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Graduation Note

Master in management strategic information system

evaluation of the impact of information system on . condor SPA Electronics: a case study

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ABSTRACT

Information system (IS) makes it possible to improve organizational efficiency and effectiveness. This can provide a Gain competitive advantage, Market positioning and maximize profits. There is. However, a great deal of difficulty reported in the literature review. When it comes to the evaluation Impact of IS on the organization. Companies often find themselves unable to assess the full implication of there IS infrastructure, it is the intangible and nonfinancial benefits that complicate the justification process. When exploring this phenomenon, this paper shows the evaluation process of information system, and the relation between the net benefits of the organization, and the net impact of the information system, through assessing the growth of turnover and employees member, then justifying this growth by the Delone & Mclean information system success model.

In this sense, the qualitative and quantitative approaches are used to answer the research question. Finally, this study concluded that the new information system has a positive impact on user satisfaction, system use and net benefit of condor organization.

Keywords: Intangible benefits. Information system success. Information system evaluation.

يتيح نظام المعلومات (IS) تحسين الكفاءة والفعالية التنظيمية. التي يمكن أن توفر كسب ميزة تنافسية، التموقع في السوق وتعظيم الأرباح. لكن يوجد قدرا كبيرا من الصعوبة ذكرت في الجانب النظري. عندما يتعلق الأمر بتقييم إثر نظام المعلومات على المنظمة. في كثير من الأحيان تجد الشركات نفسها غير قادرة على تقييم الآثار الكاملة لوجود بنية تحتية لنظام المعلومات. إنها الفوائد غير المادية وغير المالية التي تعقد عملية التبرير. في استكشاف هاته الظاهرة، توضح هذه الورقة عملية تقييم نظام المعلومات والعلاقة بين فوائد المنظمة والتأثير الصافي لنظام المعلومات. من خلال تقييم نمو المبيعات عدد و العمال، ثم تبرير هذا النمو من خلال نموذج نجاح نظام معلومات Delone & Mclean.2003.

يتم استخدام النهج النوعية والكمية للإجابة على سؤال البحث. في الأخير يمكن القول ان نظام المعلومات الجديد له تأثير إيجابي على رضا المستخدم، استخدام النظام والفائدة الصافية لمنظمة كوندور.

كلمات مفتاحية: الفوائد الغير ملموسة. نجاح نظام المعلومات. تقييم نظام المعلومات.

Les systèmes d'information (SI) permettent d'améliorer l'efficacité et l'efficience organisationnelles. Ce qui peut fournir un avantage concurrentiel, un positionnement sur le marché et maximiser les profits. Il y a. Cependant, beaucoup de difficultés ont été rapportées dans la revue de littérature. En ce qui concerne l'évaluation de l'impact de la DSI sur l'organisation. Que les entreprises se trouvent souvent dans l'impossibilité d'évaluer pleinement l'implication de leur infrastructure informatique. C'est les avantages immatériels et non financiers qui compliquent le processus de justification. Les avantages de l'organisation et l'impact net du système d'information. En évaluant la croissance du chiffre d'affaires et des effectifs employés, on justifie ensuite cette croissance par le modèle de réussite du système d'information Delone & Mclean.

Les approches qualitatives et quantitatives sont utilisées pour répondre à la question de recherche. Le nouveau système d'information a un impact positif sur la satisfaction des utilisateurs, l'utilisation du système et les avantages nets de l'organisation du condor.

Mots clés : intangible bénéfices. Le succès de system d'information. L'évaluation de system d'information.

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To my supervisor DR Hacene Derrar. You helped me a lot. God bless you and your children.

A special thanks to my school "the National High School of Management. I am proud to be your student. You are the best school in Algeria. Wish you more brilliance, God bless y

I thank all my friends.

TABLE OF CONTENTS

LISTE OF FIGURES.

LISTE OF TABLES.

List of abbreviations

IS: information system.

IT: information technology.

DIT: department of information technology.

SQ: system quality.

IQ: information quality.

US: user satisfaction .

SU: system use.

DFC: director of finance and accountancy.

DHR: director of human resources.

DI: director of industry.

DCM: director of commercial& marketing.

DSC: director of supply chain.

INTRODUCTION

Industrial companies have been often criticized for its slow uptake for new IT technologies. In order to promote the use of such technologies, the research community need to provide more empirical and specific evidence of their business value to industrial organization the business value of an information system is determined by the system`s benefits and costs(including purchase, development, User training, operating and maintenance costs) the element of risk is also usually taken into account when deciding the investment in an information system. Here we will focus on the business benefits and evaluation of those benefits.

There is a big dilemma facing managers especially the functionalist. Where they used a traditional method like ROI (return on investment), productivity paradox… Where these methods were appropriate to evaluate investments but not IT investment. Here information technology imposed on the managers to learn more about IT. In the beginning, some of them said that IT has an impact on productivity and others said not. With the passage of time, the researchers start to find some conclusions. Like an investment in IT have an impact on organization performance and effectiveness, not just efficiency. Where a lot of methods were updated like "information economy" in costs-benefits analyses (CBA).and new ideas have emerged like each level of the organization have its own benefits, and there is a lot of types of information system each one has its own impact on the organization.

Among many of empirical investigation methods, I have seen. I think. The one that is more appropriate for the evaluation of the business benefits of new IT project is that of the case study. This is because, as we will see in more detail below. The impact of an information system depends on many different and complex factors, which cannot be easily isolated and controlled for the purpose of a formal experiment. The survey, on the other hand, is difficult to conduct when dealing with new technologies, as the number of project\organization using this technology will be limited. However, even if an adequate population could be established , a survey would not provide any insight on how the benefits are created therefor help industrial organization judge whether those benefits will be applicable to their particular situation, as we will see in more detail below, in many cases, an information system, the business objectives and processes it supports, and the business benefits it brings, are too closely interrelated to be examined separately, the one independently of the other.

In evaluating the business benefits of an information system, the first thing that we should aware of is that it is not always possible to express those benefits in single, monetary term, neither it is always possible to produce a definite statement of those benefits. as we will see below, it is not always possible to identify the IS benefits with certainty and accuracy, neither it is always possible to express those benefits in absolute and universal term, without any degree of subjectivity .

Due to the lack of a formal method of evaluation IS investment. I tried to create a method to evaluate the impact of the new IS (SAP S4 SHANA) on condor organization. Where the cost of purchasing this system was high, there for this investment must be justified. in other words, this new IS must have a positive impact on condor organization. Since the IS have tangible and intangible benefits. The tangible requires a quantitate study and simple calculation method while the intangible requires a qualitative method to prove this benefit and reveal its relation with the tangible benefits and the net benefit of the condor. After the conceptual framework and the internship in the department of information technology in

condor SPA. The evaluation process will be as follow, create a suitable method then the evaluation of the impact of SAP system on condor organization.

PROBLEM STATEMENT

IN 30.09.2017 the condor Corporation made a purchase of a new information system based on (SAP).The operation of implantation was in 1.2.2018, many questions spin in the head of the senior manager of condor organization about this investment

Does the new information system have a positive impact on the net benefit of condor organization?

STUDY QUESTIONS

Question one: does IS|IT value for money in other words, does the IS have an impact on the business sales of the condor organization?

Question tow: does the outputs of this IS have an impact on the net benefits of condor?

Question three: is there a specific method to evaluate information system, and is it appropriate for all types of IS?

IMPORTANCE OF THE STUDY

The importance of this study stems from the interest in users, although attention is often focused on information technology and its material components. Since this study addresses the use of management information system technology, its acquires a new dimension in studying ways to develop information system in the organization. In addition, this study is important because it considers the use of information system technology and its impact on the effectiveness and efficiency of CONDOR electronics organization in Algeria, farther this study gains its importance from the following factors:

-its addresses the organizational concept of using management information system technology, which is one of the most topics in the modern management doctrine. Being an important source for the survival and durability of the organization, especially in the organization that seek to adopt a strategy of modern management that allow the involvement of workers in making decision, exploiting opportunities, and increasing their competitiveness and creativity.

- since this concept(perceived management information systems technology) is relatively new in this environment, subjecting this concept to an applied study gives the study clear importance within the academic framework for advanced management methods in the acquisition of knowledge and skills which can be used to improve performance and increase productivity.

- This study contributes to enriching the Algerian literature with a new topic of interest to researchers and practitioners, and it is the starting point for farther studies.

OBJECTIVES OF THE STUDY

This study aims mainly to analyze and measure the impact of the use of management information systems technology on CONDOR ELECTRONICS ALGERIA, and this can be achieved through the following targets:

-it is clear that the crew of CONDOR ELECTRONICS has a lot of qualification. But the team of information system still far away from the management information system, so I hope that this study will be an introduction to modern management science.

- identifying the extent of the use of information technology at condor electronics in Algeria.

- making a recommendation based on the result of this study that helps decision-makers to adopt the use of information technology as an approach that contributes to the success of organizations to improve their strategic planning and quality of their service.

STUDY HYPOTHESES

This study is based up on the following hypotheses:

- If the new IS (SAP) have a positive impact on condor organization, the business sales will increase.

-if the new IS (SAP) designed well, information at high quality, the user will be more satisfied and the decision-making process will right. This leads directly to increase the net benefit of condor SPA.

- if the condor organization planned strategically that the use of an information system on the operational level, we will evaluate the impact of an information system by the productivity paradox (just efficiency) simple calculation.

- if the condor organization planned strategically that the use of information system on the tactical and strategic level, we will have to deal with intangible benefits , From here we can say that speculation is difficult, so we have to use specific tools to control the situation and to get the job done.

The difference between this study and other studies

Most studies have used qualitative methodology by the Delone and Mclean IS success model in the IS evaluation process, while this study includes both of qualitative and quantitative, this study contained the growth of the organization and the justification of this growth as an impact of the new IS. In addition, this study neglected the measure "service quality" in the IS success model because of the ERP (SAP S4 HANA) system case.

Definition of Terms

-Bounded rationality: A view that agents (individuals) act in only partly rational ways or make a sub-optimal decision due to resource constraints and limitation on gathering\processing information and solving the complex problem.

-Benefits: a term used to describe an advantage, good or positive outcome obtained by an individual or organization.

-Cost: a term used to describe the amount or equivalent paid or exchange for something**.**
-ex ant: term that refers to the predictive evaluation of IS/IT prior to implementation

-Ex post: a term that refers to the evaluation of IS/IT after it has been implemented. Such as the situation, we face in this study.

-IS/IT investment evaluation: a process by which information system and information technology, investment are appraised or assessed to determine their value. In most cases, "investment" implies ex ant evaluation, however, IS/IT investment may also be evaluated ex-post.

-interpretivism : a philosophical approach based on the belief that reality(knowledge) arises from socially constructed meaning and thus the human experience is rooted in the perception of action and situation rather than on direct sensory experience . [Paul M. Tuten. P18.2009]

This paper proceeds as follows. Chapter one deals with the different approaches used in the evaluation of IS and the challenges it faced like ABC analysis, productivity paradox. The second chapter presents the research methodology, and it contains the data collection, the method used to evaluate the new IS and difficulties that I faced in this study. The third chapter (study case) provide the approach used to evaluate the Impact of IS on condor organization, where i tried to coordinate all the previous studies and extract my own method by relating the impact of IS on condor organization(intangible benefits, tangible benefits) with effectiveness and efficiency of organization this way we can deal with the intangible benefits.

CHAPTER ONE:

Understanding the evaluation of

IS(rational/objective),(political/subjective).

Introduction

Beginning with the mainstream functionalist view of information systems evaluation, we see that many different types of information systems evaluation methods have been developed (eg, Productivity paradoxes literature, information economies, return on management ROM, SESAME, contingency approaches, and silk's benefit-level matrix…..),ranging from straightforward cost-benefit analysis to more complex methods . The latter have been developed because there are multiple types of system, each of which requires a suitable method of evaluation although each of these methods has its own conceptual difficulties, far more troublesome is the paradoxical practice which prevails managers , are in need of methods to help them with evaluation , but they fail to use these methods.

1.1 Previous studies : IS evaluation.

Section one deal with the previous studies that deal with different approaches used to evaluate the IS. This review provides a picture of IS evaluation in empirical studies. The purpose of this section is to give us a look at the evaluation process in different organizations.

1.1.1. **The different approaches used to evaluate IS**

(haewon lee. Hanbyeol choi. Junyeong lee. Jinyoung min heeseok lee. 2016) their study was under the title " impact of IT investment on firm performance based on technology architecture. Where they said" you can't just spend on IT for its sake. It really has to be aligned with the business. If it does not solve a specific business problem, then IT is nothing more than a bunch of blinking lights in a really expensive room." Where their study categorizes the IT investment into five technical areas based on a real-life company's architecture such as basic infrastructure, security, wireless, collaboration, and data center. An empirical model is built to analyze how IT investment in these categories influences business growth. They conclude that wireless technology is the main IT driver of the revenue growth; furthermore, their analyses show that IT paradox exists in some investment categories because of the time lag before full realization. They found that wireless architecture influence on business growth directly in year 0, 1, and 3 after investment. Investment in collaboration has a negative impact on growth for two years while data center investment produces growth after two years, where they said these result motivated us to consider the IT paradox changing our direction of study considering that firms aim to use collaboration investment to save costs through virtual engagement. Also, they found no significant sales decrease or increase was incurred after investment in the remainder of the architecture.

(Raija halonen, tom acton, willaim , Golden , Kieran conboy.2014) their study was under the title " Delone & Mclean success model as a descriptive tool in evaluating a virtual learning environment" they were looking for answers to the question of how computing students perceive a virtual learning environment supporting in accomplishing the degree. Where they use six measures, information quality, system quality (design), service quality, system use (delivery),

user satisfaction and net benefits, as they stated that the virtual earning environment had succeeded well to serve in accomplishing degrees. Five measures system quality, information quality, use, user satisfaction, and net benefits were interpreted positive ' information quality' was good but more material was desired into the environment.

(Indrawati and Lely malai kaniawati 2018) their study was under the title " evaluation of a global talent information system (a case study of global talent program at ABC company". The purpose of their study was to evaluate the implementation of the information system of global talent by using a modification of update Delone and Mclean information system success model , they collected data by using purposive sampling technique and able together data from 300 respondent, the collected data was analyzed by using smart pls software. The respondent believes that the system quality is the most influential factor that affects them to use IS of global talent .second important factor is management support the respondent believe that management support is one of the key factors influencing the use of the system. The last factor is information quality .the result showed that system quality, management support, and information quality have a positive and significant effect on system use 92,6% and system use has a positive and significant effect on user satisfaction 87,6%.

