



**An Exploration of the Productivity Paradox in Public  
Sector IS/IT Projects in the UAE**

استكشاف مفارقة الإنتاجية في القطاع العام بمشاريع تكنولوجيا المعلومات في  
دولة الإمارات العربية المتحدة

by

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## **Abstract**

Projects are considered to be vital in businesses in terms of making the desired changes that are in a manner that is considered to be organized and to reduce the chances of failure. To further increase the success of projects, companies have started using IS/IT. Information system (IS) or Information technology (IT) is a term used to describe computer technology and telephony. IT is a term that is used to describe the application of any computer, networking, storage, and other processes, physical devices, and infrastructure to develop, store, exchange, and secure all kinds of electronic data. However, the application of IT/IS has led to productivity paradox. Productivity paradox has become a core issued that is of interest to companies, and also this research paper. While studying the topic, the hypotheses developed from the data collected in the literature review section include;

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

Approximately 150 people were involved in the data collection process. The results from the research indicate that more investment in information technology reduces the level of productivity in projects and that project management processes affect the productivity levels. More specifically, in this research two variable that can be related to one another include the project management process and the productivity levels. The productivity levels depend on the project management processes. In other words, the implementation of project management processes results in high productivity levels while ineffective implementation of project management processes results in low productivity levels.

## نبذة

تعتبر المشاريع الحيوية في الأعمال التجارية من حيث إحداث التغييرات المطلوبة بطريقة تعتبر منظمة وتقليل فرص الفشل. ولزيادة نجاح هذه المشاريع، بدأت الشركات باستخدام نظام المعلومات / تكنولوجيا المعلومات. نظام المعلومات أو تكنولوجيا المعلومات هو مصطلح يستخدم لوصف تكنولوجيا الكمبيوتر والهاتف. تكنولوجيا المعلومات هو مصطلح يستخدم لوصف تطبيق أي جهاز كمبيوتر، والشبكات، و اقراص التخزين، وغيرها من العمليات والأجهزة المادية والبنية التحتية لتطوير وتخزين وتبادل وتأمين جميع أنواع البيانات الإلكترونية. غير أن تطبيق تكنولوجيا المعلومات أدى إلى تناقض في الإنتاجية. أصبح مفارقة الإنتاجية الأساسية الصادرة التي تهم الشركات، وأيضا هذه الورقة البحثية للموضوع، تشمل الفرضيات التي تم تطويرها من البيانات التي تم جمعها في قسم مراجعة الأدبيات؛

أ. المزيد من الاستثمارات في تكنولوجيا المعلومات يقلل من مستوى الإنتاجية في المشاريع.

ب. تؤثر عمليات إدارة المشروع على مستويات الإنتاجية.

وشارك حوالي 150 شخصا في الاستبيان. وتشير نتائج البحث إلى أن زيادة الاستثمار في تكنولوجيا المعلومات يقلل من مستوى الإنتاجية في المشاريع وأن عمليات إدارة المشاريع تؤثر على مستويات الإنتاجية. وبشكل أكثر تحديدا، في هذا البحث اثنين من المتغيرات التي يمكن أن تكون مرتبطة بعضها البعض تشمل عملية إدارة المشروع ومستويات الإنتاجية. وتعتمد مستويات الإنتاجية على عمليات إدارة المشاريع. وبعبارة أخرى، يؤدي تنفيذ عمليات إدارة المشاريع إلى مستويات إنتاجية عالية في حين يؤدي التنفيذ غير الفعال لعمليات إدارة المشاريع إلى انخفاض مستويات الإنتاجية.

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## **Chapter One: Introduction**

The aim of this chapter is to introduce the readers of this research to vital concepts that will underpin the whole thesis. It will mainly concentrate on the key terms and concepts that have been used in the title, “An exploration of the productivity paradox in public sector IS/IT projects in the UAE”. An overlook of the title clearly indicates that the key concepts that the researcher expand on include productivity paradox, public sector projects, and public sector IS/IT projects.

### **1.1 The Research Agenda**

According to Rosacker (2010) there has been an increase in IT/IS projects because of an increase in the dependence and application of IT within projects in organizations. It has thus, become vital for managers to understand the best business practices to ensure that successful techniques are applied in the most appropriate manner, using IT to improve and refine the operational practices. More importantly is that problems that are related with the successful management of information technology project have always been and will continue to be of concern (Rosacker, 2010). Therefore, it highlights the need for companies to have better knowledge development that can help in ensuring the success of these projects.

### **1.4 Projects and Project Management**

#### **1.4.1 Projects**

Projects are referred as a set of tasks that are interrelated that need to be executed over a specific period and within certain cost (Andler, 2012). They are also regarded as specific, finite activities that aim at producing an observable and measurable outcome under specific

present requirements. Projects present the greatest opportunity for individuals and organizations to meet their objectives in more efficient ways through the implementation of change. Projects are crucial in making the most desired changes in a manner that is organized and a reduced probability of failure. It is an attempt to make the desired changes in an environment in a controlled manner (Abrignani, 2004). Projects often have several characteristics that include the fact that they have unique deliverables. It means that projects aim at producing several deliverables that can include services, products, or other results. Often they address a need or problems that are usually analyzed before the start of the project.

The second characteristic is that they are progressive elaboration meaning that the continuous repetition of the planning processes leads to the development of solutions that are more effective so as to develop and progress projects (Huemann, 2016). As projects progress, continuous improvement and investigation become vital which in turn, allows the production of more comprehensive and accurate plans (Abrignani, 2004). Finally, projects are temporary meaning that all of them have a finite start and also a finite end. The start time is the initiation date of the project and also when the concept had been developed. The end date is when all the objectives are met. It is vital to note that projects are different from programs and portfolios (Andler, 2012). On one hand, a project is a temporary endeavor aimed at creating a service, result, or product (Kerzner, 2015). On the other hand, a portfolio includes programs, operations, project, and sub-portfolios which are managed as a group with the aim of achieving strategic objectives (Gowan, 2005). Finally, the program is regarded as a group of projects that are related (Kerzner, 2009).

#### **1.4.2 Project Management**

Project management is the application of skills, techniques, tools, and knowledge to the activities of a project with the aim of meeting the requirements of the project (Huemann,

2016). Project management processes often fall into five groups that include initiating, planning, executing, monitoring and control, and closing.

Project conception and initiation involves the examination of an idea for the project to determine if it is beneficial to the organization (Abrignani, (2004). In this phase, the project team would determine if the project could be realistically completed (Harrison, 2004). Project definition and planning involves outlining the work that needs to be completed and the team usually, focuses on the project by calculating the schedule and budget, and determining the resources that are required (Kerzner, 2015). Project execution or launch phase involves the distribution of tasks and at the same time teams are told about their responsibilities (Richman, 2011). In this phase, teams are also provided crucial project related information. Project monitoring and control involves comparing the progress and status of the project with the actual plans as the available resources are performing the work that was scheduled. In this phase, the team might need to adjust the schedule or do all it can to finish the project as scheduled. Finally, the project close phase involves the evaluation of project success and also learning from the process (Wysocki, 2011).

### **1.4.3 The Temporary Nature of Projects**

Projects are regarded as temporary endeavors that are usually undertaken with the aim of creating unique services, products, or results (Harrison, 2004). The temporary nature of projects indicates that the period that is taken in project engagement and does not mean the longevity of the outcome of the project (Wysocki, 2011). The impact of the project may not be felt immediately as it can happen even one hundred years after the completion of the project (Huemann, 2016). The temporary nature of the project in terms of their engagement can be seen from the fact that they have the start date and end date. They also have objectives that need to be fulfilled within the specified period. In other words, they are usually time-

bound (Kerzner, 2009). It is worth noting that projects operate in environments that are ambiguous, complex, dynamic, and multi-dimensional in nature. The environment often suffers from differences in interpretation that result from a varying role perspective (Kerzner, 2015). It means that the ways in which the outputs of a project are assessed are usually heterogeneous in nature. In addition, projects are often undertaken by amorphous or teams that are constantly changing and evolving and ephemeral or short leave stakeholders and project teams which further proves the temporary nature of projects. The nature of projects also means that they are highly susceptible to failure (Harrison, 2004).

#### **1.4.4 Types of Projects**

Usually, there are four major classifications of types of the project which depend on the much that is known about how to do it and what needs to be done as explained by Richman (2011). The classification mainly focuses on the organization point of view and stakeholders' point of view. The four major classifications include semi-open where stakeholders are extremely sure of how the project would be done but are not sure of what is to be done (Wysocki, 2011). In addition, the organization is usually clear on the method that would be used and the expertise that it needs (Huemann, 2016). The second classification is open or lost in the fog where stakeholders are not sure of what needs to be done or how the project is to be done (Huemann, 2016). In many cases, the organization tries to do things that had not been done before and needs to spend time in defining how and what (Harrison, 2004). The third type is closed or *painting by numbers* where stakeholders are considered to be sure of what needs to be done and are very sure on how the project is to be done (Richman, 2011). In this situation, the organization goes through repetitive projects and knows the needed skills (Wysocki, 2011). The fourth type is the Going on a Quest or semi-closed where stakeholders

are sure on what needs to be done but are not sure of how the project would be done or how to achieve the objectives (Wysocki, 2004).

#### **1.4.5 Types of Project by Industry**

Projects can also be according to the industry where it operates in such as construction Mining, Quarrying, Civil Engineering, and Petrochemical projects where the projects that are in this category have a feature of having a fulfillment phase that must be conducted on site (Wysocki, 2004). The projects usually need huge capital and provide special problems and risks to the business (Stasiak-Betlejewska, 2015). The projects also require a high level of management of progress, quality, and finance (Abrignani, 2004). The second types of projects are manufacturing projects aimed at producing pieces of machinery or equipment, vehicles, ship, and aircraft (Andler, 2012). Manufacturing projects are usually done in a factory or another environment that is home-based because they provide the opportunity for on-the-spot management (Gowan, 2005). However, some manufacturing project involves working far from the home base such as in installation, initial customer training, service and maintenance, and commissioning (Richman, 2011). The third type of project includes management projects that often arise when companies introduce new computer systems, change their headquarters, launch a new marketing campaign, restructure the company, and prepare for a trade exhibition (Kerzner, 2015). The results from these projects are not always tangible and visible but often depend on their outcome success (Wysocki, 2004).

### **1.5 The Public Sector**

#### **1.5.1 What is the Public Sector**

The public sector often consists of organizations that are operated and owned by the government and exist so as to provide services for the citizens. Just like the voluntary sector,

these organizations do not aim at generating profits (Lægreid, 2010). The sector was part of the national economy that provides the basic services and goods that are not able to be provided by the private sector (Lewandowski, 2017). It consists of local and national government, their various agencies and also their various chartered bodies (Horn, 1995).

### **1.5.2 Types and Forms of the Public Sector**

There are different types of organizational structures that exist in the public sector including the vertical structures which are characterized by having few people at the top then the number increases in the middle management position and at the lower levels. It means that in this structure few people make the decisions and policies while many people are given the task of carrying them out. It is a classic bureaucracy and one of the government agencies that apply this method is the military. The second structure is the horizontal structure which is characterized by a few top positions and many on the next one down. It means that there are few supervisors in this structure and many equals or peers. Even though this type of government structure is common in professional organizations like architecture and law, very few government agencies use it such as some city and council services that include domestic violence and drug prevention education programs. The third type is divisional structures where responsibilities and functions are divided based on geography or specialty. Very few organizations in the public sector apply this type such as the court system.

The major forms of the public sector include a departmental organization which was at one time a common form of organization in the public sector (Horn, 1995). They have the characteristics of being financed by an annual appropriation that comes from the Treasury (Lægreid, 2010). They are also subject to audit controls and budgeting accounting that is applicable to other activities in the government. Finally, the permanent staffs on the sector are usually civil servants (Lewandowski, 2017).

