises and managers to be fully aware of the importance of IS and its applications in achieving all competitive advantages and strategic goals to increase enterprise position among competitors. As this study showed that IS do have significant impact on all mentioned businesses core processes.

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Appendices

Appendix 1: Questionnaire

The Arab American University
Highly educational Department
Strategic Planning and fundraising

الجامعة العربية الأمريكية
برنامج الدراسات العليا
تخطيط استراتيجي وتجنيد أموال

أثر أنظمة المعلومات والتكنولوجيا على أداء الشركة وتحقيق مزايا تنافسية لها

هذه الدراسة تهدف الى تحديد "أثر أنظمة المعلومات على تميز الشركة وتحقيقها لمزايا تنافسية". يرجى تعبئة الاستبانه بدقة علماً بأن إجاباتكم تستخدم لأغراض بحثية فقط ولن تستخدم لأغراض أخرى. شاكرة لكم حسن تعاونكم .... الباحثة: مها تيسير حمايل
,باشراف د. خالد ربايعه

الشركة Organization

الرمز	السؤال
Org1	عمر الشركة .....
Org2	مجال عمل الشركة .....
Org3	عدد الموظفين بالشركة .....
Org4	عدد افرع الشركة .....
Org5	عدد المنافسين للشركة .....

البنية التحتية لأنظمة المعلومات ISInfra

	البند	نعم	لا
ISInfra1	تمتلك الشركة شبكة حواسيب داخلية		
ISInfra2	تمتلك الشركة شبكة حواسيب خارجية تربط الافرع مع بعض		
ISInfra3	تمتلك الشركة موقعا على الانترنت		
ISInfra4	تمتلك الشركة موقعا على الفيس بوك		
ISInfra5	تمتلك الشركة ايميل خاص بها		
ISInfra6	تمتلك الشركة قاعدة بيانات خاصة بها		
ISInfra7	تمتلك الشركة سيرفر خاص بها		
ISInfra8	تستخدم الشركة أنظمة محوسبة لإدارة عملياتها		

مجالات استخدام أنظمة المعلومات ISuse

الرمز	البند	تستخدم دائما	تستخدم بكثرة	تستخدم احيانا	تستخدم نادرا	لا تستخدم
ISuse1	تستخدم أنظمة المعلومات في التواصل بين موظفي الشركة					
ISuse2	تستخدم أنظمة المعلومات في التواصل مع الزبائن					
ISuse3	تستخدم أنظمة المعلومات في تقديم الخدمات للزبائن					
ISuse4	تستخدم أنظمة المعلومات في حفظ المعلومات الخاصة بالشركة					
ISuse5	تستخدم أنظمة المعلومات في تسجيل خبرات المعارف المكتسبة لدى الشركة					
ISuse6	تستخدم أنظمة المعلومات في عمليات التسويق في الشركة					
ISuse7	تستخدم أنظمة المعلومات في العمليات المالية والمحاسبية في الشركة					
ISuse8	تستخدم أنظمة المعلومات في تقليل التكاليف التشغيلية في الشركة					

ISuse9	تستخدم أنظمة المعلومات في عمليات تدريب الموظفين في الشركة					
ISuse10	تستخدم أنظمة المعلومات في الحصول على معلومات عن المنافسين					
ISuse11	تستخدم أنظمة المعلومات في التحويلات المالية وإدارة حسابات الشركة					
ISuse12	تستخدم أنظمة المعلومات في التواصل مع الشركاء والموردين					
ISuse13	تستخدم أنظمة المعلومات في أدارة موجودات الشركة					
ISuse14	تستخدم أنظمة المعلومات في توفير الوقت على الشركة					
ISuse15	تستخدم أنظمة المعلومات في تحليل ومعالجة البيانات وتحويلها الى معلومات					
ISuse16	تستخدم أنظمة المعلومات في إدارة الموارد البشرية					