(Wen lung shiau , wen hsien tsai ,ping -yu hsu , ming -sung cheng, jun-derleu, yi-wen fan 2014) Their study was under the title "assessing the validity of IS success model: an empirical investigation on ERP system" .they focus on only one factor from the IS success model which is system quality because they were trying to prove the performance of department information technology as (service quality). They collected data by using questionnaire from 270 firms, they use five variables of the IS success model (system quality, information quality, system use, user satisfaction, and net benefit). They conclude that information quality significantly effects system use, and information quality is not significantly related to user satisfaction. The system quality significantly affects system use and user satisfaction. The system uses significantly affect user satisfaction and net benefits. Finally, they conclude that system quality significantly affects net benefit.

(Juhani livari 2005) his study was under the title" an empirical test of the Delone and McLean model of information system success". The field of the study was in Oulu council, which is a municipal organization of about 7500 employees. jihani was targeted at about 100 primary users of the system , data collection was based on a questionnaire during summer 1997 after half a year of experience. They conclude that perceived system quality and perceived information quality are significant predictors of user satisfaction with the system but not system use. Perceived system quality was also a significant predictor of system use. User satisfaction was found to be a strong predictor of individual impact, also, the influence of system use on individual impact was insignificant.

1.1.2 Comparison of studies.

Through the previous five studies, it clear to us that there is no formal method to evaluate IS. Where the first study(haewon lee. 2016) used the business sales growth as an indicator of the IT investment success, this study showed that most of IT investment has a positive impact on the

business sales growth except, investment in collaboration has a negative impact on growth. As for the rest of the four studies: (Juhani livari 2005) , (Raija halonen.2014) ,(wen lung shiau.2014) and (Indrawati.2018), all used the Delone and Mclean IS success model for evaluation IS, and all of them were eliminated that the system quality and information quality have a positive significant on user satisfaction and net benefit .(eg Raija halonen 2014), conclude that the virtual earning environment had succeeded well to serve in accomplishing degrees. Finally, through the comparison of these studies, it's apparent that the IS success model is a commonly used model.. it may provide support for our study.

1.2 IS evaluation the rational perspective

To fully understand IS evaluation and the prevailing practice among managers when dealing with IS investment, one must first understand IS evaluation in general and through the prevailing functionalist perspective that is commonly used to approach it. This is why chapter one is divided into two sections.

Section one deal with the body of literature that deals with IS evaluation. This review provides a picture of IS evaluation from the functionalist perspective, difficulties emerge, both conceptually and practically. The section concludes with a description of the paradoxical practice that prevails and an assessment of IS evaluation.

Section two deals with the possibility of the existence of an alternative paradigm. This includes an explanation and an exploration of the ideas about evaluation that suggest such a possibility and become available as a result. Section two discusses the ideas that lead to a revised view of IS evaluation.

1.2.1 Approaching the IS evaluation problem

One reason why it is not always possible to produce a definitive statement of the business benefits of an information system expressed in clear ,eg, s financial terms and without any degree of subjectivity, is the fact that the assessment of the business benefits of an information system is impeded by several difficulties, as any treatment on the subject would probably tell. modern information system have become too complex and sophisticated, and their functionality and scope has increased dramatically, they also note that today's systems are much more frequently interlinked and its rather difficult to disentangle a sing system for the purpose of evaluation. Finally, the difficulty of assessing the business benefits of infrastructure investment which do not deliver any benefits directly but provide the basis for other application to operate . [N. Bakis, M. Kagioglou, G. Aouad 2002p281.182]

Academics recognize the complex nature of IS evaluation. Some fundamental difficulties have always to be taken into consideration when assessing an IS, limiting the scope of the evaluation, and thus creating the need to a formal applicable evaluation process being able to overcome those obstacles. When implementing IS/IT systems in organizations. returns of IS investment may be tangible or intangible, and it's very difficult to predict the uncertainty of a developing project. In addition , according to Symons (1991), IS are complex social systems, affecting organizational, economical, and social sides of the organization, while evaluation is always

affected by subjective judgments, assumption, criteria, and time horizon as well as the bias of information. These are a few of the difficulties limiting the scope of the evaluation, creating the need for a formal applicable evaluation process that is able to overcome such an obstacle. [Aris Myrtidis. Vishanth Weerakkody, 2008p12]

After the research was conducted, it was apparent that the evaluation of IS is a complex stage. Due to the difficulty in quantifying the intangible benefits. Taking into consideration the level that the organization has invested in IS (strategic. Tactical. Operational), each level have his own benefits, and each type of IS require a specific type of evaluation. In this sense, there is no specific well-defined formal method that can be followed during the evaluation process. This leaves the manager with no choice, but to follow a subjective method of choosing the appropriate evaluation method.

1.2.2 Productivity paradoxes literature

Productivity is the fundamental economic measure of a technology's contribution. With this in mind, CIOs and line managers have increasingly begun to question their huge investment in computer and relate technologies. While major success stories exist, so do equally impressive failures. The lack of good quantitative measures for the output and value created by IT has mad the MIS manager's job to justifying investment particularly difficult. Academics have had a similar problem assessing the contribution of this critical new technology, and this has been generally interpreted as a negative signal of its value. **[**Erik Brynjolfsson**.**19931994 p4]

Interest in the" productivity paradox", as it has become known, has engendered a significant amount of research. Although researchers analyzed statistics extensively, they found little evidence that information technology significantly increased productivity in the 1970s and 1980s,the result was aptly characterized by Robert Solow's quip that" you can see that the computer age everywhere but in the productivity statistics" and Bakos &kekerer (1999)summation that, "these studies have fueled a controversial debate, primarily because they have failed to document substantial productivity improvement attributable to information technology investment" . [Erik Brynjolfsson Shinkyu Yang 1996p1]

However, there are many pieces of research, which oppose this view concerning the relation between IT and productivity. Some of them academics insist that investment in IT has a positive effect on productivity. Other pieces of research, however, do not agree that there is a link between IT investment and productivity, because the link is rather blurred and productivity can be influenced by other factors with the same effect. In this perspective, IT has a greater impact on service institution compared to industrial enterprises In term of productivity.

1.2.3 Expanded cost _benefit analyze technique

The basic premise of CBA is that when considering investing in a project, the assumption is that there is cost(s) associated with the project and there is potential benefits(s) expected to form the project. The CBA notes that by listing, by studying and by analyzing these costs and benefits before making the investment, decision would be helpful in many ways. In the least, this kind

of study and analysis provide an overall picture regarding the project and it may lead to better decision making regarding their investment in the project. [Azad Ali Eberly 2012p 401]

This research uses the public value strategic framework, as a means and end in analyzing how effective CBA is in assisting public making decision; the research found that the effectiveness of CBA in assisting public decision-making is in a paradoxical situation. Conceptually, as agreed by public managers, CBA is a useful tool in assisting public decision-making. However in practice, by looking at the two deferent department, this study shows that CBA as a decision-making tool has been used in a pragmatic way to support their decision rather than as a 'rational' decision-making tool. [Putu Sudiana 2012p3]

The CBA evaluation considered a good rational method to evaluate project but not IS|IT projects. Because economist faced great difficulty in justifying the intangible benefits (soft benefits), like improvement in customer service, process aligned with best practice. Supporting rapid decision making…ect. Since the CBA technique depends on quantifiable benefits\ costs, not qualitative benefits\costs, there are three frequently- referenced techniques for incorporating intangible benefits into CBA are information economic, return on management, and SESAME those techniques are discussed next.

1.2.3.1 Information economies

Most are investment argument include some costs or benefits, which are treated as "intangibles" or factors that cannot be measured. Some common example include " strategic alignment"." Customer satisfaction" or" employee empowerment" in most of these cases, the factors only seem to be immeasurable because they are ambiguously defined. AIE remove this type of ambiguity by focusing on definitions that can express in units of measures. Anything can be measured in a way which is superior to not measuring it at all, for example, customer satisfaction could be: - percentage of customers that repeat business or number of complaints received per month . [TOM DeMarco, peopleware.1987]

The powerful technique of AIE clarify measure, and provide optimal recommendations for a variety of situation. AIE applies across the enterprise to solve some of its most perplexing problems, including the following: [Dr. Marshall Van Alstyne 2004 p3]

- using mathematical models to improve costs|benefis analysis (CBA)for better decision at all levels of IT.

- developing financially based quality assurance measurement to ensure that the implementation of IT decision is effective.

- developing a strategic plan for an information system based on identifying the best opportunities for economic contribution by the information system.

AIE is a method created to improve the CBA technique. By determining an assessment for intangible benefits for IT|IS. Using a modern portfolio theory risk|return where AIE gave great importance for IT decision making this is due to the worst-case scenarios. A bad IT investment does more damage than just the loss of the direct investment, there are cases where dysfunctional

IT system has interfered with the business operation and cause the loss of customer and revenue. However, there are those, who believe that it suggests a useful technique, but does not provide a coherent methodology for an information system investment appraisal strategy.

1.2.3.2 Return on Management ROM

Information management serves primarily to help the management perform a management's role, and hence has introduced the concept of value-added productivity measurement system as an approach to identify the impact of information management on business unit performance. In this approach, all measure of productivity use the simple ratio of 'output input' the main problem is how to define the output of management. defines the output of management as management's value –add, which is simply everything remaining after subtracting all the direct operating costs from the value-add due to direct labor. [R. Saloojee. D Groenewald. A.S.A. du Toit.2007p6.7]

$$ROM = \frac{\text{value added by management II}}{\text{full cost of management}}$$

The 'return on management' (ROM) method of strassmann(31.32).the method presupposes that in today's information economy management has become a scarce resource. In the ROM method, the value added by management is related to the cost of management. [Theo J.W. Renkemaa. Egon W. Berghoutb1997p5]
There is also return on Investment (ROI)

ROI = (Gross Benefit – Investment Cost) / Investment Cost

However, I believe that the more fundamental criticism is that the technological determinism of this method cannot be warranted; the measure, however it is used, has little value, and like most single statistic ratios and benchmarks should be treated with great care

1.2.3.3 SESAME

Systems effectiveness study and management endorsement (sesame) is a method developed by IBM for establishing the actual financial returns obtained from an established system. It is thus slightly different in its focus from the methods discussed above that may, in theory, be used for either ex-ante or ex-post evaluation of information technology investments. It is an expended CBA approach because it compares the results of two CBA evaluations. [Louis Whittaker. 2001 p39]

Aside from the ex-post constraint, SESAME suffers from other limitation. Whiting, others pointed out that because both alternatives are assumed to produce the same result, the method implicitly accounts for intangible benefits. The authors argued, however, that this assumption it flawed-the alternatives may well result in disparate collateral benefits. For example, end-users may prefer the automated system to the manual system or vice versa. [Paul M. Tuten. p78.2009]

It is an expansion of traditional CBA, indeed, the method demands that an analyst conduct two separate cost m/benefit analyses and then compare the results of both. Unlike some methods, however, SESAME was prescribed for use in conducting only ex-post evaluations, thus, the method is unsuitable for pre-implementation investment appraisals. Therefore, SESAME is not valid for a post evaluation.

1.2.4 Contingency approaches

Many authors believe that different types of systems provide different types of costs and benefits. This theory is usually linked to a historical evaluation of the changing role of information systems. Whereas information systems originally provided only automation benefits , it now provides further, often intangible benefits to the organization, because it is used for more sophisticated purposes. Different authors classify these benefits differently, but they are usually related to:

1. Information that the system can provide to management, thus improving decision making and contributing to effectiveness;

2. Communications and coordination technology, which can be used to transform the way in which the business operates, thereby providing it with a strategic edge over its competitors.

Given that different types of the system provide different benefits, a contingency approach may be used to provide different measures of value depending on the purpose of the system. Several different contingency approaches are suggested in the literature, for example, haw good and land (1988) suggest an approach based on the careful distinction between systems in the business value chain and those with support function, while others suggest that evaluation methods should be dependent on the information systems strategy. [Louis Whittaker .2001 p42]

Contingency approaches attempt to address the complex , contextual milieu in which evaluations occur offering guidelines based upon some set of contextual factors. ,the need for contingency approaches stems from the diversity of IS projects and the inability of researchers to find a signal method rich enough to address such contextual variety . [Paul m. Tuten . 2009p99]

The use of a contingency model in MIS research has been heavily influenced by the field of organization theory. Unfortunately, contingency theory has been applied uncritically in the field of MIS and many similar problems have occurred. Recent literature reviews have been critical of the accumulated knowledge of the social and organizational impacts of MIS . Most of the predicted impacts have not received empirical support. [Peter Weil and Margrethe H. 0lson 1987p 13]

1.2.4.1 Silk's Benefit-Level Matrix

The generic benefits of information technology and systems (ITLIS) are efficiency, effectiveness and strategic advantage (or competitive edge). In theory, we can assess these benefits in terms of the usual financial measures of business performance. In practice, this is difficult, partly due to the growing importance of the soft benefits of ITLIS, and partly to a faster-changing business environment. Despite these difficulties, the general level OFIT investment is rising, but in the 1990s

we shall clearly need better tools to assess and monitor the benefits of IT/IS. [DAVID]. SILK .1990p1]

Silk benefits level matrix (see figure1) represents a significant advance on the strategic IT map because future changes in predicted benefit and level of support can be shown on a single diagram rather than separately for each future period, it also allows the user to plot the movement of application over time, as with the strategic grid. The benefit level matrix is therefore potentially more useful than either of the other technique. Silk us the matrix to map the development of IS in the benefit dimension. [Nandish v.patel 2003 p222]

Figure 1. benefit-level matrix mapping types of benefits against the level of organization at which the system will have its main used and impact

	efficiency	effectiveness	edge
Strategic	-quick decision making -managing resources	Innovation and creativity	-pricing -competitiveness
tactical	-problem solving capabilities - knowledge sharing	-understand market Trend -Access to data and info	-costumer feedback - survey -access to external data
operational	-team work -better management for Raw material -tracking inventory	-quality assurance -better performance -timely delivery	-usage of new Technology -improve business Process

-[Nandish v.patel 2003 p225]

-The various type of management information system MIS

There a various type of MIS in an organization. MIS connect technology. Management and organization:

-financial management information system (FMIS): the MIS generated reports on the past and present financial records of HONDA it details out the profits and losses of the company which helps in the decision regarding costs and funds.

-marketing management information system (MMIS): to handle the various aspect of marketing such as advertisement price. Sales. Innovation..ect.. MMSI is created. MMSI enables the organization to recognize the market trend and customer demand. It creates the look of HONDA.

-manufacturing management information system(MMIS): this MIS enables the organization to monitor various manufacturing processes such as the flow of goods. raw material and component.

-human resources management information system: this MIS helps in recruiting procedures and also allows tracking the performance of the employees. It views the requirement of the employees. Training processes and rules and policies of the organization.

-decision support system: this MIS is used for various type of problem-solving and decision making by gathering information from deferent sources. This information is compiled by using computer programs.