The second form of the public sector is a public corporation which is understood generally as an autonomous commercial organization that is usually established by the government. They have the characteristic of being wholly owned by the State and it is generally created by law that defines their powers, immunities, and duties. They also have the characteristics of being a separate entity that can sue or be sued, can acquire property, and can enter into contracts in their own names. They are also not subjected to audit laws or budgeting accounting and may not wholly be owned by the state. In many cases, the employees in these corporations are not civil servants but, are recruited and compensated under specified terms and conditions.

The third form is Government Company which are often entities that are registered under the Companies Act (Lægreid, 2010). In this case, the government holds not less than 51 percent of the equity capital. This form of government has the advantage of being easier to constitute than the public corporation (Horn, 1995). They enable governments to diversify their ownership through buying or selling of equity shares.

The next form is joint enterprise where the State and the private sector participate together in economic activities. The main reason for the development of these enterprises is conserving the limited resources and also to invite the private capital to allow the government to expand the provision of services in another public sector.

The last form is Development Corporation which mainly promotes as opposed to operates economic activities through a system that involves subsidizing (Lewandowski, 2017). The activities that promote this form of the public sector include those that may not come into existence or those that materialize slowly (Lægreid, 2010).

### **1.5.3 Public Sector Projects**

Public sector projects include all the projects which benefit the general public such as road construction, road maintenance, bridge building, and site serving. IT/ IS projects in the public sector includes more than the introduction of systems and hardware and software, but they aim at introducing new practices and processes in public offices (Rosacker, 2010). They encourage new ways of doing things and once implemented, organizations are able to take advantage of savings and efficiencies (Richman, 2011). If successful, the projects can result in positive change in the way public office departments do their work and improve the services provided to citizens (Saxena, 2014).

### **1.5.4 Types and Forms of Public Sector Projects**

There are many forms of public sector projects including construction projects, information technology projects, the design of plans projects that involve engineering and architectural plans, and administrative projects.

The type of projects found in the public sector fall in the four main types of projects that include; making a movie or semi-open, open or lost in the fog, closed or painting by numbers, and Going on a Quest or semi-closed as indicated above (Borins, 2002).

### **1.5.5 Characteristics and peculiarities of the public sector projects**

Just like other projects, projects in the public sector have the characteristics of having a single definable purpose as a result. Each project in the public sector is unique as they cannot be repeated in exactly the same way (Grogan, 1998). These projects are usually temporary activities that end when the objective has been met (Guillaume, 2015). However,

one peculiar nature of these projects is that they are done to benefit the general public and in most cases, they are not done in anticipation of getting profits.

## **1.6 IS/IT**

### **1.6.1 What is IS/IT**

Information system (IS) or Information Technology (IT) is a term used to describe computer technology and telephony (Pellerin, 2013). IT is a term that is used to describe the application of any computer, networking, storage, and other processes, physical devices, and infrastructure to develop, store, exchange, and secure all kinds of electronic data (Rosacker, 2010).

### **1.6.2 Types and Forms of IS/IT**

The main types of information technology include Information systems in organizations that mainly collect, processes, and stores data to provide real time accurate and useful information to the organization (Ozgen, 2013). The information system includes data gathering from machines and people that collect, process, store, and output data (Rosacker, 2010). The second type is management information systems which use the data that has been collected by the transaction processing system and then uses the data to develop reports in ways that managers can use it in making routine business decisions in response to various problems (Saxena, 2014). The third type is the transaction processing system that gives a way of collecting, processing, storing, counseling, modifying, or displaying transaction (Rosacker, 2010). Many of these systems allow several transactions to occur at the same time. The expert systems and neural networks are the other types of information technology that is also known as a knowledge-based system (Wysocki, 2004). It is usually regarded as a computer system that has been designed to analyze the required data and provide recommendations

(Richman, 2011). Finally, there are the decision support systems that help in making decisions by means of working and analyzing data that can develop data models and statistical projections (Harrison, 2004). The system often provides support while improving the quality of decisions made by managers (Pellerin, 2013).

### **1.6.3 IS/ IT Projects**

Information technology projects are those which collaborate various software to develop projects (Saxena, 2014).

### **1.6.4 Characteristics and peculiarities of IS/IT projects**

The main characteristic of IS/IT project is the fact that they use the various software in developing the projects. It means that failure in the software results in unsuccessful projects (Rosacker, 2010).

## **1.7 Public sector IS/IT projects**

### **1.7.1 Types and Forms of Public Sector IS/IT Projects**

Just like other types of IT projects, those in the public sector include the information system, the management information systems, and the transaction processing system (Saxena, 2014). The expert systems and neural networks are the other types of information technology that is also known as a knowledge-based system (Kerzner, 2015). Finally, there are the decision support systems that help in making decisions through working and analyzing data that can develop data models and statistical projections as indicated above (Huemann, 2016).

## **1.7.2 Characteristics and peculiarities of the public sector IS/IT projects and Success Factor**

IS/IT projects in the public sector are characterized by being large, costly, and complex (Wysocki, 2004). They often take longer to plan and develop, and in some cases need a large investment of over three years with more than \$70million. The success of the projects depends on the availability of funds and proper planning (Kerzner, 2015).

## **1.8 The Productivity Paradox**

### **1.8.1 What is the Productivity Paradox**

The productivity paradox is an observation that has been made in business processes where more investments in information technology result in a decrease in worker productivity (Richman, 2011).

### **1.8.2 Types and Forms of Productivity Paradox**

Productivity paradox can be long term where the decrease in worker productivity is seen for a long time (Harrison, 2004). It can also be short-term where employees find themselves adjusting to the information technology and start using them to increase their productivity (Wysocki, 2004).

### **1.8.3 Characteristics and Peculiarities of the Productivity Paradox**

The main characteristic of productivity paradox is that it results in the decrease in the output from the workers instead of increasing it (Rosacker, 2010). The production level is often measured using the percentage change in the gross domestic product in every hour of labor (Kerzner, 2015). It is also measured using the Total Factor Productivity (TFP) that

examines the revenue generated by each employee after removing the productivity improvements resulting from increases in the capital assets (Harrison, 2004).

#### **1.8.4 Mitigating against the productivity paradox**

Mitigating Productivity paradox can be possible by mitigating its cause such as ensuring that employees are able to manage IT and its information (Wysocki, 2004). It is also vital to find ways that will accurately measure the gains from IT to avoid missing them (Richman, 2011).

### **1.9 The Research Map**

#### **1.9.1 The Stages of the research process**

**The first stage of the research includes defining the purpose of the research.** The purpose is often developed from recognizing and also having a good understanding of the problem. In many cases, the problem is results from identifying the gap that is between the expected and the actual reality. The aim of a research is often linked to the analysis of the available opportunities, the business problem, and other factors that might have an effect on the business. In this situation, the purpose of this research is to have an exploration of the productivity paradox in the public sector, more specifically in the IT or IS projects in the UAE.

**The second step of the research is coming up with the objective of the research** which analyses the specific statement of the information that is needed. The step aims at breaking down the problem in the research into more specific objectives that are understandable. The three main parts of the objective of the research include the research question which is the data that is required according to the purpose.

In this research, the main objectives include;

Understanding the elements of a Project

Identifying the various project management processes.

Analyzing the various types of projects

Identifying the forms of public sector

Researching on productivity paradox that is often seen in public sector IS or IT projects.

Identifying the productivity paradox that is often seen in public sector IS or IT projects in the UAE

The research questions include

What are the elements of a project?

What are the various project management processes?

What are the various types of projects?

What are the forms of the public sector?

What is the productivity paradox that is often seen in public sector IS or IT projects?

What is the productivity paradox that is often seen in public sector IS or IT projects in the UAE?

The next section of a research objective includes coming up with the appropriate hypotheses that mean the possible outcome of the research that is based on the data that was

collected in the literature review section of the paper. In this paper, the hypotheses include the following;

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

The final section of the research objective includes coming up with the relevant limitation or scope of the research. The process ensures that the research is focused so that a well-targeted and meaningful research is done. An example of a limitation that the researcher expects is not having enough time.

**The third step of the research is approximating the value that is there of the research** information in which there is an analysis of the worthiness of the research. In addition, it evaluates the approximate amount of money that can be used when conducting the research.

**The next step is developing the research design** which is considered to be the overall framework of this research. The step is vital because it analysed the crucial details of the approaches and procedure that have been selected to perform the research. The process was done by the researcher through the development of primary and secondary methods of collecting data such as designing questionnaires.

The next step is the collection of data that involves taking data from respondents. It can be through face to face interviews, phone conversations, and by post. However, for this particular study, the researcher sent to the respondents the necessary questionnaires through their emails.

The next step is taking an analysis of the data that has been collected which can either be using c computer-based software or manual. The best method that has been in analysing

data in this research is the application of the SPSS software which can also help in determining the validity and accuracy of the data that has been collected.

The final step of the process involves reporting the presentation and the results of the research that also has to specifically relate to the research questions and compared with the hypotheses to determine if they are accurate.

### **1.9.2 The current research situation**

IS or IT has become a vital aspect in companies today because of globalization and the increased level of competition among companies.

### **1.9.3 The research objective**

The objective of this project is to analyze the productivity paradox in the public sector IS or IT projects in the UAE.

The specific objectives of the project include;

Understanding the elements of a Project

Identifying the various project management processes.

Analyzing the various types of projects such as the public sector projects

Identifying the forms of public sector

Researching on productivity paradox that is often seen in public sector IS or IT projects.

Identifying the productivity paradox that is often seen in public sector IS or IT projects in the UAE.

#### **1.9.4 The research questions**

The research questions are developed from the research objectives and they include;

The specific questions of the project include;

What are the elements of a project?

What are the various project management processes?

What are the various types of projects?

What are the forms of the public sector?

What is the productivity paradox that is often seen in public sector IS or IT projects?

What is the productivity paradox that is often seen in public sector IS or IT projects in the UAE?

In summary, the research involves developing a proposal that indicates what the researcher intends to do the research. After the research proposal, the next step includes writing background information on the research under study to form the basis for which the hypotheses were developed. The next step involved the data collection process after which the data collected were compared with the hypotheses that were developed to determine if they were true or not.

## **Chapter Two: Literature Review**

### **2.1 Introduction**

The aim of this chapter is to establish the theoretical framework that is related to the topic being researched on using data from past research on published journal articles. It also aims at defining the key terms, defining terminology, identifying case studies, and identifying the models that support the topic under investigation.

### **2.2 Project**

Projects are regarded as a planned set of tasks that are interrelated, and which need to be executed over a specified period and within specific cost limits (Barrett, 2003). Projects are different from other works that are often undertaken by governments because of their characteristics (Wysocki, 2004). The main characteristics of projects include the fact that they are temporal and have a start and end date (Richman, 2011). It is mainly because increasing the completion time of projects would increase the cost of the project (Kerzner, 2009). Another characteristic is the fact that all the projects aim at attaining some form of the result (Wysocki, 2011). Once it is completed, businesses tend to move to another project (Kerzner, 2015). In addition, projects often differ from operations because operations are the daily works but, projects are usually big plans aimed at doing major works (Andler, 2012). Projects also need the necessary resources to be completed successfully (Harrison, 2004). Projects can also be divided into subprojects, which encourage the officer to deliver (Abrignani, 2004).