تأثير أنظمة المعلومات على ابداع الشركة Innov

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
Innov1	ساهمت أنظمة المعلومات في استحداث خدمات جديدة في الشركة							
Innov2	ساهمت أنظمة المعلومات في استحداث طرق جديدة لتقديم الخدمات للزبائن							
Innov3	ساهمت أنظمة المعلومات في استحداث منتجات جديده في الشركة							
Innov4	ساهمت أنظمة المعلومات في زيادة سرعة الاستجابة لخدمات الزبائن							
Innov5	ساهمت أنظمة المعلومات في رفع كفاءة الموظفين في الشركة							
Innov6	ساهمت أنظمة المعلومات في استحداث طرق جديدة لادارة العمليات							
Innov7	ساهمت أنظمة المعلومات في زيادة سرعة دخولنا الى السوق							
Innov8	ساهمت أنظمة المعلومات في استحداث أساليب جديدة للتسويق في الشركة							
Innov9	ساهمت أنظمة المعلومات في أستحداث أساليب جديدة في الدعاية في الشركة							
Innov10	ساهمت أنظمة المعلومات في تحسين قدرة الشركة على الابداع بشكل عام							

تأثير نظم المعلومات على اتخاذ القرارات DM

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
DM1	ساهمت أنظمة المعلومات في سرعة اتخاذ القرارات في الشركة							
DM2	ساهمت أنظمة المعلومات في فعاية اتخاذ القرارات في الشركة							
DM3	ساهمت أنظمة المعلومات في سهولة اتخاذ القرارات في الشركة							
DM4	تعتبر أنظمة المعلومات المصدر الأساسي لتزويد الإدارة بالمعلومات المناسبة لعملية اتخاذ القرارات							
DM5	ساهمت أنظمة المعلومات في جعل عملية اتخاذ القرارات غير مركزية في الشركة							

DM6	ساهمت أنظمة المعلومات في تسهيل الرقابة على اتخاذ القرارات							
DM7	ساهمت أنظمة المعلومات في اتمتة اتخاذ القرارات							
DM8	ساهمت أنظمة المعلومات في جعل ألية اتخاذ القرار لامركزية							
DM9	ساعدت أنظمة المعلومات المدراء من الدرجة الثانية والثالثة على اتخاذ القرار							
DM10	ساهمت أنظمة المعلومات برفع جودة القرارات المتخذه							

تأثير نظم المعلومات على جودة العمليات في الشركة OPE

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
OPE1	ساهمت أنظمة المعلومات في تطوير قنوات جديدة للمنتجات والخدمات التي تقدمها الشركة							
OPE2	ساهمت أنظمة المعلومات في تحسين جودة المنتجات والخدمات المقدمة للعملاء							
OPE3	ساهمت أنظمة المعلومات في التعامل مع اقتراحات وشكاوي العملاء بسرعة							
OPE4	ساهمت أنظمة المعلومات في جعل الابتكارات التسويقية للشركة (دخول أسواق جديدة ، طرق تسعير جديدة ، طرق توزيع جديدة ، إلخ.) أفضل من المنافسين.							
OPE5	ساهمت أنظمة المعلومات في تسهيل ارداة العمليات							
OPE6	ساهمت أنظمة المعلومات في مساعدة الإدارة على مراقبة أداء العامليين فيها							
OPE7	ساهمت أنظمة المعلومات في رفع جودة العمليات والإجراءات في الشركة							
OPE8	ساهمت أنظمة المعلومات في رفع سرعة اجراء العمليات في الشركة							

تأثير نظم المعلومات على جودة المعلوماتINFQ

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
INFQ1	ساهمت أنظمة المعلومات في مواكبة المتطلبات والاحتياجات المتزايدة للعملاء							
INFQ2	ساهمت أنظمة المعلومات في تقليل الوقت المطلوب للحصول على المعلومات							
INFQ3	ساهمت أنظمة المعلومات في تسهيل نقل المعلومات بين جميع فروع الشركة							
INFQ4	ساهمت أنظمة المعلومات في تسهيل الحصول على المعلومات							
INFQ5	ساهمت أنظمة المعلومات في تحسين نوعية المعلومات							
INFQ6	ساهمت أنظمة المعلومات في تسهيل وتسريع تخزين المعلومات							
INFQ7	ساهمت أنظمة المعولمات في تحليل البيانات في الشركة والحصول منها على معلومات مفيدة							
INFQ8	ساهمت أنظمة المعلومات في زيادة فرص الاستفادة من المعلومات							
INFQ9	ساهمت أنظمة المعلومات في تنظيف البيانات من الأخطاء							