-executive information system(EIS): this is a reporting tool which provides quick assess to the reports from all the levels of the company and departments. [Pragenya sahoo 2014p8.9.10]

Silk shows in the benefit-level matrix, that every type of MIS has its own benefits, and each level of the organization has its own benefits. Therefore, consideration must be given to the type of MIS and the level that the organization intends to invest in and make the implementation of MIS (strategic. Tactical. Operational). To make the evaluation process of IS more limited and clearer.

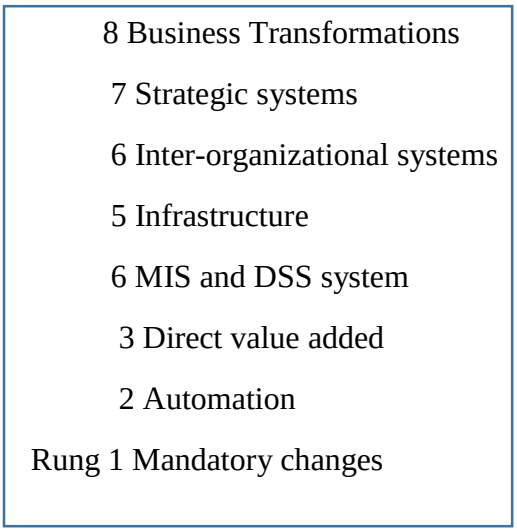
1.2.4.2 The Benefits Evaluation Ladder

The model postulates a kind of ladder. Each rung represents a type of change and hence a type of application. Moving up the ladder, each rung represents increasing potential benefits, but also increasing uncertainty on outcomes, increasing risk of failure and the increasing difficulty of communicating the 'case' for change to relevant stakeholders. The focus of evaluation techniques is different for each rung of the ladder. Whereas precise quantification of costs and benefits is possible near the bottom of the ladder, the higher rungs rely more on experimental and judgmental processes. Risk assessment becomes an important component of evaluation near the top of the ladder. At the top of the ladder, decision requires not merely the consent of the top management team: the projects can only succeed with their continuous involvement. They represent some of the most complex and difficult activities faced by senior management. Fig 2illustrates the ladder [B. farbey. F.f. land and D. target. 1995p42]

Farbey et al. (1990) provide a framework named the benefits evaluation ladder, for classifying IS according to the method required for evaluating the benefits they offer. It consists of the following eight categories of IS. Named ladder rungs: mandatory IS. Automation IS. Direct value added IS. Management information and decision support system (MIS)(DSS). Infrastructure IS inter-organization IS. Strategic IS, and business transformation enabling IS. Moving up the ladder potential benefits increase. However, at the same time increase benefits evaluation. For each of the above rung. A deferent evaluation method is proposed while in the lower rungs (e.g. mandatory or automation IS) the evaluation is based on the precise

quantification of benefits and costs. In the higher rungs (e.g. for strategic or business transformation enabling IS) the evaluation is mainly judgmental. Subsequent research literature in this area .some researchers emphasizes the need for IS evaluation method specialized to a specific type of IS which take into account their particular objectives and characteristics. [Yannis chralabidis . sotorios koussouris. 2017 p98]

Figure 2: the benefits evaluation ladder, showing different types of information systems applications



[-Yannis chralabidis . sotorios koussouris. 2017 p98]:

The authors believe that this framework is useful because " it is a framework for action as well as understanding, it specifically relates to evaluation, and it does not imply any predetermined or time-based sequence of progress" (farbey et al 1995p41). However, I do not consider it to be clear how the framework alone enable action because the authors refrain from recommending any specific method of evaluation. While they do point out that there are increasing levels of benefits, risk, and complexity at each level, and therefore increasing and distinct difficulties that may apply, they do not specify exactly how these difficulties may be overcome.

1.2.5 Realizing that objective evaluation is not adequate.

Through the detail in section one, it became increasingly obvious to me that the functional view of IS evaluation was inadequate. Simply but the unanticipated outcome was as follows: I found in speaking to senior managers that there was, in addition to the customer-, process-and shareholder-focused benefits to be derived from BPR projects, the fourth area of benefits which was considered vital, and that was "employee-focused" benefits. An appropriate employee culture was seen not only as a prerequisite for change but as a desired effect of the change. Included in this area of employee culture are issues of morale, ownership and multi-skilling. In other words, transformation must also change the way in which people approach their work, and their understanding of the process that they facilitate.

the use of computer systems is seen to progress from one stage to the next: from the automation of repetitive and routine tasks to providing management information, to "changing radically the way in which the business operates". Thus "informate" is equated with "management information systems".

When technology is used purely to automate, the worker has treated as just another mechanical variable, resulting in the withdrawal of the commitment to and accountability for the work. However, information technology has, in addition to its capacity for automating, a capacity for informating. Informating may be described as the power of information technology to textualize events and processes, that is to convert them to a symbolic medium and make them visible in new ways.

This textualization becomes a source of a more comprehensive and abstract knowledge because workers are forced to abandon their previously sentient knowledge and develop are more explicit understanding of the entire system. This can result in the development of new intellective capacities amongst workers, and opportunities for adding value through insight and innovation.

This is a considerably more complex understanding of the effects of information technology, and one which IS academics have by large neglected to consider carefully.

Any understanding or model of reality is formed by the assumption held by the modeler. All the evaluation research described thus far is underpinned by a set of assumption, which may be characterized, in terms of the framework as objectivist. That is, researchers assume that information system, as defined objects in a real world, can be classified, measured and understood using nomothetic, quantitative techniques within a largely positivist epistemological paradigm. Technological determinism is taken for granted**.**

1.3 INFORMATION SYSTEM EVALUATION THE INTERPRETIVE PERSPECTIVE

by way of the construct, an interpretive view of IS evaluation goes some way toward explaining this paradoxical practice: because IS are essentially social systems with a technical component, they are subject not to rational|ojective evaluation, but to subjective|political evaluation. Even where rational\objective methods are used, managers are inevitably subjective|political in their action. Such methods are often used, therefore, for purposes of ritual only.

We thus have tow stereotype of IS evaluation, and the manager engaged in this process: the objective|rational manager utilizing objective|rational methods versus the subjective|political manager engaged in political maneuvering, utilizing objective| rational methods only as ritual or symbolism.

1.3.1 Evaluation with the interpretive paradigm zone

It is important first to define what I mean by interpretive research and to draw a distinction between a related term – qualitative research. Firstly, the term interpretive is not a synonym for qualitative. Qualitative research can be interpretive or positive depending on the philosophical assumptions of the researcher. Qualitative research is an umbrella term covering an array of

techniques, which seek to describe, decode, translate, and somehow come to terms with the meaning, rather than the measurement or frequency of phenomena in the social world. In other words, qualitative research tends to work with text rather than numbers. Interpretive research, on-the-other-hand, is a more specific term [Bruce Rowlands may 2003 p 1]

And is defined in terms of epistemology interpretivism, by contrast, aims to find new interpretations or underlying meanings and adheres to the ontological assumption of multiple realities, which are time-and context dependent. A related term is 'naturalistic', which has connotations of research done in a natural setting, rather than in a laboratory .Terminology is not absolute, for example, walsham (1995a) refers to the 'interpretive school', yet as a general adjective refers to 'interpretive approaches, -methods, - studies', etc. others prefer 'interpretivist'. Interpretive research emanated from the social sciences and is also used in educational research, in which context reeves some researchers explains that interpretive goals determine how something works by describing and interpreting phenomena regarding domain processes, performances, innovations, etc. in recent years interpretive research has become accepted in IS .a lot interpretive studies can provide deep insight into IS phenomena, including both their management and their development. They can help the IS research community to understand human thought and action in social or organizational contexts. [M.R. (Ruth) de Villiers 2005 p12]

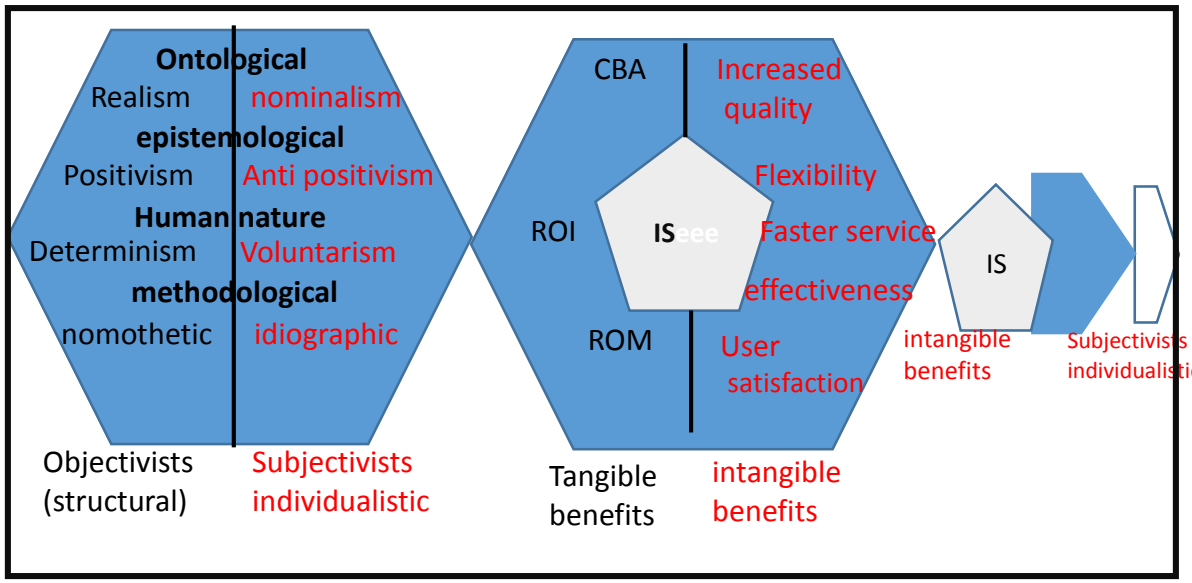
The inquiry is value-related as interpretivism leads to subjective findings that may differ between researchers. It is an appropriate view for studies of complex human behavior, shared meanings, documents and other artifacts, and social phenomena. Gust as positivism is most naturally operationalized using quantitative methods {yet not exclusively), so interpretivism lends itself mainly (but certainly not exclusively) to qualitative studies. Where positivism tests hypotheses, interpretivism investigates research questions, focused on understanding phenomena that occur in natural settings {ethnographic) and which use verbal data. Qualitative data collection and analysis produce findings related to intricate details where values and human experiences are relevant. In such contexts, the ability to interpret data is important and, in fact, 'the researcher is an instrument'. Reliability in qualitative research can be considered as a 'fit' between the findings recorded and occurrences in the natural setting. Research methods are frequently triangulated by multiple. [M.R. (Ruth) de Villiers 2005 p13]

Intangible objectives such as citizens' satisfaction and trust, improvement in communication with the users, increased quality, faster service, flexibility, and better citizen service are poorly understood and difficult to manage and measure using traditional approaches. And in a democratic context e-government objectives such as efficiency (cost cutting) and effectiveness (improved performance) are likely to be struggled with by stakeholder groups. Traditional methods for evaluation emphasize technological aspects of evaluation. And ignore engaging citizens in decision making, identifying real needs and priorities, they concentrate on benefits analysis (CBA), return on investment (ROI), net present value (NPV), etc to gain tangible benefits. in view of this, an effort at finding an evaluation approach to evaluate the intangible benefits of e-government is essentially needed. The term paradigm encompasses three levels. The philosophical level relates to basic beliefs about the world. The social level, guidelines for the researchers about how should they conduct their endeavors. The technical level concerns the

methods and techniques, which are adopted to conduct the research. [Manal Abdel-Kader Abdel-Fattah, Galal Hassan Galal-Edeen 2017 P 1.2]

Each of the assumptions has debate concerns two views: first, objectivists who study relationships and regularities between the elements. They search for concepts and universal laws to explain reality. Second, subjectivists who focus on how individuals create, modify, and interpret the world, and see things as more relativistic The philosophical debates are outlined in figure 3.

Figure 3 . Mapping subjective assumptions to evaluate intangible benefits of e-government systems



[Manal Abdel-Kader Abdel-Fattah, Galal Hassan Galal-Edeen 2017 P 15].

1.3.2 Information system success model

ISS is a perceptual or subjective measure of system success: it serves as a substitute for objective determinants of information system effectiveness, which are frequently not available. Theoretically, the determination of information system value is a matter of economics: the cats of system operations and development are subtracted from the actual benefits (in improved organizational effectiveness) to obtain the net value of the system to decision support systems (eg , a database supported by a user query facility) are used for disparate, relatively unstructured. Ad hoc decision: objectively assessing the benefits of such a system may be nearly impossible; data on system success may be determinable but not recorded by the organization. [Blake lives. Marrethe h.olson. jack joseph baroudi. 1989 p1].

One of the most commonly cited models for IS success is the one developed by Delone& Mclean (1992). Their model proposed six interrelated variables to measure the success of IS including system quality. Information quality. System's use. User satisfaction. Organizational impact and individual impact. Delone &Mcleane(2003) included the addition of service quality to reflect

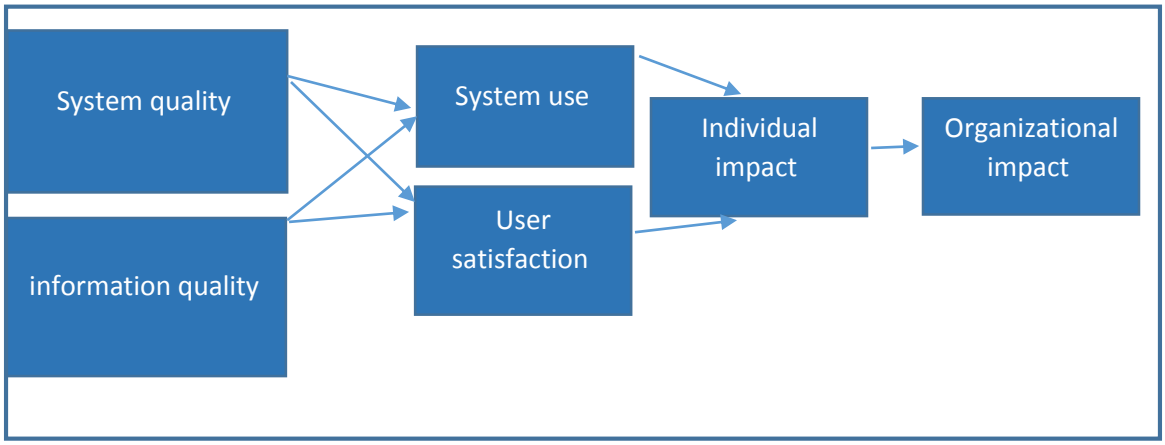
the importance of service and support in successful e-commerce system [Raid Moh'd Al-adaileh . 2009 p228. 229.230]

Studying the consequences of user satisfaction enable one to better understand the importance that this construct holds in regard to organization and individual users. Outcomes of user satisfaction or understanding what user satisfaction leads to or causes justify the efforts in studying it. Researchers have examined the user satisfaction construct itself as a dependent variable and, consequently, as the object of many studies. Many have also considered it as a proxy measure for IS success and effectiveness of the organization. [Reza Vaezi. Annette Mills,2016]

1.3.2.1 The Delone and Mclean IS success model 1992.

One of the most commonly cited models for IS success is the one developed by Delone and Mclean 1992, their model proposed six variables to measure the success of IS including system quality, information quality , system use , user satisfaction , individual impact, and organizational impact (see fig 4)

Figure 4. IS success model 1992.