### **2.3 Temporary Nature of Projects**

Projects are considered to be an ad hoc organization of material, facilities, equipment, and staff that are put together with the aim of achieving a goal (Andler, 2012). The goal is usually expected to be achieved in a specified time-frame. It means that projects are known as endeavors that have the start date and a finish date. When the goal has been achieved, the

project gets closed and a new one begins. According to Turner (2003), projects are temporary organizations aimed at managing uncertainty and ensuring that the set objectives are met. The project's nature as an organization that is temporary is analyzed from the viewpoint of the theory of organizations. In this case, the projects as forms of temporary organizations are considered to be a manufacturer function and an agency that is used to allocate funds to the change management within a functional organization (Wysocki, 2011). The objective of project managers is often considered when defining a project as a temporary organization because often the manager is usually the principal management of the relevant temporary organization. It means that their objectives in motivating the team members and objective setting are stressed over their objective in forecasting and also executing their work (Richman, 2011). In addition, as agency's managers, they are usually the owner's agent who is the principal and often a hierarchy of control and management needs to be in place so as to screen their outcome (Anderl, 2012).

The idea of a project as an impermanent association prompts a reassessment of the meaning of a project. It is proposed that traditional meanings of projects are not wrong, just fragmented. The project as an impermanent association is seen here as a creation function, as an agency that is used for assigning assets to the administration of progress inside the functional association, and as an organization for overseeing instability. The part of the manager of the project is additionally considered. He is CEO of the temporary association, and in this manner their parts in target setting and motivating colleagues are underlined over their role in arranging and executing work. Second, as the manager of the organization, they are the agents of the proprietor (owner or principal) thus the second chain of importance of administration and control must be set up to screen their execution (Anderl, 2012). These

organization agency costs are an addition to the cost of the project, yet may likewise clarify why proficient acknowledgment is so imperative to project supervisors (Turner, 2003).

According to Turner (2003), projects are both temporary organizations and agencies that are used to assign resources. Projects are considered to be the agency or vehicle for the resources of an organization and thus are considered to be organizations. As temporary organizations, projects are agencies that are established by the parent organization, which is also the principle with the aim of achieving specific objectives (Hewlett, 2013). Considering the fact that they are organizations, they often have structures just like normal organizations that include having an information channel aimed at monitoring the decisions that are made by managers to make sure that they are in line with the objectives of the owners to make profits (Jordan, 2017). Ensuring that the objectives of the owners have been maintained is considered to be one of the roles of the steward and the broker (Ozgen, 2013). Viewing projects as temporary organizations introduce various elements of project management that include that of conflict of interest that can be between different stakeholders. Another element is the role of an agent, in this case, the manager, and of the steward and broker. The last element is the need to put in place communication and information systems that aim at monitoring delivery of projects, to avoid opportunism and self-interest by the participants in the project such as agents, and to monitor the achievement of the objectives that are set by the owner.

## **2.4 IS/IT Projects**

According to Rosacker (2010), there has been an increase in IT/IS projects because of an increase in the dependence and application of IT within projects in organizations. It has thus, become vital for managers to understand the best business practices to ensure that successful techniques are applied in the most appropriate manner, using IT to improve and refine the operational practices. More importantly is that problems that are related to the successful

management of information technology project have always been and will continue to be of concern (Rosacker, 2010). Therefore, it highlights the need for companies to have better knowledge development that can help in ensuring the success of these projects. The first line of understanding these projects is by understanding what the meaning of IS/IT projects. These are projects that often use various technologies to be developed. The main characteristic that differentiates IS/IT projects from normal projects are they use various software to be developed. In other words, the failure of the software caused the failure of the projects. It is evident from the research done by Pellerin (2013) whose results indicated that the application of a project management software package that had been developed by an engineering construction firm that is known internationally was linked to the performance of the project. It showed that the use of the software including some of its subsystems is directly linked to the performance of the project (Pellerin, 2013).

## **2.5 Public Sector IS/IT projects in UAE**

According to Mirza (2013), many projects begin with investments, great efforts, and good ideas but, many of them do not achieve the expected level of success. The main cause of failure of projects is the lack of understanding of the project and its scope when the project starts. A scope that is properly defined and managed results in the delivery of quality products, within the scheduled specified and in agreed costs to the stakeholders. Considering the importance of projects, it has become vital to find ways of ensuring their success. One way is by including IS/IT in projects. Information technology has become an integral and crucial part in businesses (Faridi, 2006). From big multi-national corporations that maintain mainframe systems and databases to business that are small and which have one computer, IT has a role. Information technology is used in various ways around the business world (Fellows, 2003).

It is used in communication where in most cases; emails have become a principal means by which companies communicate (Flyvbjerg, 2006). It is also meant by which suppliers and employees communicate and were the earliest drivers of the Internet that provide inexpensive and simple means by which people communicate (Gelan, 2011). Over the years, other tools of communication have evolved that allow people to communicate using online meeting tools, video-conferencing systems, and chat systems (Jeppesen, 2007). Voice over internet protocol (VOIP) telephones and also smartphones often give high-tech ways by which people communicate (Khodeir, 2015). Information technology has also been vital in inventory management considering the fact that companies need to keep enough stock so as to meet the demand without investing more stock than is needed (Choudhry, 2013). Inventory management systems track the amount of every item that is maintained by the company, triggering more stock when the amount falls to amounts that are below the expected amounts (Serpell, 2015).

The days that involved mailing of documents, large file rooms, and rows of filing cabinets have gone (Burnes, 2004). Currently, many companies store their documents on storage devices and servers. The documents are often accessible instantly to every person regardless where they are located. Companies are able to store and also maintain much historical data economically and they can be accessed immediately (Smallman, 1996).

Storage of data is often beneficial if the data is used effectively (Stasiak-Betlejewska, 2015). Companies that are progressive use data as part of the process of strategic planning and tactical execution of the strategy. Management Information System helps companies to track expenses, productivity, and sales data.

IT has particularly been vital in public projects which are often considered to be state-owned enterprises or those which are mainly operated by the government. These organizations often need their operations to be efficient so as to meet the needs of the target

group which is mostly the public. Therefore, it has become vital in making sure that public sector organizations meet their objectives.

## **2.6 Importance of productivity to companies**

According to Jeppesen (2007), there have been questions on the importance of investing in computers in order to improve the level of productivity in companies considering the fact that productivity is not their only goal but a part of a number of activities that companies need to work on. The answer to the question is that the long-term goal of many companies is to maximize their productivity and thus improving the wealth and living standards of nations considering the fact that there is the link between what the nation is able to produce and what it consumes. For any business to be successful it needs to deliver more real value efficiently to its customers without taking advantage of added capital, labor, and other input (Pellerin, 2013). The main question that people ask is if computers have been able to meet their expectations. Evidently, it has worked in computer companies like Dell that has made billions of dollars through the internet (Læg Reid, 2010). However, there are also cases where IT is not meeting its expectations especially in cases there is productivity paradox (Wysocki, 2004). It has become vital for companies to find ways in which they can maximize IT investments.

## **2.6 Productivity Paradox**

The productivity paradox is an observation that has been made in business processes where more investments in information technology result in a decrease in worker productivity (Schraeder, 2005).

Productivity paradox can be long term where the decrease in worker productivity is seen for a long time. It can also be short-term where employees find themselves adjusting to the information technology and start using them to increase their productivity (Turner, 2003).

The main characteristic of productivity paradox is that it results in the decrease in the output from the workers instead of increasing it (Lewandowski, 2017). The production level is often measured using the percentage change in the gross domestic product in every hour of labor (Rosacker, 2010). It is also measured using the Total Factor Productivity (TFP) that examines the revenue generated by each employee after removing the productivity improvements resulting from increases in the capital assets (Gelan, 2011).

Mitigating Productivity paradox can be possible by mitigating its cause such as ensuring that employees are able to manage IT and its information (Turner, 2003). It is also vital to find ways that will accurately measure the gains from IT to avoid missing them (Gelan, 2011).

### Chapter Three: Factor Analysis and Conceptual Model

#### Factor Analysis

The factors below come from the literature review above.

<b>Factors</b>	<b>Source</b>
Grouping 1	
Unique deliverables	Abrignani (2004), Huemann (2016), Kerzner (2009)
Progressive elaboration	Andler (2012), Gowan, Kerzner (2009)
Projects are temporary	Gowan, Huemann (2016), Kerzner (2015)
They address a need or problem	Abrignani (2004), Huemann (2016), Kerzner (2009)
Aim at creating a service, result, or product	Abrignani (2004), Andler (2012), Huemann

	(2016)
<b>Grouping 2</b>	
Initiating.	Abrignani (2004), Harrison (2004), Richman (2011)
Planning	Kerzner (2015), Richman (2011), Andler (2012), Wysocki (2011)
Executing	Abrignani (2004), Kerzner (2015), Richman (2011), Wysocki, (2004)
Monitoring	Huemann (2016), Harrison (2004), Kerzner (2015),
Control	Andler (2012), Richman (2011), Kerzner (2015),
Closing	Abrignani (2004), Harrison (2004), Kerzner (2015), Wysocki, (2011)
<b>Grouping 3</b>	
Making a movie or semi-open	Abrignani (2004), Richman (2011), Kerzner (2015),
Open or lost in the fog	Huemann (2016), Harrison (2004), Andler (2012)
Closed or painting by numbers	Kerzner (2009), Andler (2012), Abrignani (2004)
Going on a Quest or semi-closed	Andler (2012), Harrison (2004), Richman (2011)

Grouping 4	
Departmental organization	Lægheid (2010), Lewandowski (2017), Horn (1995)
Public Corporation	Lewandowski (2017), Lægheid (2010), Horn (1995)
Government Company	Lægheid (2010), Lewandowski (2017), Horn (1995)
Joint enterprise	Lewandowski (2017), Lægheid (2010), Horn (1995)
Development Corporation	Lægheid (2010), Horn (1995), Lewandowski (2017)

The factors identified above can be grouped the following critical success factors;

Factor grouping 1 gives a representation of *Elements of a project*.

Factor grouping 2 represents the *Project management processes*.

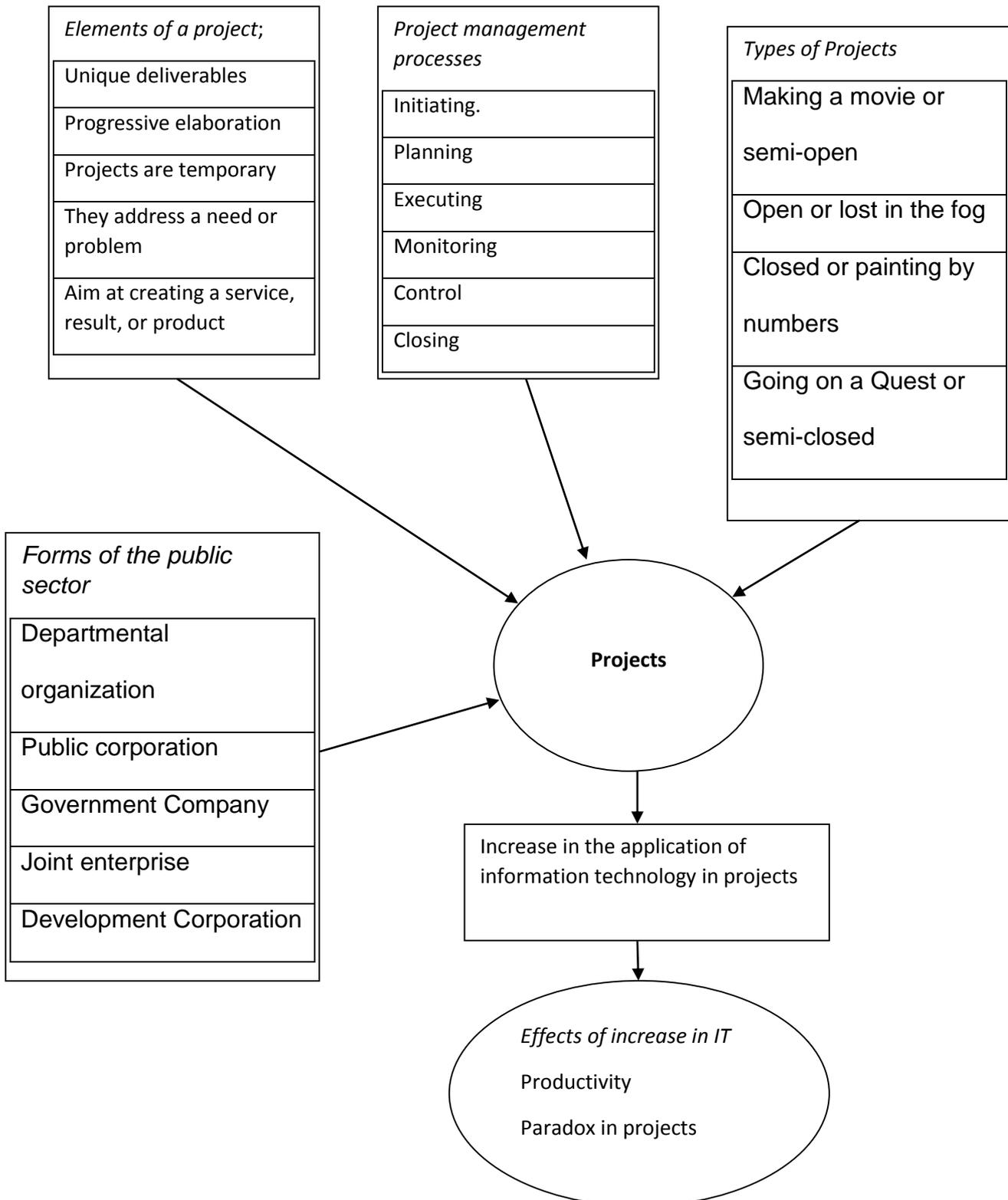
Factor grouping 3 represents *Types of Projects*.