	والشوائب						
INFQ10	ساهمت أنظمة المعلومات في عرض المعلومات على أصحاب القرار						
INFQ11	ساهمت أنظمة المعلومات في نشر المعلومات التي ترغب الشركة بنشرها						
INFQ12	ساهمت أنظمة المعلومات في تسريب معلومات الشركة						

تأثير نظم المعلومات على تقليل تكاليف الشركةOPCO

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
OPCP1	ساهمت أنظمة المعلومات في التقليل من التكاليف التشغيلية للشركة							
OPCP2	ساهمت أنظمة المعلومات في التقليل من الحاجة للموارد البشرية							
OPCP3	ساهمت أنظمة المعلومات في تقليل تكاليف التعامل مع البيانات والمعلومات							
OPCP4	ساهمت أنظمة المعلومات في تكاليف الدعاية والتسويق							
OPCP5	ساهمت أنظمة المعلومات في تجنب الأزمات المالية التي ممكن أن تتعرض لها الشركة							

تأثير نظم المعلومات على كفاءة العامليين في الشركة Empl

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
Empl1	ساهمت أنظمة المعلومات على تحفيز العاملين وزيادة قدراتهم الإبداعية							
Empl2	ساهمت أنظمة المعلومات في المساعدة في مراقبة أداء الموظفيين							
Empl3	ساهمت أنظمة المعلومات في تسهيل إنجاز المهام المطلوبة من الموظفيين							
Empl4	ساهمت أنظمة المعلومات في سهولة تقييم أداء الموظفيين							
Empl5	ساهمت أنظمة المعلومات في رفع كفائة العاملين في الشركة							

تأثير نظم المعلومات على انتشار الشركة وتوسعها (فتح فروع أكثر في بلدان ثانية) Glob

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
Glob1	ساهمت أنظمة المعلومات في سهولة مراقبة أداء العمل عن بعد							
Glob2	ساهمت أنظمة المعلومات في التعريف بمنتجات الشركة							
Glob3	ساهمت أنظمة المعلومات في زيادة قنوات البيع للشركة							
Glob4	ساهمت أنظمة المعلومات في التوسع إلى أسواق جديدة أو أسواق حالية							
Glob5	ساهمت أنظمة المعلومات في زيادة الحصة السوقية للشركة							
Glob6	ساهمت أنظمة المعلومات في مراقبة الوضع التنافسي							
Glob7	ساهمت أنظمة المعلومات في تحسين منتجات الشركة لتتمتع بمواصفات عالمية							

Glob8	ساهمت أنظمة المعلومات على انتشار الشركة وتوسعها						

تأثير نظم المعلومات كفاءة الموارد البشرية ومصادرها في الشركة HR

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
HR1	ساهمت أنظمة المعلومات في تقليص الأخطاء وزيادة الدقة في العمل							
HR2	ساهمت أنظمة المعلومات في زيادة سرعة الأداء لدى الموظفيين							
HR3	ساهمت أنظمة المعلومات في عملية تدريب الموظفين الموجودين والجدد							
HR4	ساهمت أنظمة المعلومات زيادة إنتاجية العاملين في الشركة							
HR5	ساهمت أنظمة المعلومات في زيادة قدرات العاملين في الشركة							
HR6	ساهمت أنظمة المعلومات في تواصل العاملين مع بعض ومع الإدارة							
HR7	أنظمة المعلومات عملت على هدر أوقات العمل للموظفين							

تأثير نظم المعلومات على كفاءة الاتصال ونقل المعلومات في الشركة INCO

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
INCO1	ساهمت أنظمة المعلومات في تعزيز التواصل بين جميع وظائف الشركة							
INCO2	ساهمت أنظمة المعلومات في زيادة تبادل المعلومات بين الموظفين							
INCO3	ساهمت أنظمة المعلومات في زيادة التنسيق بين الأقسام الداخلية بالشركة وزيادلة فعالتها							
INCO4	ساهمت أنظمة المعلومات في تحسين التواصل مع الزبائن							
INCO5	ساهمت أنظمة المعلومات بتسهيل الحصول على المعلومة							