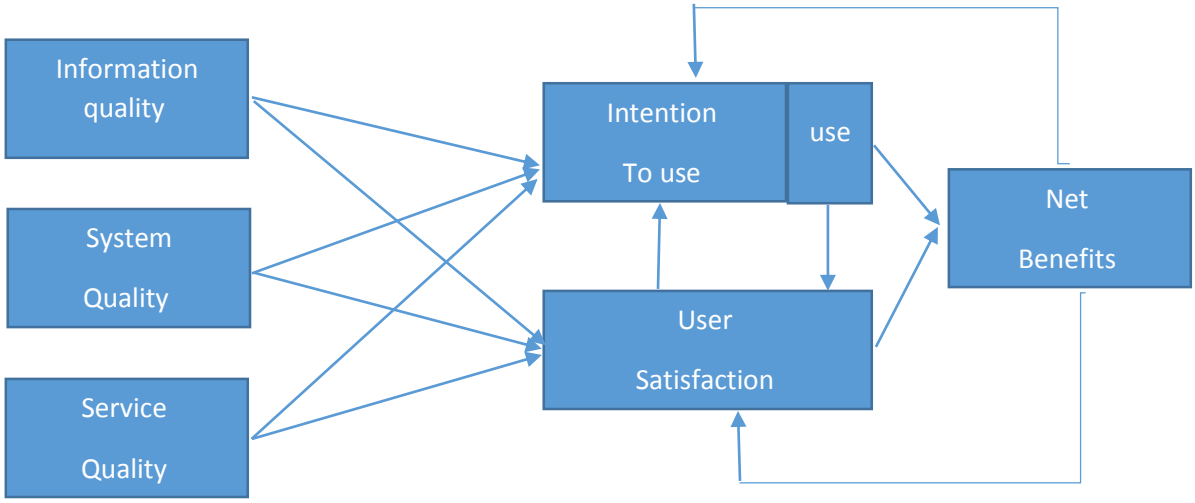


[Raid Moh'd Al-adaileh . p228 .2009].

There is also a similar model called technology acceptance model (TAM) is a well-respected model of IT adoption and operation that has been tailored to explain computer usage. This model specifies the causal relationships between system design feature, perceived usefulness, perceived ease of use, attitudes toward using. Delone and Mclean took this model into account in their updated model 2003.

1.3.2.2 The Delone and Mclean IS success model 2003.

See figure 5: Depiction of the Updated ISs Success Model (DeLone & McLean 2003).

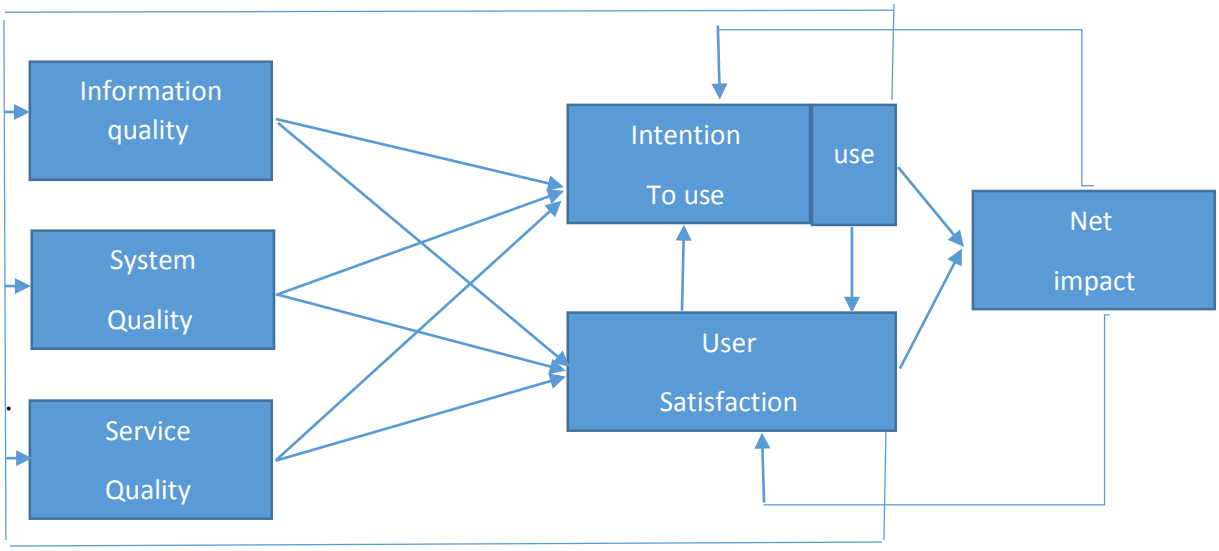


[-Stacie PetterWilliam DeLone and Ephraim McLean 2008 p238].

1.3.2.3 The Delone and Mclean IS success model 2003 modified 2016

The changes in the model 2003 are shown below in fig 6

Figure 6, updated IS success model 2003, modified 2016.



[-Stacie PetterWilliam DeLone and Ephraim McLean 2016 p10].

-information quality- the desirable characteristics of the system output: i.e., management reports and web pages. For example, relevance, understandability, accuracy, completeness….

-System quality- the desirable characteristics of an information system. For example, ease of use system flexibility, ease of earning, short time response ….

-System use- the degree and manner in which employees and customers utilize the capability of an information system ,eg, amount of use , frequency of use , nature of use extent of use …

-User satisfaction- users' level of satisfaction with, web sites, and support service, eg, a couple of the most widely used multi-attribute instrument for measuring user information satisfaction.

-Net impact- the extent to which information system are contributing (or not contributing) to the success of individuals , groups , organizations , industries , and nations ,eg, improved decision making , improved productivity , increased sales , costs reductions , improved profits , market efficiency , consumer welfare, creation jobs ,and increased sales, this two last things we will need them in the study case .[William H. DeLone. Ephraim R. McLean.p11.2016]

There is a farther conceptual problem with UIS. UIS is believed to lead to success, however, it is also believed to indicate success, this is a circular argument as amongst all the measuring, and definition of variables, there is no independent variable" IS success" which can be measured. This confusion often arises between the use of the construct as a determinant of success, and as a measure of success. Delone and Mclean (1992) for example. Are guilty of this: in their study, which attempts to answer the question" what causes MIS success?", they identify various construct by examining literature, which measures MIS success using the construct. From a perspective point of view, however. UIS is recommended as a measure of success which manager might usefully employ.

1.3.3 Archetype of evaluation

There are two archetypes of IS evaluation. On the one hand, there is a prescriptive notion of IS evaluation as an objective rational process and on the other, a sense that IS evaluation is essentially a product of personal subjectivity and potentially political ritual. If explore each of these archetypes more carefully we can see the difficulties that each presents.

1.3.3.1 Rational|Objective

Faced with major information system failures, and " indifferent information systems evaluation practice as a major problem area. Researches and consultant propose an ideal model of evaluation as an objective and rational process, to be conducted for the purpose of decision making, by an informed and rational manager such a model fits well with the stock character of a manager as described :

• The manager is a rationally motivated and purposive individual (who will for maximizing return on investment, rationally evaluate information systems options and investments).

•the manager is the master of technique and technology (including IT, and IS evaluation technique).

•the managers only benchmark is measurable economic performance (a positive economic outcome is the only criteria for the IS evaluation decision).

•the manager efficiently and effectively transforms unskilled labor into skilled labor, raw material into products, investments into profits.

The desire to persist in the requirement for objectivity and rationality stems from the Cartesian requirement for detachment and reductive explanation. However, Cartesian practice hinders adaption to change. Since IS so often change, or are enablers of change of organization. it is not surprising that IS managers and researchers too may find themselves " living in a profound develop an analytical explanation of ever new domains. The failure to develop objective means of evaluation leads to a description of IS evaluation practice as indifferent and insubstantial.

1.3.3.2 Political/subjective evaluation

If IS evaluation is not rationally objective, then by way of contrast it may be characterized as personally subjective and politically significant, this is the second archetype of IS evaluation and the one that is, in my opinion, most often suggested by managers themselves. Given that functionalist approaches to evaluation (information economy, CBA, UIS, ROM, ROI,) have a serious limitation, the only alternative seems to be a personal, subjective judgment. many managers respond to this notion with distaste, as it seems to point to a slippery path to pure subjectivity and even solipsism, the objective-subjective continuum seems to be angled down to the right, with managers engaged in a constant effort to crawl up, back to the safety of methods, frameworks, and certainty.

Furthermore, given the highly political nature of most organization, personal judgment once made, is often disguised in the form of functional dressing up, for purposes of ritual and the appearance of rationally. In such situation, the evaluation itself becomes strategic, rather than communicative, with the result that the potential for domination and self-deception emerges. The organization may use evaluation procedures that are not parts of the formal evaluation or set up adversarial methods of proposal presentation.in such cases, the course of action that is taken as a result of the evaluation may well be sub-optimal for the organization. Finally I think that the objective evaluation is not enough to make a decision about the IS investment , we have to use all methods and follow our instinct in investigating , because any details is matter for us , especially for our company , nobody knows about it better than us , so the instinct and skills can make a difference in our decision about this investment.

Conclusion.

Thus there is two opposing viewpoints, each of which purports to address the problem of IS evaluation. In addition, in applying more rigorous methods .In the second, managers are acknowledged to be subjective in the purpose of evaluating an IS, rational methods where adopted, are often entirely political, for providing the appearance of rationality and therefore meaningless as evaluation outside of ritual purpose.

The apparently stable notion of objective IS evaluation has thrown up its opposite ,political\subjective evaluation, these opposing thoughts have no way of reconciling with each other: Objective evaluation does not admit political action as valid, while political action only allows for objectivity in the service of political ends .

Moreover, from here I shall explain the research methodology and data collection. in chapter two and apply my own method in evaluating the new IS in condor and explore the way that I used to identify the impact of the information system on condor organization effectiveness and efficiency in the third chapter.

Chapter two. Methodological framework

In this chapter, I shall present the research methodology used in this study . the method that I used in the evaluation process of IS, the method of data collection . data collection , scope, and difficulties of research.

2.1. Choose the theme and ground of research

The subject choice is about trying to evaluate the impact of IS on" condor electronics"

Investing in information technology is a great step forward as well as can lead the organization to the brink of the abyss because of its high cost. therefore, we have to focus on evaluating this soft project and ensuring its success .

This study is marginalized in the company, where it did not evaluate its investment IT.it is a key task for the project manager.

The benefit of this study is due to the department of information technology, and the goal is to improve its effectiveness and performance.

2.1.1. For the department of information technology.

The information system plays a strategic role in achieving the objectives of the organization, as the IS require a large budget. Therefore, the department of information technology which, in turn, is responsible for this investment (the purchase, implementation, training, optimization …), this shows the importance of the evaluation of the new information system where the success of the new IS is considered as an indicator of the performance and efficiency of DIT. It is important to note that the process of evaluating IS was neglected in DIT so I deliberately chose it in order to draw the DIT's attention to it.

2.1.2 For the researcher.

This study allowed us to potentate the practical side. test the theatrical side about IS in the department of information technology . and to know the importance of the IS and what indicators of its success .i also wanted to know the soft benefits of an IS especially when its come to SAP S4 HANA.

2.2 Research methodology and the method used in the evaluation process

2.2.1 Research methodology

This research work fits in a posture epistemology constructivist.

Inclusion in this paradigm is dictated by the nature of our problematic, which attempt to achieve a better understanding of a concept that has been little studied and the evaluation of the information system within an enterprise. The adopted approach is an interpretive approach.

The research method we have adopted to conduct this study is qualitative in the evaluation process and quantitative when we analyze the checklist of the IS success model. Except for the second section in chapter three, the method adopted to assess the growth of the organization is quantitative.

2.2.2 The method used for the evaluation process

After I presented the various approaches about the evaluation of IS, and I have explained that the evaluation of IS need objective and subjective methods also the skill and instinct of the manager in chapter one. Therefore I wanted to create my own method were I used the growth model (turnover and number of employees) as a quantitative indicator in section two from study case. After that, i used the Delone & Mclean model (information system success model 2003) as a qualitative indicator to justify that the growth of condor organization is an impact of the new information system.

2.3 The method of data collection, delimitation of the scope and difficulty of research

In order to answer the problematic several methods of data collection were used. It is as follows:

2.3.1 Documentary collection.

The search for the documentary collection began at the same time as the choice of the subject, thus the sources of documentation and information on the subject have been oriented much more towards websites ,books, and digital articles. After beginning our internship, we had to consult and explore document specific to the institution.

2.3.2 Observation

Observation is the other means that accompanied us throughout our stay in the company , it allowed us to collect a number of information which we confirmed and sometimes disabled during the interview. We had to deal with going back and forth between observation and interview.

2.3.3. Interview.

In the quantitative study (growth model) a document about certain information (eg turnover N and turnover N-1,). Therefore, an interview with the director of analytic accountancy was needed because of the privacy of this information. In the third section the information system success Delone and Mclean model 2003.An interview was conducted with each department manager(5 managers), in order for the study to be more comprehensive. I've asked the managers the formal questions for the information system success model (Delone and Mclean ,a few additions ware made) and the answers war just by positive or negative. After that, the analysis was continued.

2.3.4 Delimitation of the scope of research

The constraint of time put us in a very precise context of our research and which requires us to respect the deadlines. Therefore, we have identified our research question about the department of information technology to try to evaluate this new information system.

2.3.5 Difficulty of research.

Most employees did not answer the questions and this under the pretext of "privacy information ". This lead to the creations of a major barrier in the process of evaluation of the new information system.

The condor foundation, especially the training cell, accept student only officially, where they do not supervise us. In fact, I was not able to access the accountancy & finance department and trading department except by using my personal contact.

Duration is somewhat short, especially with the period of trapping.

This study is the first work in English; therefore, I have faced difficulties in explaining and expressing ideas, also spelling mistakes.