Factor grouping 4 represents *Forms of the public sector*.

The factors are vital in developing the questionnaire questions that are useful in analyzing the objective of the research so as to come up with appropriate findings.

## Conceptual Model

Based on the factors identified above, a conceptual model was developed that shows the framework that was used in the study. The model is illustrated below



Based on the model above, the study concentrates on five main areas as indicated below

1. Elements of a project
2. Project management processes
3. Types of Projects found in Companies
4. Forms of the public sectors and the projects that they deal with
5. Productivity Paradox in Projects

To ensure the success of the study, the following hypotheses were developed that further concentrate on the subject under study

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

## **Chapter Four; Research Methodology**

### **4.1 Introduction**

As indicated in the title of this chapter, it deals with the research methodology of the project. It means that in this section, the researcher outlines the strategy that has been used in the research, the research approach, the research method, the selection of the sample, the kind of data analysis, the method that has been used to collect data, the research limitations, and the ethical considerations. The research that was held in respect to this project is an applied one which means that various pieces of previous academic research exist in relation to the topic. To get the issues that are being analyzed in the quantitative section, the researcher used past research from the qualitative section, more specifically in the literature review section (Hesse-Biber, 2004).

The credibility of the findings in this research and the conclusion mainly depends on the quality level of data collection, data analysis, research design, and data management. The chapter will be dedicated to describing the procedures and methods that are used to get the data, the way in which they will be analyzed, interpreted, and concluded. The section of the paper justifies the means that the study was gotten, and is expected to assist in providing the strength and purpose because then it would be analytical and truthful. All of them would help in processing data and come up with conclusions. More specifically, the research covers issues like research method and design, the data collection instruments, data analysis, the subject that are being studied, and the respondents.

### **Assumptions of the Nature of Social Science**

The nature of Social Science has four associated assumptions; epistemology, ontology, human nature and methodology (Myers, 2009). The subjective-objective dimension of these four sets of assumptions gives rise to their philosophical positions. Realism, positivism, determinism and quantitative approaches (nomothetic approach) are encompassed within the objective dimension while nominalism, anti-positivism, voluntarism and qualitative approach (ideographic) are found within the enclaves of subjectivism (Jha, 2014).

To make an appropriate selection of the methodology to use, a researcher has to make consideration of previous assumptions surrounding the research question

## 4.2 Research Method- Qualitative and Quantitative techniques

To be able to satisfy the objective of this research, a qualitative research was conducted in the first section of the project to get the background information on the topic under research. The main characteristic of the qualitative research is that the outcomes were not quantifiable and measurable (Luton, 2010). The main advantage of this research method is that it gives a high level of analysis and description of the topic under research, without limiting the scope of this research and the nature of responses from the participants (Hay, 2010). In this case, the qualitative research mainly involved the use of past researches that have been done by other people in the topic under research (Yin, 2011). However, the effectiveness of this research is mainly based on the abilities and the skills of the researchers and the outcome are assumed not to be as reliable as quantitative research because it mainly comes from the personal judgments and interpretation of researchers (Rubin, 2011). However, it is risky to perceive that qualitative research reflects the opinion of a wider population (Hartas, 2010).

Table of Features of Qualitative and Quantitative Research

Qualitative Research	Quantitative Research
The researchers can only have a rough idea of what they are looking for	The researchers have a clear knowledge of what they are looking for
Recommended in the early stages of the research projects	All the aspects of the study are often designed before the data collection process
The data gathering instrument is the researcher	The researcher collects numerical data using tools like equipment and questionnaires
the result is usually in the form of pictures,	Data is usually in the form of statistics and

objects, and words	numbers
It is subjective where individuals interpretation of the events are vital	It is objective because it tries to get the specific measurement and analyze the target concepts
Qualitative data is more time consuming, less able to be generalized, and is rich	Quantitative data is more efficient but can also miss contextual detail

In addition, the study takes advantage of descriptive research method that is widely accepted as a study that is fact-finding and which often involves accurate and adequate interpretation of the findings. The descriptive research aims at describing a specific present condition of the technical analysis. The technique that was utilized under the descriptive method was the normative survey approach and evaluation that is often used in exploring opinions according to the respondents who are able to provide a representation of the entire population. This form of survey is appropriate for the study because it helps the researcher to formulate the generalizations. Specifically, direct data survey has been used in the study which is the application of questionnaires. The use of questionnaires was chosen because of its advantages. The main advantages of using questionnaires are that they are practical and large amounts of information are able to be collected by the researcher from a large group of people such as in this case, in a short time. In addition, the method is considered to be cost effective as compared to other methods such as the use of interviews.

### **4.3 Research Objectives**

The objective of this project as indicated in the introduction section of the paper is to analyze the productivity paradox in the public sector IS or IT projects in the UAE.

The specific objectives of the project include;

Understanding the elements of a Project

Identifying the various project management processes.

Analyzing the various types of projects

Identifying the forms of public sector

Researching on productivity paradox that is often seen in public sector IS or IT projects.

Identifying the productivity paradox that is often seen in public sector IS or IT projects in the UAE

#### **4.4 Hypotheses**

Based on the data collected in the literature review section the hypotheses include;

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

#### **4.5 Data Collection Methods**

The research included both the qualitative research and the quantitative research. It means that the first research that was applied was the qualitative research through the analysis of past researchers that were vital in the completion of the literature review section above. Other materials that were used included published books and online newspapers.

The second form of data collection method that was used was quantitative research that mainly involved data collection using questionnaires. Approximately 150 people were involved in the data collection process. As indicated above, the use of questionnaires was

chosen because of its advantages. The main advantages of using questionnaires are that they are practical and large amounts of information are able to be collected by the researcher from a large group of people such as in this case, in a short time (Myers, 2009). In addition, the method is considered to be cost effective as compared to other methods such as the use of interviews. The method can also be used by other people other than the researcher with limited risk on the reliability and validity of the results as compared to the use of interviews (Pasian, 2013). In addition, the results from questionnaires can be easily quantified through the use of a software package. This form of quantitative data that is often gotten from the use of questionnaires can often be used in the creation of new theories and also existing hypotheses (Saunders, 2007).

In many cases, a successful survey is vital in answering the questions in the research and the outline of questionnaire considered to be the significant component to the success of questionnaires. The key goal for planning an effective survey must be to guarantee that respondent comprehends the whole questionnaire in a similar way as it is intended by the researcher (Saunders, 2007). In many cases, it is hard to get the same respondent who would give extra reactions and thus the design should be exact in the first place before continuing with the information gathering (Pasian, 2013). The four forms of information that is often looked for in questionnaires include behavior, attributes of respondents, the beliefs of the respondents, and their attitudes.

Outline of the individual inquiries in a questionnaire decides the sort of information gathered and has a big contribution to the accomplishment of the survey. Each question is often classified broadly into Open and close inquiries. Open inquiries are utilized to acquire a wide assortment of reactions; they are particularly valuable when the result is probably not

going to be anticipated. It includes composed reactions which make the procedure additional tedious with expanded reaction rate and less simple for correlation (Saunders, 2007).

Conversely closed questions give respondents particular answer choices to pick in this way abstaining from filling blank spaces and general outcomes in lower reaction rate and simpler comparison (Pasian, 2013). The wordings utilized in any questionnaire are critical. The wording of a question ought to incorporate clear directions on the most proficient method to finish the questionnaire, make it unambiguous, succinct and ought to plainly mirror the target of the examination (Jha, 2014). So also the request and the way the questions flow ought to be arranged in a coherent way since it influences the reaction rate and the unwavering quality of the information gathered (Myers, 2009).

Pre-testing of questionnaires is needed to get the feedback on the clarity of information, time for fulfillment, format, questions that are considered to be biased, understanding of the respondents and so forth. A number of people on whom the poll is tried and the quantity of test directed for the most part relies on upon the objectives of the research, time accessible and budgetary ramifications. However, the method has its limitations where it is hard to tell the truthfulness of respondents and the level of thought that they had put in the questions (Myers, 2009). It also lacks validity and is often dependent on the way respondents interpret the question. In this case, random selection was applied to the study group with the aim of improving the level of accuracy in the data collection process.

#### **4.6 Questionnaire Design**

The questionnaire that has been used in this research is divided into five sections as below and the questions were developed from the objectives of the study;

PART ONE: General Information

PART TWO: Elements of a Project

PART THREE: Project Management Process

PART FOUR: Types of projects

PART FIVE: Forms of public sector

#### **4.7 Participants**

***Target Population:*** The target population includes those who are expected to be involved in the data collection process. In this case, it includes 100 respondents who understand issues that are related to IS and IT projects in the public sector.

***Demographic Information:*** Considering the technicality of the topic under research, it will involve individuals who are 18 years and above because they are more likely to have the necessary knowledge that will help them to complete the questionnaires. However, the process will include people from any ethnic group and of any gender.

***Procedure for selecting respondents:*** The method of selecting respondents was a random sampling of people who have the necessary knowledge of the topic. The method was chosen to ensure that the process was not biased and that every person who was 18 years and above had equal chance to participate in the data collection process. Although the method has been criticized for having sampling error, it was chosen because of the fact that the researcher had little to no knowledge about the research population.

***Procedure for developing research materials:*** The main materials that were used in the data collection process included the internet and computers which were readily available. The

research did not need any personnel because the researcher was involved in the data collection process.

**Research Process:** The first step in the data collection process was gaining informed consent from the university in the form of having an approved proposal so that the researcher can be able to conduct the research under the name of the University (Naoum, 2007). The second process was gaining informed consent from the participants by asking them if they can participate in the study after giving them a detailed explanation of the scope and the nature of the study (Pasian, 2013). In general terms, most of the people who were approached were willing to participate in this research (Priemus, 2013). Questionnaires were sent to the respondents through their e-mails.

#### **4.8 Instruments**

As indicated above, the use of questionnaires was applied in the collection of primary data. Secondary data was applied in the qualitative section of this research. Data were collected from published books and journal articles. The information from the process was then integrated into the literature review section in the most cohesive fashion.

Primary data is vital because it assists in the data collection process because it helps in getting information that is specific to the research that will be useful in the study (Saunders, 2007). Researchers are usually able to get information through surveys, direct observation, and interviews. The primary data collection method used in this research is the application of questionnaires (Silverman, 2004). As indicated above, the use of questionnaire was as a result of its advantages that include; the fact that they are practical and large amounts of information is able to be collected by the researcher from a large group of people such as in this case, in a short time.