تأثير نظم المعلومات على تحقيق اهداف الشركة الاستراتيجية SP

الرمز	البند	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
SP1	أنظمة المعلومات تؤخذ بالحسبان عند التخطيط الاستراتيجي للشركة							
SP2	ساهمت أنظمة المعلومات في تحقيق الأرباح المتوقعة للشركة							
SP3	بشكل عام ساهمت أنظمة المعلومات في لعب دور في تحقيق أهداف الشركة الاستراتيجية							
SP4	يوجد علاقة مباشرة بين أنظمة المعلومات ونمو شركة اقتصاديا							
SP5	يوجد علاقة مباشرة بين أنظمة المعلومات ومدى توسع الشركة							
SP6	لا يمكن تصور تحقيق اهداف الشركة الاستراتيجية بدون أنظمة المعلومات							

ملخص الرسالة

تستخدم الشركات باختلاف أحجامها و قطاعاتها, أنظمة المعلومات بشكل رئيسي من أجل تطوير وتوسيع نطاق الأنشطة التي تقوم بها. بل وأيضا تساهم النظم المعلوماتية في تعزيز التشغيل الآلي وأتمتة العمليات المختلفة بأحترافية عالية بهدف زيادة أرباحها, وبالتالي زيادة حصتها في السوق. ومع ذلك, لا يعرف الكثير من المواطنين طبيعة استخدام الشركات الفلسطينية المحلية لهذه الأنظمة من أجل تحقيق مساعيها التجارية وتعزيز وضعها الإستراتيجي في الوقت المعاصر.

يهدف هذا البحث بالأساس, إلى تحليل دور أنظمة المعلومات الاستراتيجي في تحقيق المزايا التنافسية للمؤسسات الفلسطينية. تغطي هذه الدراسة عينة من الشركات يصل عددها 103 عينة, وتم تجميع المادة العلمية اللازمة للدراسة من خلال استبيان تم توزيعه على كافة الشركات المذكورة. ويتكون الاستبيان من 12 فقرة تتناول في معظمها الأساليب المختلفة التي تتبعها كل من الشركات للانتفاع من أنظمة المعلومات في مساعيها التجارية بكافة أنواعها.

وقد أظهرت نتائج الدراسة وتحليل البيانات أن الشركات الفلسطينية التي كانت جزء من الدراسة حققت مستوى عالٍ في تبنيها واستخدامها لأنظمة المعلومات. كما وأظهرت نتائج تحليل البيانات أن نظام المعلومات له تأثير كبير على جميع العمليات التجارية الأساسية التي تنفذها و تتبناها الشركات المختلفة. وعليه, قد تم بناء نموذج انحدار يعكس أهم التأثيرات المضمنة لأنظمة المعلومات والتي تؤثر بشكل أساسي في تحقيق الأهداف الإستراتيجية للشركة المعنية. جاء أهمها على النحو التالي: قابلية التوسع للمشروع ، وفعالية الموارد البشرية ، وجودة المعلومات المتوفرة.

نتائج الدراسة تشجع الشركات من مختلف القطاعات على تعزيز استراتيجيات تبنيها لأنظمة المعلومات. بالإضافة الى ذلك، تساهم النتائج في زيادة مستوى الوعي بأهمية استخدام هذه الأنظمة في أنواع مختلفة من العمليات التجارية. وأخيرا،قد تشكل هذه الدراسة حجر أساس لدراسات مستقبلية متخصصة داخل السوق الفلسطيني وتساعدها على إجراء مزيد من الدراسات التي تتناول موضوع أنظمة المعلومات الاستراتيجية والبحث في المزايا التنافسية أو غيرها من المزايا في مختلف المجالات بصورة أوسع.

كلمات مفتاحية: أنظمة المعلومات الإستراتيجية, المزايا التنافسية, أداء الشركات ,إدارتها الإستراتيجية.