CHAPTER THREE. STUDY CASE: EVALUATION THE IMPACT OF INFORMATION SYSTEM ON THE ORGANIZATION (CONDOR SPA)

Introduction:

The condor organization is a leader in the market of electronics in Algeria. Condor is in line with the strategy of diversification, as the organization has not only one market (electronics). Also several subsidiary institutions in various fields (Plastic Conversion, Mobile Products, solar panels...). The company has witnessed a signification expansion in recent years. Indicating its ability to finance its own investment. There has been also a marked growth in employment. Which led to the investment of the CONDOR organization in IT. Where it bought a new information system (SAP) at a high cost. At this point, many questions are nested in the head of senior manager and project manager about this investment especially concerning the evaluation of its benefits and its potential failure. Many issues were raised such as the value of the soft and direct benefits reward direct and indirect costs. Many fears of the failure of this project stem from the accountability of managers and their responsibility toward the company and the potential losses that the company may suffer in case of failure.

This what we will address in this chapter: in the first section, we will present the condor organization, introduce all of IS and application used by the organization and analyses the department of information technology also verify the strategic role it plays. In the second section, we will get into the heart of the subject which is evaluation of the impact of information system by making a comparison between the year of purchase and the year of implementation of the new IS (turnover, employment number). In section three I shall use the Delone and Mclean model 2003(information system success) and user acceptance technology to justifies that this growth is an impact of SAP.

3.1 Presentation of condor organization and department of information system.

In this section, I shall introduce the condor organization and explain the role strategic of the department of information technology by analyzing the DSI (SWOT analyses). Also, shall explain the various IS ,and application used by condor organization. this section is an introduction to the framework . an overview will be given along with an extended look from the strategic view . after that , I shall get into the heart of the subject which is evaluating the impact of IS on condor.

3.1.1 Condor organization

Although most of Algeria's major institutions are governmental and public. the Algerian market is monopolized especially in the field of hydrocarbons and the distribution of energy, where this institution operate in a market free from competition there is no need for continuous improvement. Condor, on the other hand, was one of the firsts private institutions, as any private institution, continuous improvement is required, especially after its recent expansion in recent years, and with the emergence of new competitors, but before discussing condor involvement with the new IS, one must first be familiar with some details concerning this emerging company.

3.1.1.1. Definition of condor organization.

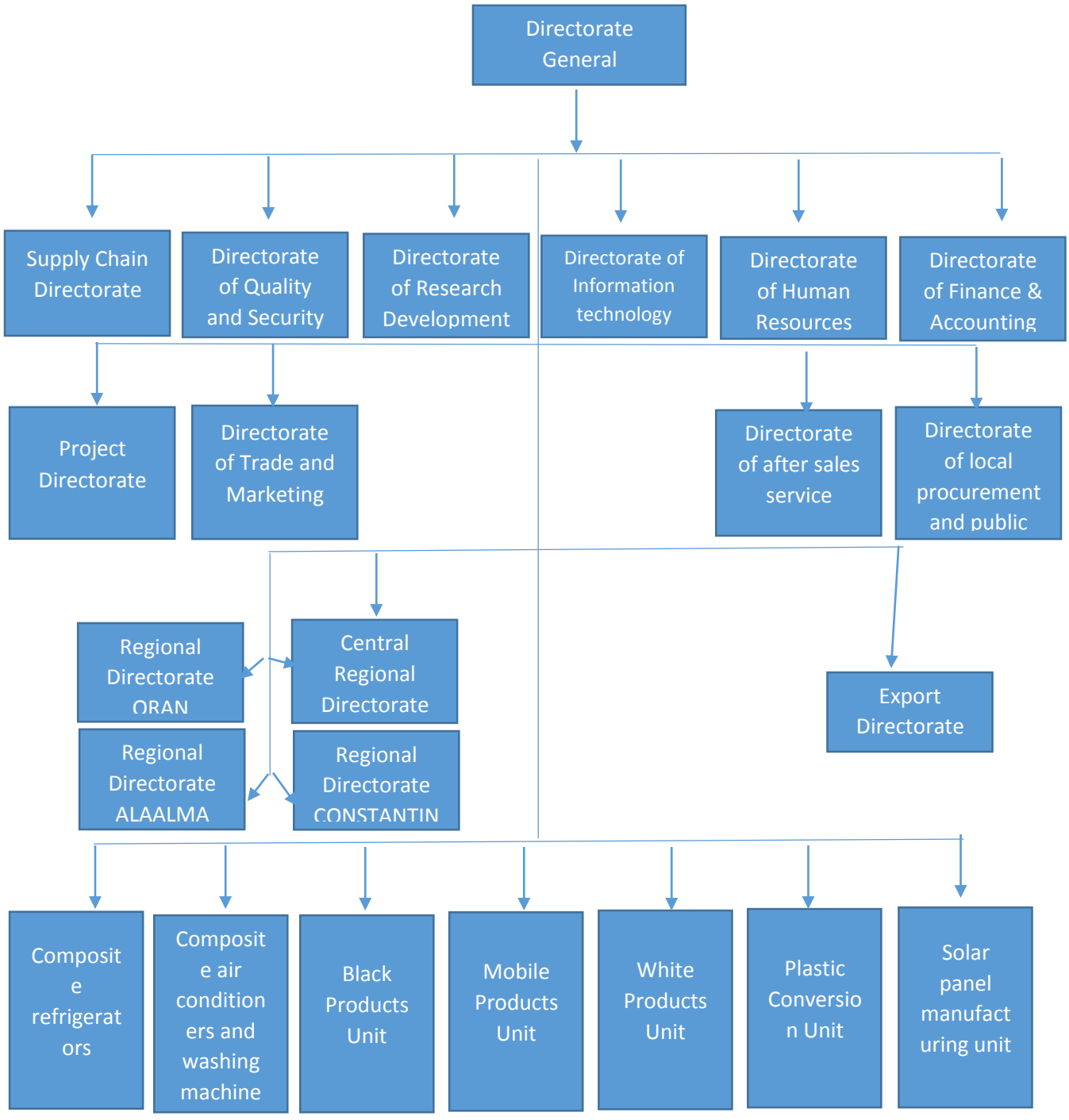
The condor organization is An Algerian Company specializing in electronics, household appliances, and multimedia. Part of the benhamadi group, it is located in the industrial area of the city of bordj bou arreridj . in addition to the marketing of its various product in the Algerian territory, where the company is a leader with 35% of the home appliance market and 55% of mobiles. Condor aims an export rate of 80% of its production to 35 countries (including France, Jordan, Mauritania, Benin, Senegal, Tunisia), condor also participates in information technology and electronics exhibitions in general such as CEBIT, IFA, MWC.

Figure 7. Technical sheet of condor electronics

www.condor.dz.

3.1.1.2 Chart of condor organization.

Figure 8. Company organization chart (condor electronics)



Condor SPA electronics. Department of human resources.

3.1.2 Department of information technology.

From all the department we will highlight the department of information technology given the strategic role that it plays and its direct relationship with the IS(purchase, implementation, optimization ,training). As we know the job of providing, implementing and evaluating the information rests on the DIT. Therefore, it must be addressed, I will explain critically the functions of DIT and the purpose of this criticism is only to improve the performance, especially in strategic planning and everything related to information system(IS cartography, processes, and profession).

3.1.2.1 Presentation of the DIT.

The department of information technology in condor electronics plays an important strategic role Where the number of employees grew as the organization grew until the number reached 53 elements(operational, tactical and strategic) as it shown in (figure 10). Thus, expanding the position of DSI on the organization (see figure 8).because of the challenges it faces, the information system has the strategic plan of:

-bridging the current weaknesses and risks of the IS function, to increase efficiency, safety, and agility while we adapting to an environment in perpetual evolution.

-take advantage of our identified strengths and opportunities that available to us for an efficient, effective and efficient IS function performing.

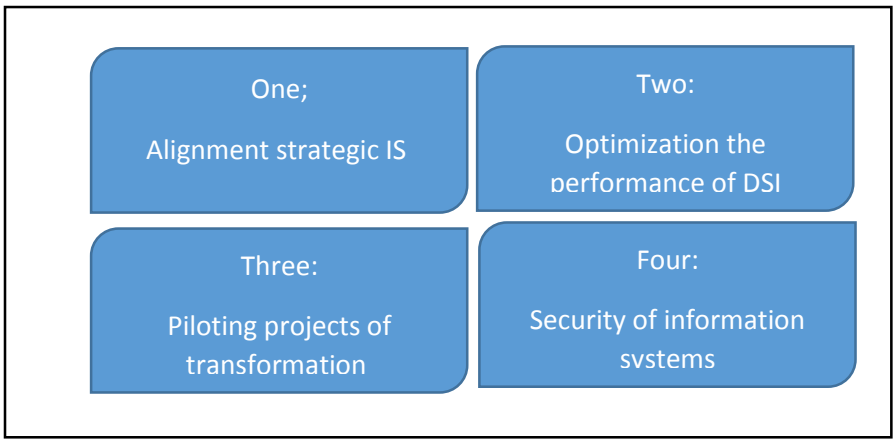
-improving the governance mode of the IS function between stakeholders of the DSI and the group also subsidiaries.

-consolidate our IT budgets and control our costs improving the level of product service.

-optimize the management and put under control the portfolio of digital transformation projects and their planning in the time.

3.1.2.2 Strategic axes of information system

Figure 9. Strategic axes of information system (DSI)



Condor electronics. Department of information technology**.**

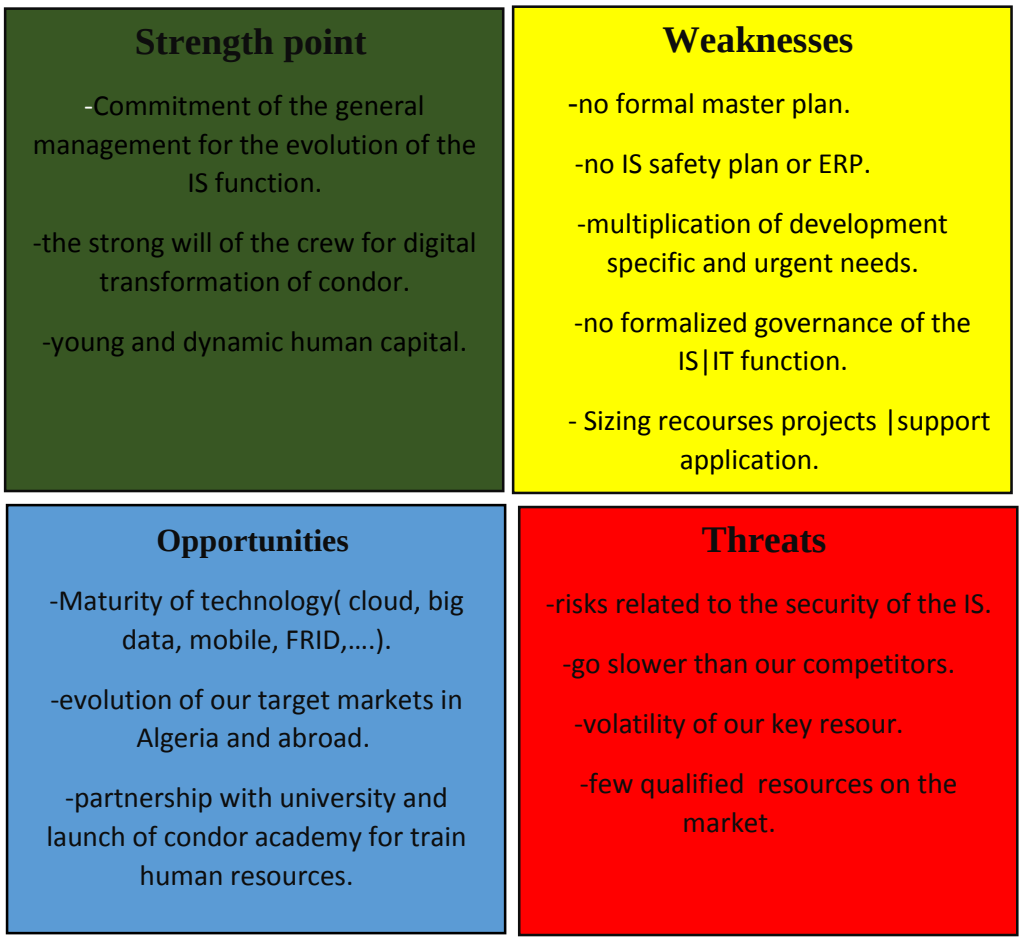
3.1.2.3 Chart of the DIT.

Figure 10 chart of department of information systems(condor electronics).

Condor SPA electronics. Department of information technology.

3.1.2.4 SWOT analyses.

Figure 11. SWOT analyses for the DSI .



Don by the student.

3.1.3 The IS used by condor electronics.

In 30.09.2017, condor electronics made a purchase of a new information system (SAP) and the operation of the implementation was in 1.2.2018. The new IS replaces the old IS, which, is called NAVISION .among the common questions about SAP are the following: what is SAP? , does condor use this IS at all department and unit? Does the new IS have an impact on condor? These questions will be answered in the following pages.

3.1.3.1 SAP S|4 Hana.

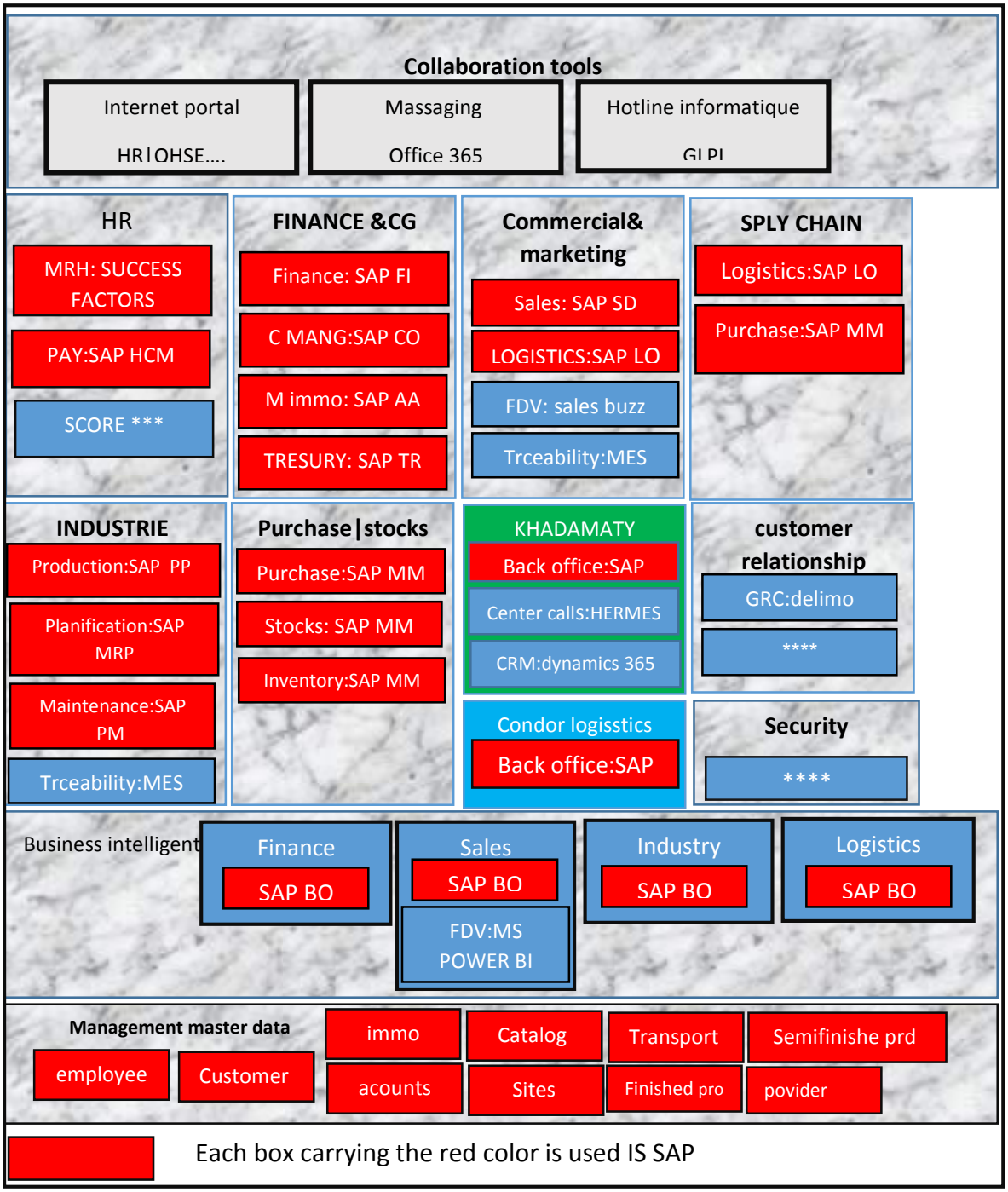
SAP S|4 HANA is an ERP business suite based on the SAP HANA in-memory database that allows companies to perform the transactions and analyze business data in real-time.