## **4.9 Data Analysis**

Subjective information examination is frequently sorted into two types that incorporate descriptive statistics and inferential measurements. Descriptive statistics regularly manages the quantitative information that are shown or outlined in type of tables, graphs, averages, and tabled. It is a type of statistical technique that is regularly connected in administration research for breaking down information that is acquired from an examination of a restricted nature. Then again, inferential statistics can include the use of measurements which is unmistakable in nature yet have the principle objective of drawing result from the information as to model, body, or hypothesis of learning.

Moreover, it regularly includes achieving a decision that is a sample with the point of summing up to the entire populace. This type of the measurable technique is this urgent to those whose examination undertaking is on the premise of positivism. Information investigation in this exploration will mostly do through the utilization of the SPSS programming due to it guarantees exactness in the information examination prepare.

## **4.10: Pretesting the Questionnaire**

The capacity to outline an immaculate survey questionnaire is practically impossible and thus, the researcher saw the need to pre-test the survey before utilizing it in the process of collecting data to help in the distinguishing the questions that do not sound good to the participants (Pasian, 2013). The procedure likewise guarantees that a document that is effective has been created. The procedure likewise guarantees that inquiries that are thought to be one-sided can be distinguished and removed.

The initial step included having a specialist review of the questions by the professor. The second step included the utilization of a small target group that included just five

individuals who were arbitrarily chosen from the population. They were relied upon to give their first idea of the inquiries and give input. The output can incorporate, "I don't comprehend the question". The feedbacks were investigated and enhancements were made in like manner.

#### **4.11 Challenges and Limitation**

The researcher faced some challenges when conducting the research that included settling on the right topic. It is vital to take consideration when choosing the right topic for the research because it is a determinant of the entire process. In this case the researcher took an analysis of numerous issues that are of interest and then settled on the current topic. The next challenge is in relation to time because the researcher has the feeling that more time would have allowed for a wider research group and thus increased the level of accuracy of the data that has been collected (Saunders, 2007).

The next challenge was finding the participants who would be willing to participate in the data collection process. In this research, some people who were approached were reluctant to participate in the research because of the fact that they did not have a detailed understanding of the researcher's expectations. However, after explaining to the respondents in detailed, there was an increase in the level of knowledge which in turn, helped in getting a reasonable number of people who were willing to participate in this research. In addition, the willingness was increased when the confidentiality of the respondents was assured (Saunders, 2007).

#### **4.12 Ethical considerations**

There were some ethical issues that were considered by the researcher while conducting the research, more specifically in the data collection process. The specific ethical considerations that were looked at in this research included;

The first consideration was following the informed-consent rules were the researcher in this case got informed consent so that they can start the study. The consent was achieved by letting the university approved the proposal. In addition, the researcher got consent from the respondents who gave the assurance that they are involved in the process on a voluntary basis and that they were not given any form of incentive (Luton, 2010). The consent was an indication that they had the necessary knowledge of the benefits and the risks that are attached to the process. In addition, the respondents were given the information on the aim of the research, the confidentiality limits, and also their rights to withdraw or to decline to participate in the research.

The second consideration is objectivity where the researcher aimed at reducing self-deception and bias when collecting data, during the data analysis process, and where the data is interpreted (Hay, 2010).

The third consideration is maintaining integrity through a process of keeping promises especially those that are related to confidentiality (Yin, 2011).

Respecting people's confidentiality and right to privacy was also taken into consideration in this research. In addition, the respondents were given the information needed for them to understand the limitation of their confidentiality (Barrett, 2003).

Honesty was also maintained during the process through the process of avoiding any form of falsification, fabrication, and misrepresentation of the data according to Hartas

(2010). Carefulness was also maintained by avoiding any careless errors and negligence by means to keeping accurate data (Hesse-Biber, 2004).

#### **4.13 Measures**

Both the dependent and independent variables were used in this research; Dependent variable includes those things that depend on other factors. In this case the dependent variable is productivity (Bernstein, 1999).

Independent variable means those variables that stand alone and are often not expected to change as other variable change. In this case, independent variables include types of projects and management of projects

## Chapter Five: Data Analysis, Findings, and Discussion

### 5.1 Introduction

The aim of this section is to describe and interpret the main findings of the research problem that has been investigated. It helps in comparing the actual finding with the hypotheses so as to either agree or disagree with them. The following hypotheses were developed from the study.

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

### 5.2 Findings

#### 5.21 Descriptive Statistics

The main aim of conducting descriptive statistics is to get a simple quantitative summary of the data that has been collected in the process. It helps readers have a better understanding of the data set and the details required. It summarizes data in a way that can be understood by readers. The section mainly summarizes issues in the first part of the questionnaire.

#### Statistics

	Q. 1	Q. 2	Nationality	Q. 2	
N	Valid	150	150	149	150
	Missing	0	0	1	0

## Frequency Table

### Q.1

	Frequency	Percent	Valid Percent	Cumulative Percent
1	85	56.7	56.7	56.7
Valid 2	65	43.3	43.3	100.0
Total	150	100.0	100.0	

### Q.2

	Frequency	Percent	Valid Percent	Cumulative Percent
1	46	30.7	30.7	30.7
Valid 2	80	53.3	53.3	84.0
3	24	16.0	16.0	100.0
Total	150	100.0	100.0	

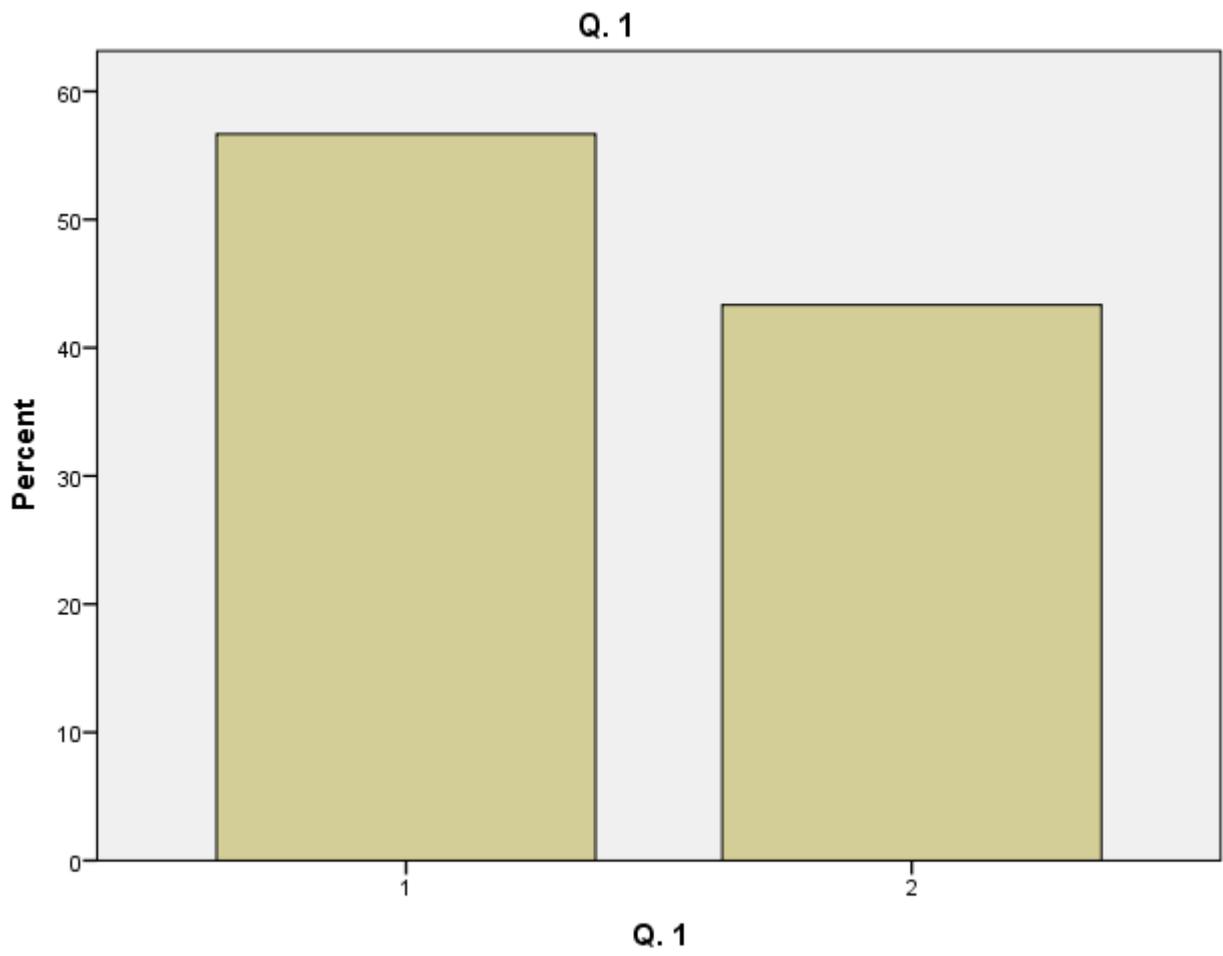
### Nationality

	Frequency	Percent	Valid Percent	Cumulative Percent
1	105	70.0	70.5	70.5
Valid 2	44	29.3	29.5	100.0
Total	149	99.3	100.0	
Missing System	1	.7		
Total	150	100.0		