SAP S|4 HANA is intended to be easier to use and administer while helping to solve problems that are more complex and handle a vastly larger amount of data than its predecessors handle. It is available in on-premises cloud and hybrid deployment model with SAP strongly pushing its customers toward the cloud option.

SAP S|4 HANA simplifies IT and provide new productivity for business, customer and in-memory, no looking, one data store, no redundant data, the full granularity for all processes. [www.sap.com .official website]

3.1.3.2 Cartography of applications IS.

Figure 12. Cartography of application IS that condor use.



Condor SPA electronics, Department of information technology.

3.2 Growth model. The impact of the new IS (SAP) on condor organization.

3.2.1 Growth model:

In this section, I wanted to start the evaluation process by a rational study, and to try to highlight tangible benefits. Through assessing the growth of condor organization by two indicators, turnover, and recruitment (number of the employee), we will make a comparison between the year 2018 and 2017.

Where the year 2017 is the period in which the organization worked with the old IS and made the purchase of the new IS (SAP), this year is the point of separation between the old and the new information system.

The year 2018 is the year of implementation of the new IS, and condor began to operate its new IS .also the beginning of the IS depreciation.

As we know that, each year in the organization has a final budget of its own and each year has its own employment rate (the ability of condor to expand). If we view these two indicators and make the comparison, we will notice the change in condor. This change will justify the success or failure of IS investment.

In the process of data collection, I had to get into two departments: accountancy & finance department and human resources department. I encountered some difficulties in this process because of the privacy of this information .I have discussed this stage in detail in chapter two. Luckily, I was able to collect the deviation ration of each indicator.

Before I get started, it should be noted that this rational study will show the change between the year 2017 and 2018, this change, however, could be a consequence or an impact of the new IS, or could be an impact of other factors. As we discussed earlier in the theoretical aspect, one of the drawbacks of quantitative studies in the IS evaluation is that it is not clear in the justification process.

In this section, we will only show the growth. And in the third section, we will prove that this growth is an impact of SAP by using the Delone & McLean model (information system success model 2003)

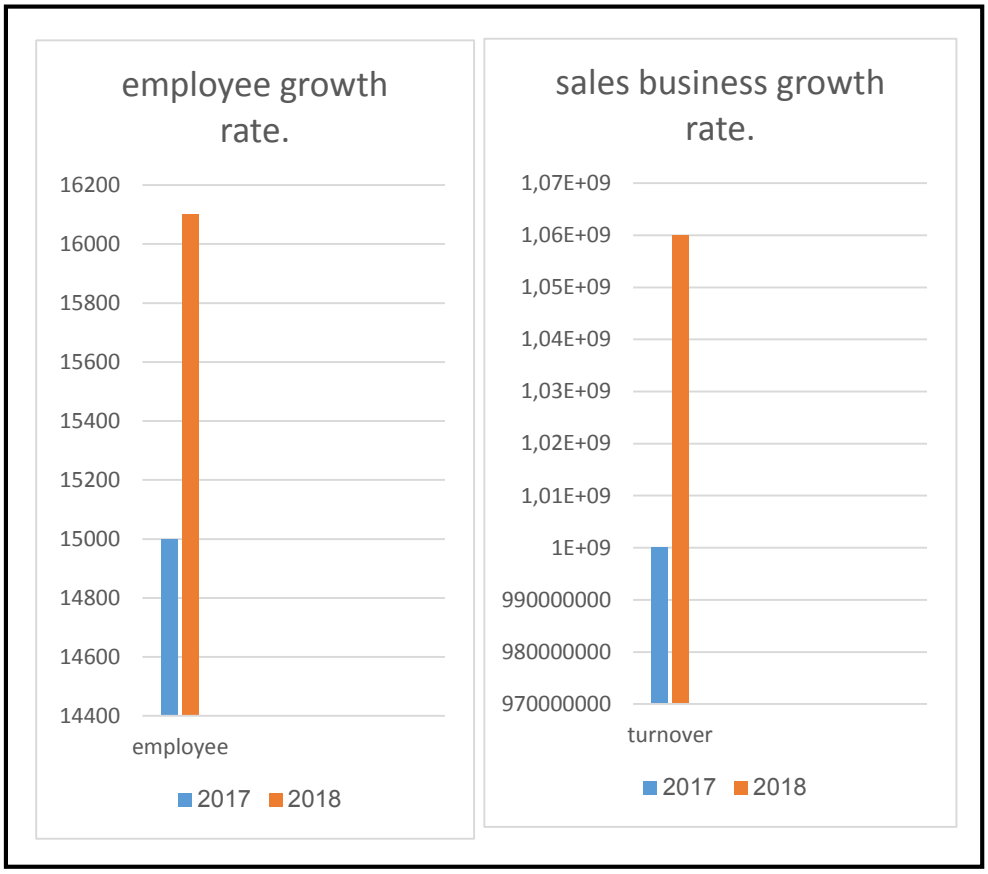
3.2.2 present data and analyses.

Table 1. Present the growth rates (sales business, member of the employees)

Indicators	**2017**	**2018**	**Growth rate**
Turnover	1000,000,000 dollar	1060,000,000 dollar	6%
Employee	15000 employee	16100 employee	6.84%

Don by the student.

figure 13. turnover , employees growths rates.



Don by the student.

Based on the organization's purchase a new information system. We find that in the first year of IS purchase, the condor has achieved growth in the business turnover estimated at 60 000 000 (6%), and a growth in employment rate estimated at 6.84% (1100 employee).

3.2.3 Result.

In this sense, using a rational way to understand and justify this investment. It looks reassuring and has a positive impact on business turnover and employment. Because if the information system fails, the organization cannot have positive net benefits like a condor.

However, because of other factors can have the same impact as the IS on the growth of condor, we still have doubts about the rational way to justify the IS investment. To make the study more assertive and convincing, we will use the information system success model for Delone and Mclean in the next section to deepen the concept of system quality and its relation with the user satisfaction and net benefits.

3.3 IS success model, the impact of IS (effectiveness) on the organization (intangible benefits).

From a theoretical perspective, the IS evaluation process is based on two methods. The first is a quantitative method and the other qualitative method. Beside these two methods, IS evaluation depends on the intuition and the skill of the manager. In this section, I shall address the qualitative method to evaluate IS while using information system success model (delone and Mclean 2003).

3.3.1 Information system success model DeLone and Mclean 2003.

The IS success model is well introduced in the second section of the first chapter; therefore, the attention will be given to the practical aspect in this section.

After we have seen the cartography of application that Condor uses, we can say that the new information system (SAP S-4 HANA) is widespread in all branches of the institution (finance, constancy, khdamaty, supply chain, human recourses. Marketing….) therefor, this study should be inclusive for all departments so that we can evaluate the impact of SAP (eg, the result can be positive in a department and can be negative in another department so we cannot use depend on the results found in a single department).

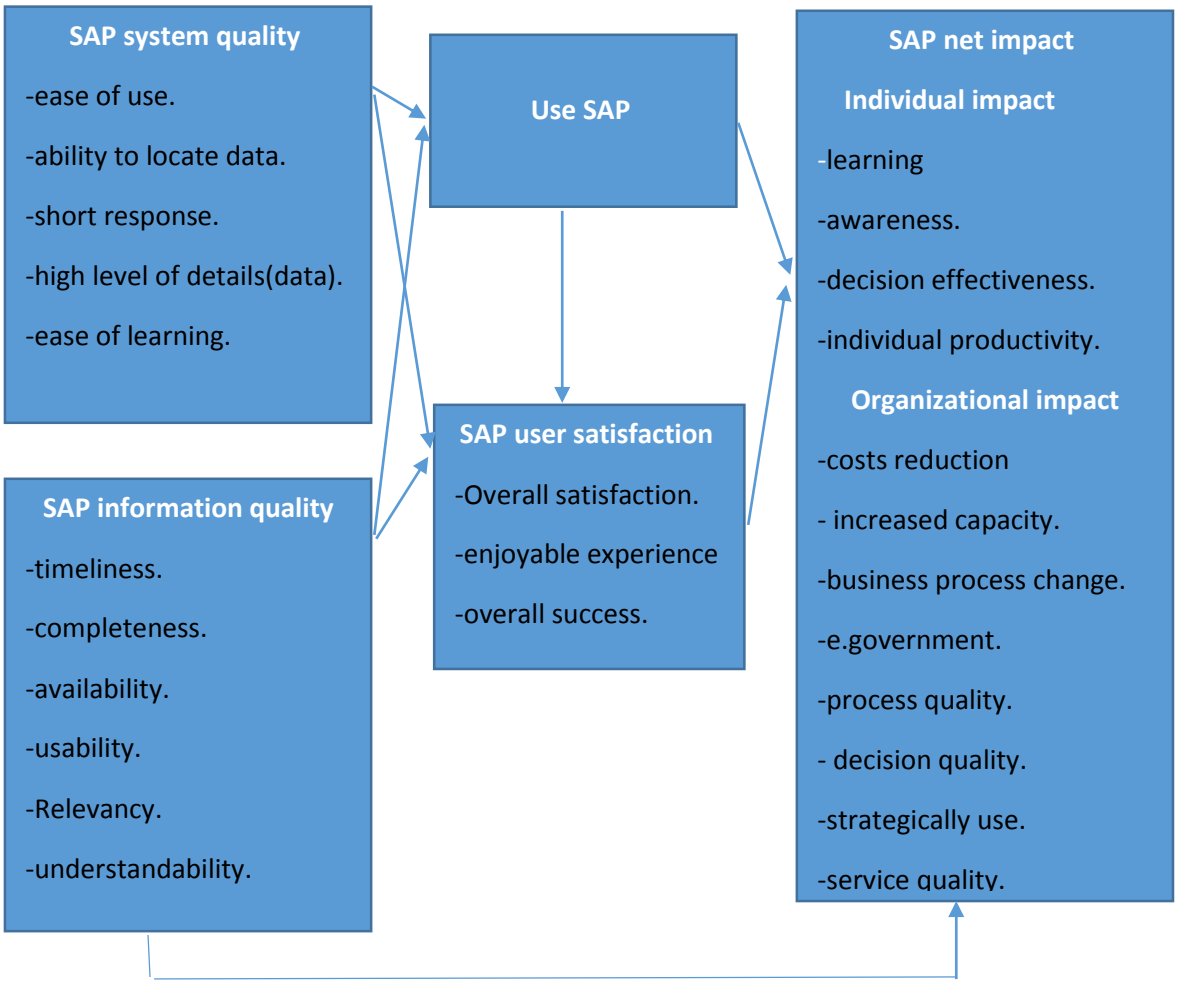
I have also talked about methodology and data collection in chapter two. this is why I will briefly address it. I've interviewed every director of each department so they would provide only negative or positive answer to a set of formal questions , this questions are prepared by Delone and Mclean 2003 and are suitable for the model used in this study as shown below (with a few adjustments that was made to suit the objectives of the case study)

3.3.2 Create a suitable design for the model.

The focus of this study is one use of the ERP system. In this paper, we modified the updated D&M IS success model " this model was modified by D&M modified in 2016 where they replaced net benefits (2003) into net impacts. This modified revision is shown in [fig1, 3 p10. H. DeLone, McLean 20016].

By considering in the context of enterprise resource planning (ERP) systems. To measure the success of IS department "service quality may be the most important variable. for measuring the success of a single system. As opposed to the IS department ," information quality" and "system quality" may be the most important quality component (DeLone and McLean 2003) therefore, we do not consider service quality because ERP is a single large system, our investigation is on the firms that already implemented and used ERP system. Thus, it is not necessary to consider the intention to use the component. Wixom and Watson (2001) identified significant relationships between the system quality and perceived net impact in data warehousing system, both data warehousing and ERP are a single system .so we should take the relation between system quality, information quality and net impact into consideration. Our model is shown in figure 14.

Figure 14. Suitable design for IS success .



Done by ourselves.

3.3.2.1 Questions items in the study.

Table 2. questions items in the study.

Construct	items	Measures	Source
Information quality	IQ1	The output contains information in the sequence that I find to be useful.	Delone and Mclean 2003 Developed and validated by Srinivasan 1985-Amoli and farhoomand 1996
	iQ2	The outputs are easy to understand.	
	iQ3	The outputs provided by the system are relevant to the decision I make.	

System quality	SQ1	The system contains accurate data.	Don by the student,
	SQ2	ability to locate data.	
	SQ3	The system easy to learn.	
	SQ4	The time response is short .	
	SQ5	The system easy to use.	
	SQ6	High level of details.	
System use	SU1	The system is used to help the making decision .	Delone and Mclean 1992.2003 Developed and validated by Srinivasan 1985 ,bailey and pearson 1983 .
	SU2	The frequency of use of report and document generated by the system is high.	
	SU3	Frequency of use the system is high	
	SU4	Average connect time per access	
User satisfaction	US1	The degree of congruence between what the user wants or requires and what the information product and service provided is high.	Delone and Mclean 1992.2003 Developed and validated by bailey and pearson 1983, etezadi-amoli and farhoomand 1996. And teo and wong 1998
	US2	The software provides complete features.	
	US3	The description of the function commands displayed on the screen is clear.	
	US4	The user has positive feelings of assurance or certainty about the system provided.	
	US5	enjoyable experience.	

[Wen lung shiau, wen-hsien tsia, 2014 p 9.10].

3.3.3. Analysis and result.

The aim of this study is to evaluate the perceived success of the new IS (SAP S4 HANA) form the user perspective, next we analyze the result with the help of a framework that was based on the D&M2003.

Almost all directors of the department were interviewed as its shown below.

Table 3. Present items of each department director were questioned.

Function	Items	Name
Director of finance and accountancy	DFC	Ms. Harar Majed
Director of human recourses	DHR	MM mokrani Wissam
Director of industry	DI	MS Boubatra Hamid
Director of commercial &marketing	DCM	MS gharsalah chouaib
Director of the supply chain	DSC	MS thabet Ayoub

Done by the student.

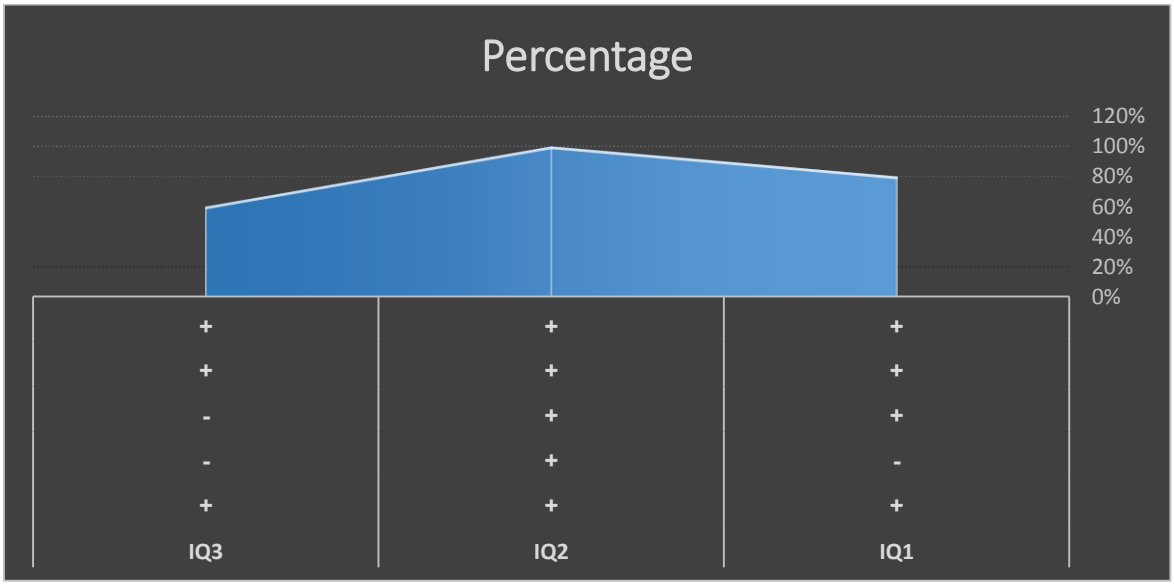
The results of this interview were as follows.

Table 4. Result of the measure information quality.

Question|user	DFC	DHR	DI	DCM	DSC	Percentage
IQ1	+	-	+	+	+	0.8
IQ2	+	+	+	+	+	1
IQ3	+	-	-	+	+	0.6
Information quality **positive**						0.8

Done by the student.

Figure 15. : result of the measure' information quality.



Done by the student.

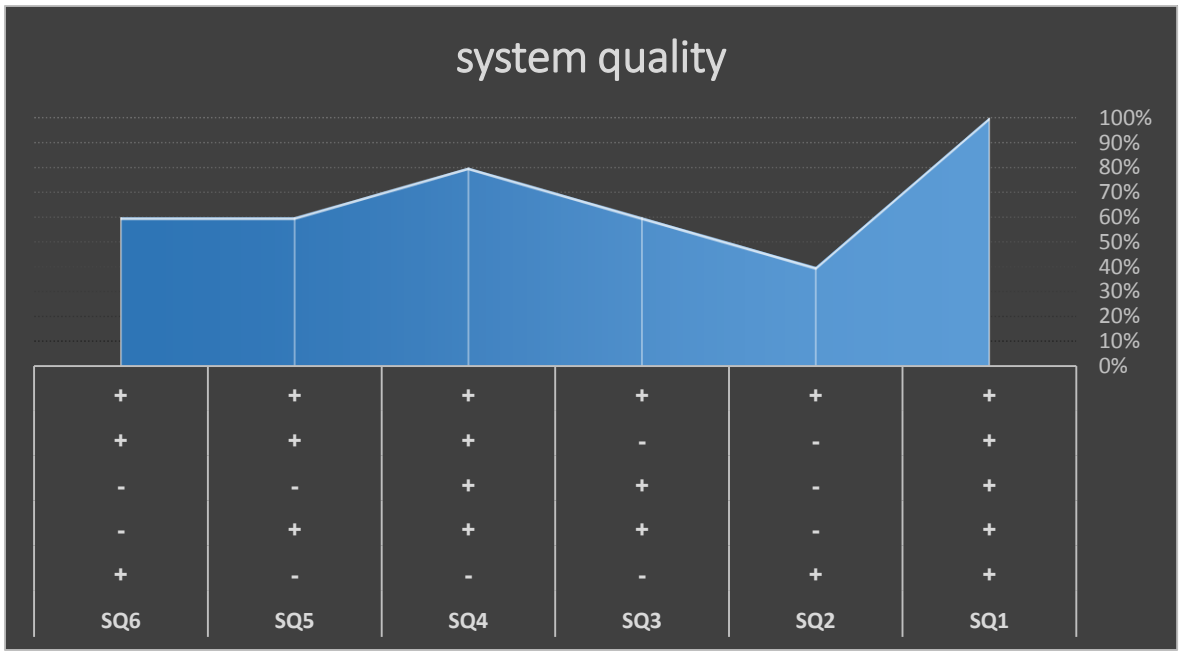
The factor of information quality has a positive impact on the user by 0.8. Due IQ1=0.8, IQ2=one (all positive), IQ3=0.6. It mean that the output of the IS are useful, easy to understand and it relevant positively for the process of making decision

Table 5. Result of the measures system quality.

Items|user	DFC	DHR	DI	DCM	DSC	Percentage
SQ1	+	+	+	+	+	1
SQ2	+	-	-	-	+	0.4
SQ3	-	+	+	-	+	0.6
SQ4	-	+	+	+	+	0.8
SQ5	-	+	-	+	+	0.6
SQ6	+	-	-	+	+	O.6
System quality		**positive**				0.66

Done by the student.

Figure 16. Result of the measure' system quality.



Done by the student.

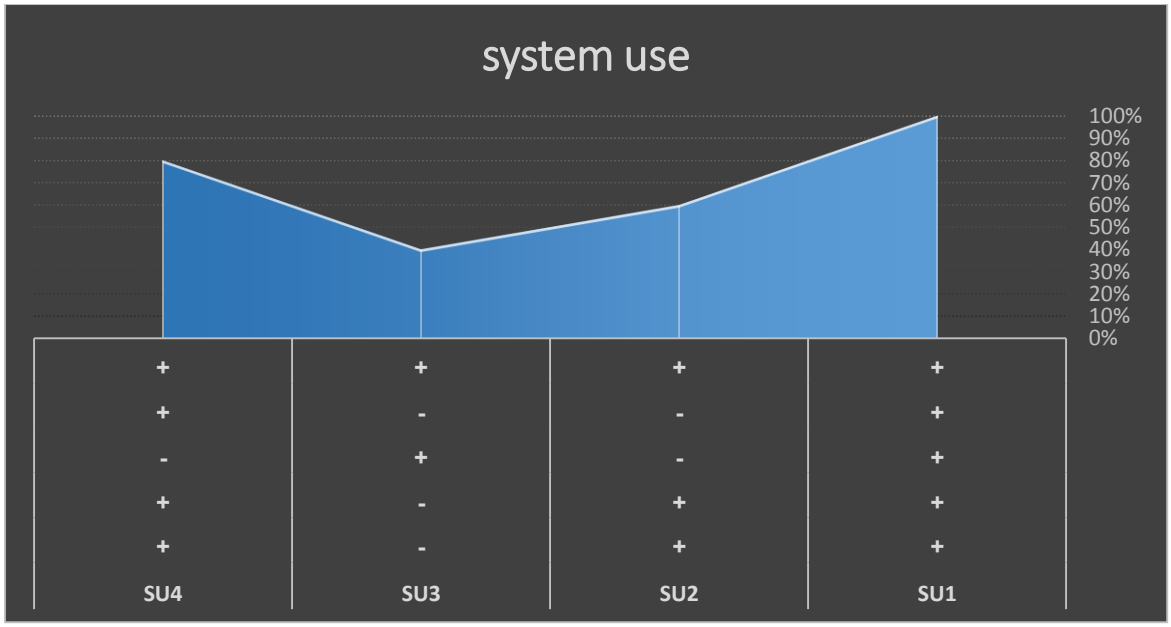
The factor of system quality has a positive impact on user 0,66, all users recognize that the system contains accurate data, ability to locate data has a negative impact on the user ad this may be because the system is new and the users have not adapted well, the system easy to learn, the time response is shor , the system easy to use and High level of details all have a positive impact. It can be said here that the design of IS is appropriate and the user acceptance technology is acceptable by which all the positive indicators lead to the net impact (net benefits). Of course, we will talk about relationships next.

Table 6. Result of the measure system use.

Items|user	DFC	DHR	DI	DCM	DSC	Percentage
Su1	+	+	+	+	+	1
Su2	+	+	-	-	+	0.6
Su3	-	-	+	-	+	0.4
Su4	+	+	-	+	+	0.8
System use **positive**						0.7

Done by the student.

Figure 17. Result of the measure' system use.



Done by the student.

The factor of system use has a positive impact.0.7. In SU3 we noticed that the Frequency of use the system is high, it has a negative impact, this is because most of the department of finance and accountancy, human resources and commercial& marketing still use the old system(Navision),.(eg.. the department of human resources still work by the old system in the score of attendance so the function of preparation of salaries, this is a bad sing anyway and it must be corrected so I talked with the IT engineer and he said:

figure 18. Interview with the IT engineer.

The machine of counting the presence with the fingerprint still connected with the old system(NAVISION). Its just a matter of connecting the fingerprint machine with new IS, and the problem will be solved . I think this problem is related to the implementation process not the new system use.

Don by the student and the IT engineer MS Ammar.

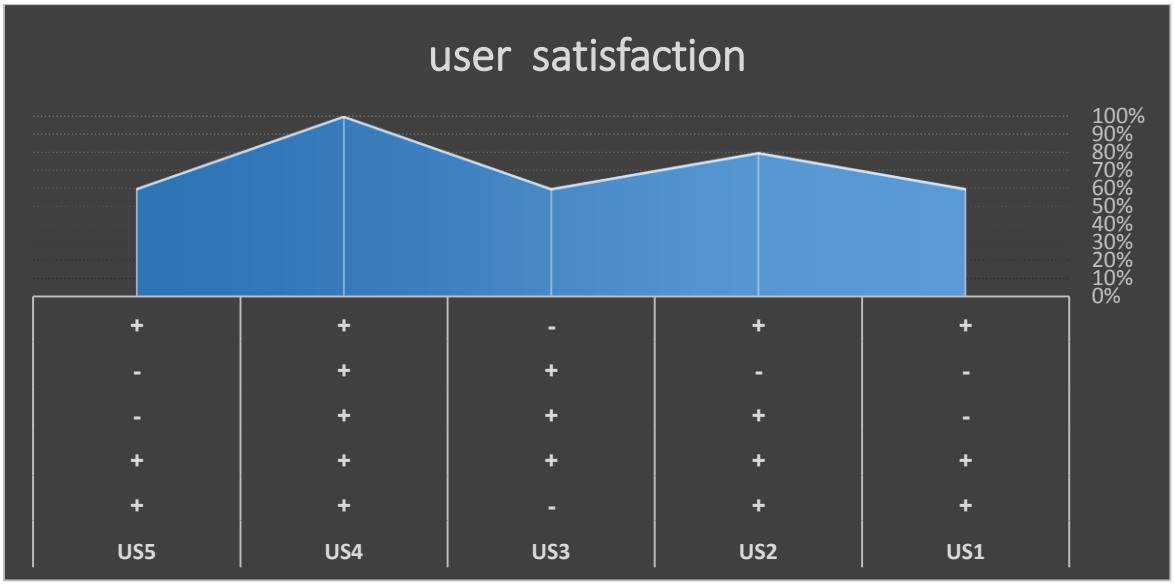
The user recognizes that the system helps in the process of decision making, The frequency of use of report and document generated by the system is high and Average connect time per access as a positive impact and this is good for the net impact(net benefits).

Table 7. Result of the measures ' user satisfaction'.

Items|user	DFC	DHR	DI	DCM	DSC	Percentage
US1	+	+	-	-	+	0.6
US2	+	+	+	-	+	0.8
US3	-	+	+	+	-	0.6
US4	+	+	+	+	+	1
US5	+	+	-	-	+	0.6
User satisfaction		**positive**				0.72

Done by the student.

Figure 19. Result of the measure ' user satisfaction.



Done by student.

The users almost chose a positive bias towards all measures, form the D&M success model, its very important sing that user is satisfied and it has a direct impact into the net benefits, because when the user is enjoying the experience with the system, the user believes that the IS software provide a complete features, have a positive feeling of assurance or certainty about the system provide, and the degree of congruence between what the user wants or requires and what the information product and service provided is high. This will inevitably increase individual productivity, decision quality, and organization capacity.