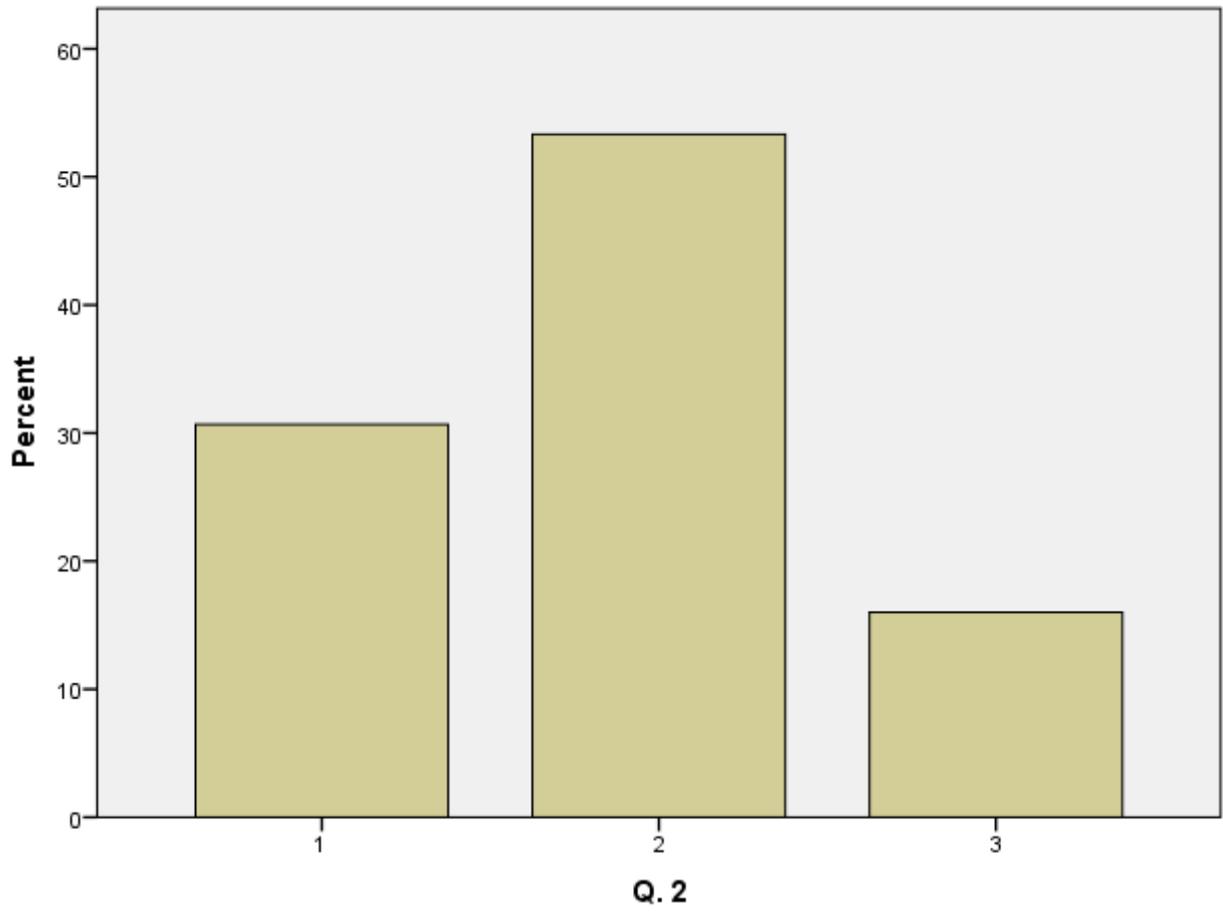
### Q. 2

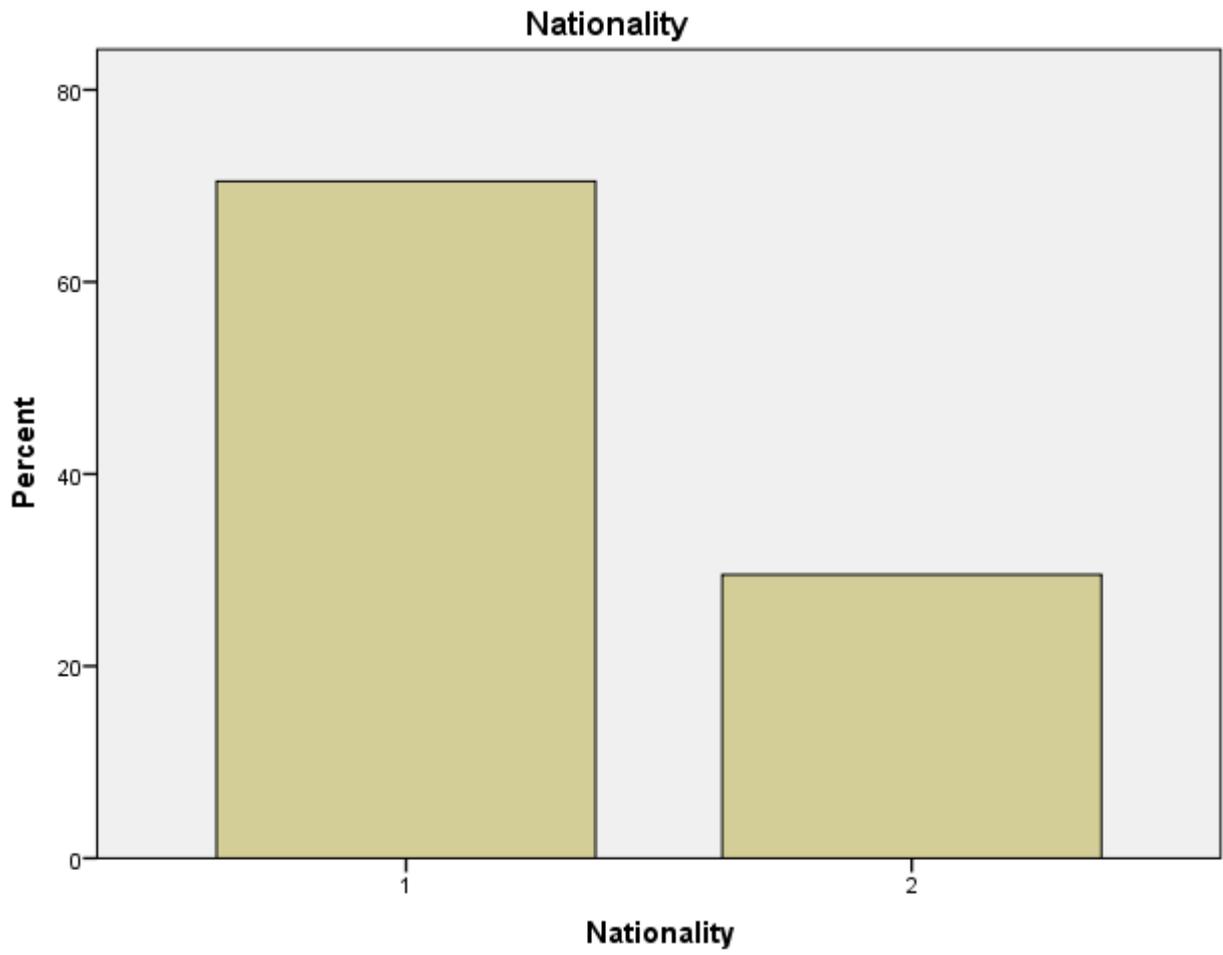
	Frequency	Percent	Valid Percent	Cumulative Percent
1	46	30.7	30.7	30.7
Valid 2	80	53.3	53.3	84.0
3	24	16.0	16.0	100.0
Total	150	100.0	100.0	

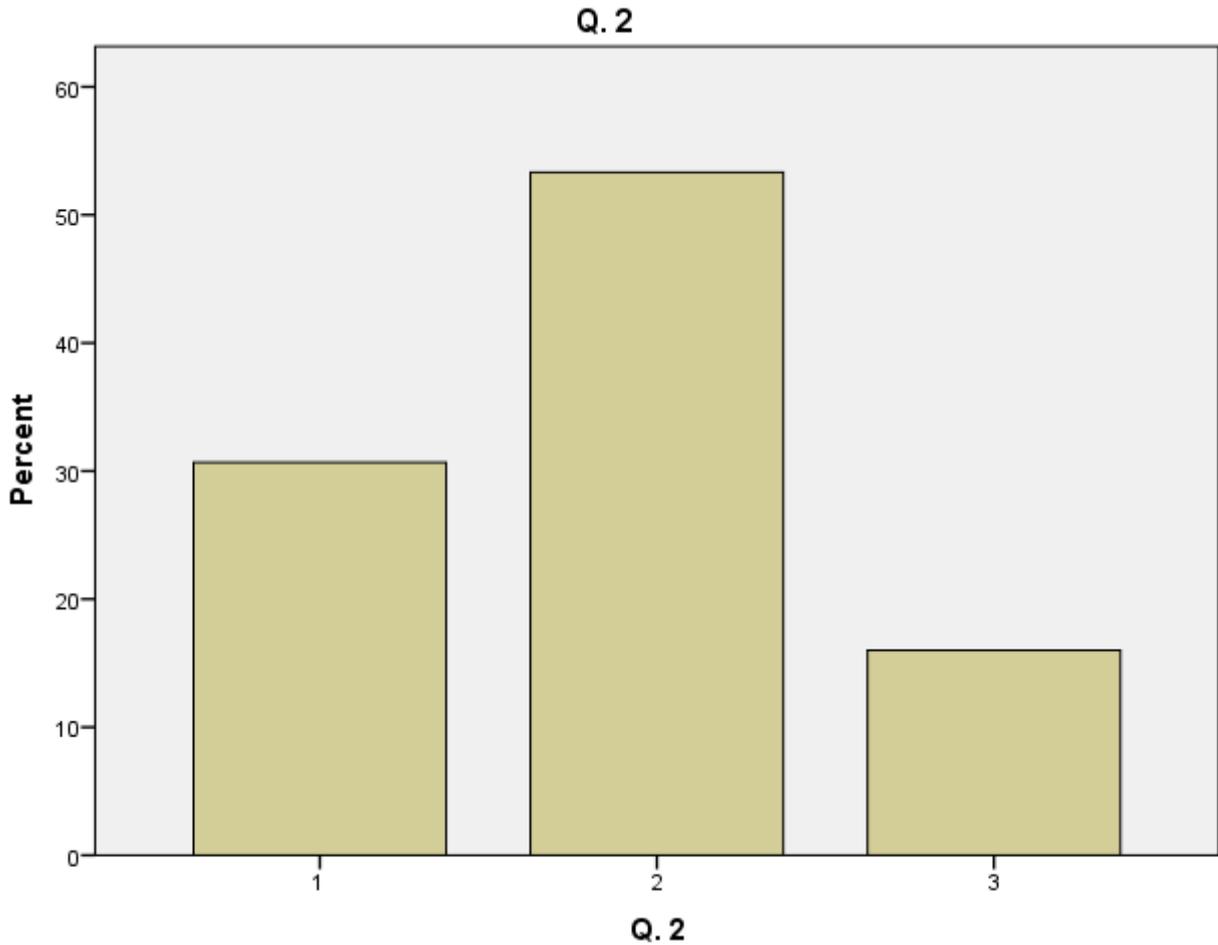
## Bar Chart



Q. 2







### **5.22 Validity Testing (Factor Analysis)**

The validity of any research is the degree in which an instrument can be able to measure the variables that it is required to perform and measure. It means that it is the extent that the instrument can provide a representation of the various factors that are being studied. In real life situations, no instrument is 100% valid but the researchers are able to get highly valid instruments. In this situation, it is a process that involves collecting and the analysis of data with the aim of assessing the accuracy of the instruments used to ensure correct conclusion. In this research, the researcher ensured that there is validity in various ways. The first way of ensuring that there is validity was through ensuring that the questions asked to relate to the topic under investigation and that they aim at answering the research questions. A reasonable level of reliability was also maintained through the process of pre-testing the

questionnaire. The first step involved having an expert review of the questions by the lecturer (Information Resources Management Association, 2015). The second step involved the use of a small focus group that involved only five people who were randomly chosen from the target group. They were expected to give their first thought of the questions and provide feedback. The feedback can include, “I do not understand the question”. The feedbacks were analyzed and improvements were made accordingly (Jha, 2014). Finally, validity was ensured through the process of ensuring that factors and variables that are being measured include what the researcher actually intended to measure (Holliday, 2002). The factors that relate to this research include;

<b>Factors</b>	<b>Source</b>
<b>Grouping 1</b>	
Unique deliverables	Abrignani (2004), Huemann (2016), Kerzner (2009)
Progressive elaboration	Andler (2012), Gowan, Kerzner (2009)
Projects are temporary	Gowan, Huemann (2016), Kerzner (2015)
They address a need or problem	Abrignani (2004), Huemann (2016), Kerzner (2009)
Aim at creating a service, result, or product	Abrignani (2004), Andler (2012), Huemann (2016)
<b>Grouping 2</b>	
Initiating.	Abrignani (2004), Harrison (2004), Richman (2011)
Planning	Kerzner (2015), Richman (2011), Andler (2012), Wysocki (2011)

Executing	Abrignani (2004), Kerzner (2015), Richman (2011), Wysocki, (2004)
Monitoring	Huemann (2016), Harrison (2004), Kerzner (2015),
Control	Andler (2012), Richman (2011), Kerzner (2015),
Closing	Abrignani (2004), Harrison (2004), Kerzner (2015), Wysocki, (2011)
<b>Grouping 3</b>	
Making a movie or semi-open	Abrignani (2004), Richman (2011), Kerzner (2015),
Open or lost in the fog	Huemann (2016), Harrison (2004), Andler (2012)
Closed or painting by numbers	Kerzner (2009), Andler (2012), Abrignani (2004)
Going on a Quest or semi-closed	Andler (2012), Harrison (2004), Richman (2011)
<b>Grouping 4</b>	
Departmental organization	Læg Reid (2010), Lewandowski (2017), Horn (1995)
Public Corporation	Lewandowski (2017), Læg Reid (2010), Horn (1995)
Government Company	Læg Reid (2010), Lewandowski (2017), Horn (1995)

Joint enterprise	Lewandowski (2017), Læg Reid (2010), Horn (1995)
Development Corporation	Læg Reid (2010), Horn (1995), Lewandowski (2017)

The factors identified above can be grouped the following critical success factors;

Factor grouping 1 gives a representation of *Elements of a project*.

Factor grouping 2 represents the *Project management processes*.

Factor grouping 3 represents *Types of Projects*.

Factor grouping 4 represents *Forms of the public sector*.

### 5.23 Reliability Testing

Reliability is considered to be a test that aims at analysing the consistency of this research. the best form of reliability include the internal and also the external reliability. In this case, the internal reliability takes an analysis of the consistency of the results that have been found in the items that are within the test. However, external reliability involved the degree where a measure varies to the application of another. Reliability test was conducted because of the fact that the application of humans is part of the procedural measure and thus there is need to worry about the reliability and consistency of the results.

**Scale: ALL VARIABLES**

**Case Processing Summary**

	N	%
Valid	149	99.3
Cases Excluded <sup>a</sup>	1	.7
Total	150	100.0

a. Listwise deletion based on all variables  
in the procedure.

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.816	.819	17

**Item Statistics**

	Mean	Std. Deviation	N
Q. 1	1.44	.498	149
Q. 2	1.85	.672	149

Nationalit y	1.30	.458	149
Q. 2	1.85	.672	149
Q. 2	1.69	.464	149
Q. 3	1.13	.424	149
Q. 4	1.11	.452	149
Q. 5	1.09	.425	149
Q. 6	1.05	.324	149
Q. 7	1.13	.445	149
Q. 9	1.12	.478	149
Q. 10	1.12	.478	149
Q. 11	1.12	.478	149
Q. 12	1.12	.478	149
Q. 13	1.12	.478	149
Q. 14	1.12	.478	149
Q.15	1.12	.478	149

### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance
Inter-Item Covariances	.049	-.049	.451	.500	-9.278	.009

### Summary Item Statistics

	N of Items
Inter-Item Covariances	17

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q. 1	20.05	16.889	.068	.	.827
Q. 2	19.64	15.652	.247	.	.822
Nationalit y	20.19	17.712	-.132	.	.836
Q. 2	19.64	15.652	.247	.	.822
Q. 2	19.80	16.459	.197	.	.819
Q. 3	20.36	16.043	.351	.	.810
Q. 4	20.38	15.643	.438	.	.805
Q. 5	20.40	16.795	.126	.	.821
Q. 6	20.44	17.275	.013	.	.824
Q. 7	20.36	16.069	.321	.	.812
Q. 9	20.37	14.437	.756	.	.785
Q. 10	20.37	14.437	.756	.	.785

Q. 11	20.37	14.437	.756	.	.785
Q. 12	20.37	14.437	.756	.	.785
Q. 13	20.37	14.437	.756	.	.785
Q. 14	20.37	14.437	.756	.	.785
Q.15	20.37	14.437	.756	.	.785

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
21.49	17.414	4.173	17

### 5.24 Hypothesis Testing

The main aim of this section is to conduct various tests that will either support or reject the hypothesis that had been proposed in the research. The various hypotheses that are based on the data collected in the literature review section include;

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

Testing the hypothesis above was done through the process of correlation testing and regression analysis (Holcomb, 1998).

## Correlation testing

The correlation coefficient is a method that is used by researchers to measure the linear association that is between two variables, and often is between -1 and +1 (Di, 2008). The method is useful and the specific one that is often used is the Product Moment correlation coefficient (Gill, 2010). The SPSS software used in this research was able to generate outputs in the form of tables as shown below.

### Correlations

	Q. 1	Q. 2	Nationalit y	Q. 2	Q. 2	Q. 3	
Q. 1	Pearson Correlation	1	.132	-.213**	.132	.086	.120
	Sig. (2-tailed)		.108	.009	.108	.298	.142
	N	150	150	149	150	150	150
Q. 2	Pearson Correlation	.132	1	.055	1.000**	.851**	.137
	Sig. (2-tailed)	.108		.506	.000	.000	.094
	N	150	150	149	150	150	150
Nationalit y	Pearson Correlation	-.213**	.055	1	.055	.019	-.126
	Sig. (2-tailed)	.009	.506		.506	.822	.126
	N	149	149	149	149	149	149
Q. 2	Pearson Correlation	.132	1.000**	.055	1	.851**	.137

Q. 2	Sig. (2-tailed)	.108	.000	.506		.000	.094
	N	150	150	149	150	150	150
	Pearson Correlation	.086	.851**	.019	.851**	1	.063
Q. 3	Sig. (2-tailed)	.298	.000	.822	.000		.446
	N	150	150	149	150	150	150
	Pearson Correlation	.120	.137	-.126	.137	.063	1
Q. 4	Sig. (2-tailed)	.142	.094	.126	.094	.446	
	N	150	150	149	150	150	150
	Pearson Correlation	.092	.052	-.089	.052	-.035	.704**
Q. 5	Sig. (2-tailed)	.264	.526	.281	.526	.669	.000
	N	150	150	149	150	150	150
	Pearson Correlation	.062	-.046	-.074	-.046	-.058	.309**
Q. 6	Sig. (2-tailed)	.454	.575	.368	.575	.477	.000
	N	150	150	149	150	150	150
	Pearson Correlation	.022	.160*	-.016	.160*	.110	-.050
Q. 7	Sig. (2-tailed)	.787	.050	.842	.050	.180	.545
	N	150	150	149	150	150	150
	Pearson Correlation	.041	.179*	-.130	.179*	.070	.769**
	Sig. (2-tailed)	.622	.028	.115	.028	.396	.000

Q. 9	N	150	150	149	150	150	150
	Pearson Correlation	.006	-.113	-.102	-.113	-.136	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150

### Correlations

		Q. 4	Q. 5	Q. 6	Q. 7	Q. 9	Q. 10
Q. 1	Pearson Correlation	.092	.062	.022**	.041	.006	.006
	Sig. (2-tailed)	.264	.454	.787	.622	.945	.945
	N	150	150	150	150	150	150
Q. 2	Pearson Correlation	.052	-.046	.160	.179**	-.113**	-.113
	Sig. (2-tailed)	.526	.575	.050	.028	.169	.169
	N	150	150	150	150	150	150
Nationality	Pearson Correlation	-.089**	-.074	-.016	-.130	-.102	-.102
	Sig. (2-tailed)	.281	.368	.842	.115	.214	.214
	N	149	149	149	149	149	149
Q. 2	Pearson Correlation	.052	-.046**	.160	.179	-.113**	-.113
	Sig. (2-tailed)	.526	.575	.050	.028	.169	.169
	N	150	150	150	150	150	150
Q. 2	Pearson Correlation	-.035	-.058**	.110	.070**	-.136	-.136
	Sig. (2-tailed)	.669	.477	.180	.396	.096	.096
	N	150	150	150	150	150	150
Q. 3	Pearson Correlation	.704	.309	-.050	.769	.124	.124

	Sig. (2-tailed)	.000	.000	.545	.000	.131	.131
	N	150	150	150	150	150	150
	Pearson Correlation	1	.229	-.039	.532	.315	.315**
Q. 4	Sig. (2-tailed)		.005	.633	.000	.000	.000
	N	150	150	150	150	150	150
	Pearson Correlation	.229	1	-.037	.291	.077	.077**
Q. 5	Sig. (2-tailed)	.005		.656	.000	.348	.348
	N	150	150	150	150	150	150
	Pearson Correlation	-.039	-.037*	1	-.050*	-.042	-.042
Q. 6	Sig. (2-tailed)	.633	.656		.544	.611	.611
	N	150	150	150	150	150	150
	Pearson Correlation	.532	.291*	-.050	1*	.114	.114**
Q. 7	Sig. (2-tailed)	.000	.000	.544		.164	.164
	N	150	150	150	150	150	150
	Pearson Correlation	.315	.077	-.042	.114	1	1.000
Q. 9	Sig. (2-tailed)	.000	.348	.611	.164		.000
	N	150	150	150	150	150	150

### Correlations

		Q. 11	Q. 12	Q. 13	Q. 14	Q. 15
	Pearson Correlation	.006	.006	.006**	.006	.006
Q. 1	Sig. (2-tailed)	.945	.945	.945	.945	.945
	N	150	150	150	150	150
Q. 2	Pearson Correlation	-.113	-.113	-.113	-.113**	-.113**

	Sig. (2-tailed)	.169	.169	.169	.169	.169
	N	150	150	150	150	150
	Pearson Correlation	-.102**	-.102	-.102	-.102	-.102
Nationality	Sig. (2-tailed)	.214	.214	.214	.214	.214
	N	149	149	149	149	149
	Pearson Correlation	-.113	-.113**	-.113	-.113	-.113**
Q. 2	Sig. (2-tailed)	.169	.169	.169	.169	.169
	N	150	150	150	150	150
	Pearson Correlation	-.136	-.136**	-.136	-.136**	-.136
Q. 2	Sig. (2-tailed)	.096	.096	.096	.096	.096
	N	150	150	150	150	150
	Pearson Correlation	.124	.124	.124	.124	.124
Q. 3	Sig. (2-tailed)	.131	.131	.131	.131	.131
	N	150	150	150	150	150
	Pearson Correlation	.315	.315	.315	.315	.315
Q. 4	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	150	150	150	150	150
	Pearson Correlation	.077	.077	.077	.077	.077
Q. 5	Sig. (2-tailed)	.348	.348	.348	.348	.348
	N	150	150	150	150	150
	Pearson Correlation	-.042	-.042*	-.042	-.042*	-.042
Q. 6	Sig. (2-tailed)	.611	.611	.611	.611	.611
	N	150	150	150	150	150
	Pearson Correlation	.114	.114*	.114	.114*	.114
Q. 7	Sig. (2-tailed)	.164	.164	.164	.164	.164

Q. 9	N	150	150	150	150	150
	Pearson Correlation	1.000	1.000	1.000	1.000	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	150	150	150	150	150

### Correlations

	Q. 1	Q. 2	Nationalit y	Q. 2	Q. 2	Q. 3	
Q. 10	Pearson Correlation	.006	-.113	-.102**	-.113	-.136	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150
Q. 11	Pearson Correlation	.006	-.113	-.102	-.113**	-.136**	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150
Q. 12	Pearson Correlation	.006**	-.113	-.102	-.113	-.136	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150
Q. 13	Pearson Correlation	.006	-.113**	-.102	-.113	-.136**	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150

Q. 14	Pearson Correlation	.006	-.113**	-.102	-.113**	-.136	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150
Q.15	Pearson Correlation	.006	-.113	-.102	-.113	-.136	.124
	Sig. (2-tailed)	.945	.169	.214	.169	.096	.131
	N	150	150	149	150	150	150

### Correlations

		Q. 4	Q. 5	Q. 6	Q. 7	Q. 9	Q. 10
Q. 10	Pearson Correlation	.315	.077	-.042**	.114	1.000	1
	Sig. (2-tailed)	.000	.348	.611	.164	.000	
	N	150	150	150	150	150	150
Q. 11	Pearson Correlation	.315	.077	-.042	.114**	1.000**	1.000
	Sig. (2-tailed)	.000	.348	.611	.164	.000	.000
	N	150	150	150	150	150	150
Q. 12	Pearson Correlation	.315**	.077	-.042	.114	1.000	1.000
	Sig. (2-tailed)	.000	.348	.611	.164	.000	.000
	N	150	150	150	150	150	150
Q. 13	Pearson Correlation	.315	.077**	-.042	.114	1.000**	1.000
	Sig. (2-tailed)	.000	.348	.611	.164	.000	.000
	N	150	150	150	150	150	150
Q. 14	Pearson Correlation	.315	.077**	-.042	.114**	1.000	1.000

Q.15	Sig. (2-tailed)	.000	.348	.611	.164	.000	.000
	N	150	150	150	150	150	150
	Pearson Correlation	.315	.077	-.042	.114	1.000	1.000
	Sig. (2-tailed)	.000	.348	.611	.164	.000	.000
	N	150	150	150	150	150	150

### Correlations

		Q. 11	Q. 12	Q. 13	Q. 14	Q.15
Q. 10	Pearson Correlation	1.000	1.000	1.000**	1.000	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	150	150	150	150	150
Q. 11	Pearson Correlation	1	1.000	1.000	1.000**	1.000**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	150	150	150	150	150
Q. 12	Pearson Correlation	1.000**	1	1.000	1.000	1.000
	Sig. (2-tailed)	.000		.000	.000	.000
	N	150	150	150	150	150
Q. 13	Pearson Correlation	1.000	1.000**	1	1.000	1.000**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	150	150	150	150	150
Q. 14	Pearson Correlation	1.000	1.000**	1.000	1**	1.000
	Sig. (2-tailed)	.000	.000	.000		.000
	N	150	150	150	150	150
Q.15	Pearson Correlation	1.000	1.000	1.000	1.000	1

Sig. (2-tailed)	.000	.000	.000	.000	
N	150	150	150	150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

From the data collected and the sample of the questions collected above shows some agreement with the research hypotheses.