3.3.3.1 Explain relationships and extraction of net impact (net benefits).

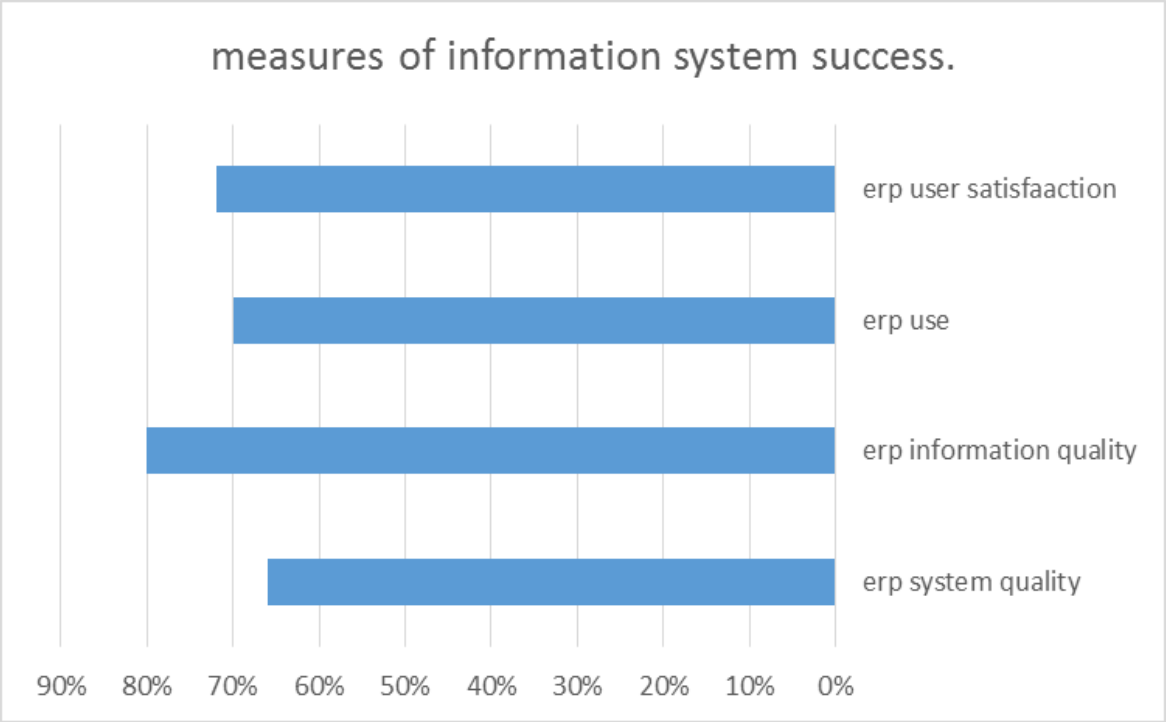
After we analyzed the four measures, SAP information quality, SAP system quality, SAP use, SAP user satisfaction, and all results were positive as shown below.

Table 8. Rates of all measures.

SAP information quality	SAP system quality	SAP. use	SAP user satisfaction
0.8	0.66	0.7	0.72

Done by the student.

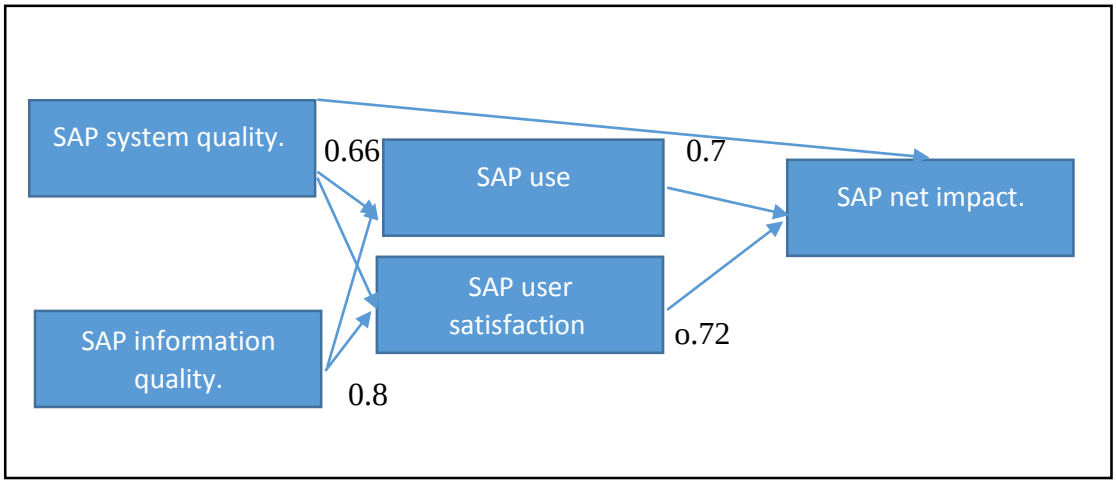
Figure 20. The rates of all measures.



.Done by the student.

Delone and Mclean (1992.2003) emphasize that there is a relation between the measures, the relationships should be tested, but D&M does not introduce the desired testing method. In our study, we analyzed the relation by interpreting the received responses. The relationships were searched by comparing given response with each other and by scrutinizing if positive value given in one measure led to a positive value in another measure.

Figure 21. The relationships of measures.



Done by the student.

-System quality, use, user satisfaction and net impact(net benefit): If the system quality is good it is more likely that user would like to use it , and after the experience, they will be satisfied and enjoying to work with it, in other word systems with flexibility and integration

can lead to perceived net benefits(individual and organizational benefits). In our study each of the measures [system quality, use, and user satisfaction] are positive.

- Information quality, use, and user satisfaction: if the information quality is good, it is more likely that the user would like to use it, in addition, information quality can be related to user satisfaction, and it is really clear in our study that the measures information quality is positive and accompanied by use and user satisfaction is also positive.

-Use, user satisfaction and net impact (net benefits): if the users made use of a system, users will be able to evaluate the attitude to an information system. If an IS do well for users, it is more likely to have a better sensation of users, a rationale for system use as an IS success measure is the idea that it will contribute to performance when it used. It is clear that in our study the measures [use and user satisfaction] are both positive.

-User satisfaction and net impact(net benefits): user is pleasant with the system because the system can help them to facilitate their job, they used and provided more accurate data to the system, the system can give users a better understanding context, increase decision making productivity, reduce the cost, and increase net benefits.

Through analysis, all measures that appeared positive [system quality, information quality, use, and user satisfaction], and the relationships designed by DELONE and Mclean in their model (IS success). We conclude that that the new ERP (SAP S4 HANA) have a positive impact on the net benefits of condor organization.

Conclusion

The aim of this study was to identify an appropriate way to evaluate the benefit of information system on condor organization after it has been implemented, it also aims to provide an answer to the research question: Does the new information system have a positive impact on efficiency, effectiveness and net benefit of condor electronics? The answers are drawn from the analysis of an empirical study finding from a single case study. In this case, the net benefit of condor electronics and the net impact of an information system are assessed using a method that involves different tests. The first test is a rational quantitative that is represented as an assessment of the turnover and employment growth in two years (2017.2018). The second test is a qualitative test that is represented in the IS success model D&M 2003 and it justifies and comes to the conclusion that this growth is an impact of the new IS. The result of our study presented the following answers:

After analysis and investigations, we may conclude that system quality has a direct positive impact on the efficiency, effectiveness and net benefits .When, the SAP system provides real-time .and integrated information, a quick and correct system response increase users usage attitude it also increases users connection time, the SAP always reflect current data process status, users have a positive feeling because they don't need to look for a long time to locate and understand data, they also have a positive feeling because the rate of what they want and what the system products is high by 66%., The quality of information is very clear and understandable with a lot of details, so that the process of decision making is more clear and more rapid. The new information system can reduce costs: cost of stocks, cost of purchase and cost of turnover. The SAP provides an output (information) to the user with the highest quality, at the lowest cost and at the right time.

The information quality has a direct positive impact on the system use, user satisfaction and net benefits. Because managers need information which is the output of this system. So when they get the information they want at high quality without spending time, managers make more right decisions and right decisions can increase net benefits.

We also find that the system use is not completely positive due to the inaccuracy of implementation. Which must be corrected or else condor will not have the maximum benefits from this system.

After analyzing measures and its relationships, we can conclude that the growth of condor organization in turnover 6% and employment 6.84% as a net impact of the SAP S4 HANA. This means that the answer to the research question which depends on the method of evaluation impact of IS has been reached.

Recommendations

In the growth model. I used the turnover growth and employment growth as an indicator of the net benefits. The net benefits could be other forms like market positioning, gain competitive advantage or customer satisfaction not just the growth of sales business or employment. Also in the IS success model Delone and Mclean 2003, there are more measures to the IS success like management support and training. Therefore we would like to recommend researchers to find more way to prove the net benefit of IS and more measures in the IS success model. Finally, in the Delone and Mclean model in case of ERP system I have been neglected the measure of service quality, this is because in this study, I played the role of the manager information technology, and the job of the manager IT is to provide,

implement and optimize IS. So if the system is good that means the service quality of the department of information technology is good, the service quality of the organization can be effected by the new IS , therefore I hope that this factor will be taken into consideration in the future studies.

References

BOOKS

- Nandish v.patel .2003 p222. brunel university .Uk .IDEA GROUP PUPLISHING. Adaptive evolutionary information system. https://books.google.dz/books?id=NmZ3u7o1j1EC&pg=PP5&lpg=PP5&dq=IDEA+GROUP+PUPLISHING.+Adaptive+evolutionary+information+system+2003&source=bl&ots=f1V9frs7uS&sig=ACfU3U1RxRCvZuJPYgeaBpzFbEtKRYuBhA&hl=fr&sa=X&ved=2ahUKEwigqNXvtqLhAhXJ1eAKHVVzAYMQ6AEwCHoECAsQAQ#v=onepage&q=IDEA%20GROUP%20PUPLISHING.%20Adaptive%20evolutionary%20information%20system%202003&f=false

- Yannis chralabidis . sotorios 2017 p98 koussouris. Empowering open and collaborative governance library verlag berlin hiedelberg. Abook under the title: Technologies and methods for online citizen engagement in public policy making

THESES AND ARTICLES ,

- Aris Myrtidis . Vishanth Weerakkody, 2008 p12 Financial Services, 246, Information Technology for Development, Vol. 14 (1) 11–30 (2008) C.Published online in Wiley InterScience (www.interscience.wiley.com) Study of Information Systems Investment Evaluation in the Greek Banking Sector .

- Azad Ali Eberly 2012p401College of Business – Indiana University of Pennsylvania, Indiana, PA, USA A Framework for Using Cost-Benefit Analysis in Making the Case for Software Upgrade Volume 9.

- Bruce Rowlands may 2003 p 1. EMPLOYING INTERPRETIVE RESEARCH TO BUILD THEORY OF INFORMATION SYSTEMS PRACTICE. School of Computing & Information Technology Griffith University, Nathan, Australia.

- B. farbey. F.f. land and D. target .p42 .1995,A taxonomy of information systems applications: the benefits' evaluation ladder 1 University of Bath, UK and 2London School of Economics, London WC2A 2AE, Operational Research Society Ltd.

- Blake ives. Marrethe h.olson. jack joseph baroudi .1989 p1 THE MEASUREIVENT OF USER INFORMATION SATISFACTION Center for Digital Economy Research Stem School of Business. New York university .and Dartmouth College IVorking Paper IS-82-27 October 1983 L'o/unit~ 26 Number .

- Dr. Marshall Van Alstyne Hubbard Decision Research, Inc. 2004 p3 Applied Information Economics: A New Method for Quantifying IT Value

- DAVID]. SILK .1990p1. Director of Studies, The Senior Course, Greenlands, Henley Managing IS benefits for the 1990s. Journal ofInformation Technology (1990) 5, 185-193. https://link.springer.com/article/10.1057/jit.1990.42

-Erik Brynjolfsson, 1993, 1994 p4 Center for Coordination Science MIT Sloan School of Management Cambridge, Massachusetts. The Productivity Paradox of Information Technology: Review and Assessment .

- Erik Brynjolfsson Shinkyu Yang 1996 p1 Information Technology and Productivity MIT Sloan School of Management ,Cambridge, Massachusetts Advances in Computers, Academic Press, Vol. 43, pages 179-214.

- W.H. Delone and E,R, Mclean p10,11.2016.Information Systems Success Measurement.Foundations and Trends in Information Systems, American University, USA vol. 2, no. 1, pp. 1–116, 2016

- Louise Whittaker 2001 p39, p42 Information Systems Evaluation: a post-dualist interpretation in the Faculty of Engineering, the Built Environment and Information Technology, University of Pretoria PHD.

- Manal Abdel-Kader Abdel-Fattah, Galal Hassan Galal-Edeen 2017 P 1.2. Why the interpretive paradigm is needed for evaluating e-government systems? Faculty of Computers and Information, Cairo, Egypt.

- M.R. (Ruth) de Villiers 2005 p12.13 Interpretive Research Models for Informatics: Action Research, Grounded Theory, and the Family of Design- and Development Research

-N. Bakis, M. Kagioglou, G. Aouad, Salford Centre for Research and Innovation, University of Salford, Salford, M5 4WT EVALUATING THE BUSINESS BENEFITS OF INFORMATION SYSTEMS

- Paul M. Tuten. 2009. P78,P99 A Model for the Evaluation of IS/IT Investments. Doctoral dissertation. Nova Southeastern University. Retrieved from NSUWorks, Graduate School of Computer and Information Sciences. (327)https://nsuworks.nova.edu/gscis_etd/327.

- Peter Weil and Margrethe H. 0lson 1987 p13 Department of Information Systems Graduate School of Business Administration New York University AN ASSESSMENT OF THE CONTINGENCY THEORY OF MIS .

- Putu Sudiana 2017 p3 CRAWFORD SCHOOL of Economics and Government THE AUSTRALIAN NATIONAL UNIVERSITY How effective is cost-benefit analysis in

assisting decision making by publicsector managers? Case studies of two Australian departmentsI Putu Sudiana.

- Raid Moh'd Al-adaileh. 2009 p228.229.230 An Evaluation of Information Systems Success: A User Perspective - the Case of Jordan Telecom Group Mutah – Al-karak – Jordan. European Journal of Scientific Research ISSN 1450-216X Vol.37 No.2, pp.226-239.

- R. Saloojee D. Groenewald . A.S.A. du Toit. March 2007 south African journal of information management. Investigating the business value of information management Vol.9(1) March 2007.

- Reza Vaezi, and other p 519 .2016 . User Satisfaction Research in Information Systems: Historical Roots and Approaches, Communications of the Association for Information Systems. Article 27 volume 38, united state.

- Tom DeMarco, PeopleWare, Productive Projects and Teams, Dorset House Publishing Co., 1987.

-Stacie Petter, William DeLone and Ephraim McLean, 2008 p238, Measuring information systems success:models, dimensions, measures,and interrelationships, European Journal of Information Systems (2008) 17, 236–263.

- Theo J.W. Renkemaa. Egon W. Berghoutb1997p5 Methodologies for information systems investment valuation : a comparative review. Information and Software Technology.

.

-Wen Lung Shiau, Wen-Hsien Tsai , Ping-Yu Hsu, Ming-Sung Cheng , Jun-Der Leu. Yi-Wen Fan. 2014 p 9,10 . Assessing the validity of IS success model: An empirical investigation on ERP systems. Department of Business Administration, National Central University in Chung-Li, Taiwan, R.O.C .

Websites , and webographie:

- Pragenya sahoo. 2014 p 8.9.10-bb757-stratigic information system management application of MIS in HOND.15.12.2014 https://fr.slideshare.net/PragnyaSahoo/strategic-information-system-management

- www.condor.dz

-https://www.sap.com/products/s4hana-erp.html