### Hypotheses

Based on the data collected in the literature review section the hypotheses include;

- a. More investment in information technology reduces the level of productivity in projects
- b. Project management processes affect the productivity levels.

Factors in part three of the questionnaire correlate with factors in part three of the questionnaire meaning that the project processes such as control affect projects which are in agreement with the second hypothesis above.

### 5.25 Regression Analysis

The main aim of conducting a regression analysis is to predict the continuous dependent variable from various another variable that is considered to be independent. In other words, a simple linear regression analysis is a vital tool that is often used when modeling the dependency of a variable that is dependent on another which is independent. In this research, two variables that can be related to one another include the project management

process and the productivity levels. More specifically, the productivity levels depend on the project management processes. In other words, the implementation of project management processes results in high productivity levels while ineffective implementation of project management processes results in low productivity levels. Other variables that relates to each other is the management processes because they support one another. The results below were obtained from the regression analysis.

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
	Q. 9 <sup>b</sup>	.	Enter

- a. Dependent Variable: Q. 12
- b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	1.000 <sup>a</sup>	1.000	1.000	.000

a. Predictors: (Constant), Q. 9

The table above clearly shows the values of *R* and *R* Square. The *R* value in this research gives a representation of a simple correlation that in existence in the collected data, which is 1 as shown in the *R* Column meaning that there is a high correlation (Collis, 2009). The *R* Square value that is represented is an indication of the amount of variation in the dependent variable that results as a result of the independent variable (Creswell, 2013).

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.840	1	33.840	.	. <sup>b</sup>
	Residual	.000	148	.000		
	Total	33.840	149			

a. Dependent Variable: Q. 12

b. Predictors: (Constant), Q. 9

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.000	.000		.	.
	Q. 9	1.000	.000	1.000	.	.

a. Dependent Variable: Q. 12

The ANOVA table above was used in the research in predicting that the dependent variable well through the process of analyzing the Sig column. The data above clearly shows the regression model that was run. In this situation,  $p < 0.0005$  indicates that the regression model is relevant statistically in terms of being able to predict the outcomes of the variables (Dembowski, 1995).

## Chapter Six: Discussion, Conclusion, and Future Research

### 6.1 Discussion

The objective of this project is to analyze the productivity paradox in the public sector IS or IT projects in the UAE. The specific objectives of the project include; Understanding the elements of a Project, identifying the various project management processes, analyzing the various types of projects, identifying the forms of the public sector, and researching on productivity paradox that is often seen in public sector IS or IT projects. It also aims at identifying the productivity paradox that is often seen in public sector IS or IT projects in the UAE.

The results of the research indicate that more investment in information technology reduces the level of productivity in projects and that project management processes affect the productivity levels. More specifically, in this research, two variables that can be related to one another include the project management process and the productivity levels. The productivity levels depend on the project management processes. In other words, the implementation of project management processes results in high productivity levels while ineffective implementation of project management processes results in low productivity levels. Other variables that relates to each other is the management processes because they support one another. The results from the research aim at answering the research questions that included;

What are the elements of a project?

What are the various project management processes?

What are the various types of projects?

What are the forms of the public sector?

What is the productivity paradox that is often seen in public sector IS or IT projects?

What is the productivity paradox that is often seen in public sector IS or IT projects in the UAE?

As indicated above, the main findings in this paper are that more investment in information technology reduces the level of productivity in projects and that project management processes affect the productivity levels. It is in line with the findings in the literature review where according to Lewandowski (2017) productivity paradox results in the decrease in the output from the workers instead of increasing it. It means that companies should find ways of making sure that they maximize their benefits from IT while increasing the productivity levels. Mitigating Productivity paradox can be possible by mitigating its cause such as ensuring that employees are able to manage IT and its information (Turner, 2003). It is also vital to find ways that will accurately measure the gains from IT to avoid missing them (Gelan, 2011). However, this research was limited by time meaning further research needs to be done in the further to get better ways of mitigating companies from productivity paradox.

## **6.2 Conclusion**

Projects are crucial in making the most desired changes in a manner that is organized and a reduced probability of failure. It is an attempt to make the desired changes in an environment in a controlled manner. To ensure their success, projects need to be managed. Project management is the application of skills, techniques, tools, and knowledge to the activities of a project with the aim of meeting the requirements of the project. Project management processes often fall into five groups that include initiating, planning, executing,

monitoring and control, and closing. To further increase the success of projects, companies have started using IS/IT. Information system (IS) or Information Technology (IT) is a term used to describe computer technology and telephony. IT is a term that is used to describe the application of any computer, networking, storage, and other processes, physical devices, and infrastructure to develop, store, exchange, and secure all kinds of electronic data. However, the application of IS/IS has led to productivity paradox. The importance of productivity has led to the topic under investigation which is, “An exploration of the productivity paradox in public sector IS/IT projects in the UAE”. The topic is vital in understanding the positive and negative effects of IT on productivity. The main objective of the paper was to analyze the productivity paradox in the public sector IS or IT projects in the UAE. The specific objectives of the project included understanding the elements of a Project, identifying the various project management processes, analyzing the various types of projects such as the public sector projects, identifying the forms of public sector, researching on productivity paradox that is often seen in public sector IS or IT projects, and identifying the productivity paradox that is often seen in public sector IS or IT projects in the UAE.

From the analysis, it is clear that the productivity paradox is an observation that has been made in business processes where more investments in information technology result in a decrease in worker productivity. Productivity paradox can be long term where the decrease in worker productivity is seen for a long time. It can also be short-term where employees find themselves adjusting to the information technology and start using them to increase their productivity. Mitigating Productivity paradox can be possible by mitigating its cause such as ensuring that employees are able to manage IT and its information.

The study has been able to contribute to the success of businesses in terms of understanding the effects of IT and the mitigation efforts. Academically, it has helped to explore a new area of research. It also has a managerial implication because it helps in

determining the better ways of maximizing productivity while taking advantage of IT. However, future research needs to be done to find other effective ways of mitigating companies.

### **6.3 Recommendation and Future Research**

Companies need to find ways to effectively mitigate themselves from the effects of Productivity paradox such as ensuring that employees are able to manage IT and its information.

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## Appendices

### Appendix 1: Questionnaire

#### Questionnaire

<b>QUESTIONNAIRE</b>	<b>PART ONE: GENERAL INFORMATION</b> <i>Please tick one box for each question:</i>
<p><b>Dear Sir/ Madam,</b></p> <p>Hope this communication finds you well.</p> <p>The aim of this questionnaire is to get your honest opinion regarding various issues that are related to the productivity paradox in the public sector IS/IT projects in the UAE.</p> <p>The productivity paradox is an observation that has been made in business processes where more investments in information technology result in a decrease in worker productivity. Thus, it has become vital to understand how it affects projects in the UAE.</p> <p>Confidentiality is assured to all the respondents who are engaged in the project.</p>	<p><b>A. Age:</b></p> <p>(1) 20-24 <span style="float: right;">( )</span></p> <p>(2) 25 - 29 <span style="float: right;">( )</span></p> <p>(3) Above 30 <span style="float: right;">( )</span></p> <hr/> <p><b>B. Gender</b></p> <p>(1) Male <span style="float: right;">( )</span></p> <p>(2) Female <span style="float: right;">( )</span></p> <hr/> <p><b>C. Nationality</b></p> <p>(1) UAE National <span style="float: right;">( )</span></p> <p>(2) Non UAE National <span style="float: right;">( )</span></p> <hr/> <p><b>D. Education:</b></p> <p>(1) College degree <span style="float: right;">( )</span></p>

Thank you	(2) Graduate degree ( )
	(3) High Diploma ( )
	(4) Masters or above ( )
<b>E. Organizational Form</b>	
	(1) Public ( )
	(2) Private ( )
<b>F. Organizational Position</b>	
	(3) Top Management ( )
	(4) Middle Management ( )
	(5) Operations ( )

**PART TWO: Elements of a Project**

This section gives a representation of Elements of a project. Please Answer All the Questions

NO	QUESTION	A. Strongly Agree	Agree	Undecided	D. Disagree	E. Strongly Disagree
1	Projects at my organization have unique deliverables	( )	( )	( )	( )	( )
2	Projects are usually progressive elaboration	( )	( )	( )	( )	( )
3	All projects that I have engaged in are temporary	( )	( )	( )	( )	( )
4	Many projects address a need or problem	( )	( )	( )	( )	( )
5	Projects aim at creating a service, result, or product	( )	( )	( )	( )	( )

**PART THREE: Project Management Process**

This section gives a representation of Project Management Process. Please Answer All the Questions

NO	QUESTION	A. Strongly Agree	B. Agree	C. Undecided	D. Disagree	E. Strongly Disagree
6	Projects go through the initiating process	( )	( )	( )	( )	( )
7	Planning is a vital management process for the success of projects	( )	( )	( )	( )	( )
8	Executing is a crucial project management process.	( )	( )	( )	( )	( )
9	Monitoring is a vital management process for the success of projects	( )	( )	( )	( )	( )
10	Control is a vital management process for the success of projects	( )	( )	( )	( )	( )
11	Closing is a vital management process for the success of projects	( )	( )	( )	( )	( )
12	Executing is a vital management process for the success of projects	( )	( )	( )	( )	( )

**PART Four: Types of projects**

This section gives a representation of Types of projects. Please Answer All the Questions

NO	QUESTION	A. Strongly Agree	B. Agree	C. Undecide d	D. Disagre e	E. Strongly Disagree
13	I have knowledge of the Making a movie or semi-open type of project	( )	( )	( )	( )	( )
14	Open or lost in the fog is a type of project that is often implemented in my organization.	( )	( )	( )	( )	( )
15	Closed or painting by numbers types of projects are often implemented in my organization	( )	( )	( )	( )	( )
16	I have knowledge of Going on a Quest or semi-closed type of project	( )	( )	( )	( )	( )

**PART FIVE: Forms of public sector**

This section gives a representation of Forms of the public sector. Please Answer All the Questions

NO	QUESTION	A. Strongly Agree	Agree	Undecided	D. Disagree	E. Strongly Disagree
17	I have knowledge of Departmental organization form of public sector	( )	( )	( )	( )	( )
18	I have knowledge of Public corporation form of public sector	( )	( )	( )	( )	( )
19	I have knowledge of Government Company form of public sector	( )	( )	( )	( )	( )
20	I have knowledge of Joint enterprise form of public sector	( )	( )	( )	( )	( )
21	I have knowledge of Development Corporation form of public sector	( )	( )	( )	( )	( )