University of Pardubice

Faculty of Economics and Administration

ERP Integration Management

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DISSERTATION ASSIGNMENT

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Rules for elaboration:

Objective: Student will describe the issues of ERP integration. The Project Approach to Integration Management will be used in a specific case (company, enterprise). Student will create an integration plan - MS Project will be used.

Content:

-Enterprise Resource Planning
-A Project Approach to Enterprise Resource Planning Implementation
-Integration plan in the specific company
-Documents in MS Project

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Serain, D. Middleware and Enterprise Application Integration. Springer, 2002.
ISBN 978-1852335700.
Howson, C. Successful Business Intelligence: Secrets to Making BI a Killer App.
McGraw-Hill Osborne Media, 2007. ISBN 978-0071498517.
Davies, A., Hobday, M. The Business of System Integration. Oxford, 2005.
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GRATITUDE:

TITUL

Správa integrace ERP

ABSTRACT

Cílem tohoto dokumentu je analyzovat a popsat otázky řízení integrace ERP, které promítne svůj přístup k řízení integrace, které bude použito v konkrétní společnosti. Výstupem této práce je vytvoření integračního plánu v konkrétní společnosti nebo podniku pomocí plánu integrace implementace zdrojů.

KLÍČOVÁ SLOVA

Informační systémy, ERP System, implementace, integrace, proces

TITLE

ERP Integration Management

ANNOTATION

The aim of this paper is to analyze and describe the issues of ERP integration management projecting its approach to Integration management which will be used in a specific company. The output of this thesis is to create an integration plan in the specific company or enterprise using its resources planning implementation integration plan.

KEYWORDS

Information systems, ERP system, Implementation, Integration, Process

CONTENTS

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LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

BI	Business Information
B2B	Business Intelligence
B2C	Business-to-consumer
CEO	Chief Executive Officer
CRM	Customer Relation Management
CIS	Cooperative Information Systems
CZ	Czech Republic
ERP	Enterprise Resource Planning
HRM	Human Resource Management
IT	Information Technology
ISs	Information Systems
MRP	Material Requirement Planning
MRP	Manufacturing Resource Planning
NOLOTs	Non-Lexical Object
ROI	Return on Investment
SAP	Systems Application and Products in Data Processing
SCM	Supply Chain Management

1. INTRODUCTION

Fernandez et al (2018) researched in Malaysia and found that the decision to adopt ERP should be considered accurately. Even though the government may engage in efforts to supplement difficulties, the decision to adopt ERP should be considered accurately. Even though the government may perhaps strive for financial improvements from ERP adoption, however, the organizations may experience adverse financial effects. This is due to the high cost involved in implementing this system. For instance, the Malaysian government has provided RM15 million under the Ninth Malaysian Plan for developing the ERP (Jidwin & Mail, 2015). This system adoption requires substantial amount of money and considerable amount of human resources to ensure successful implementation. Furthermore, there are great difficulties for organizations in implementing the ERP system such as facing issues in integrating the ERP software with the operating systems, telecommunications, hardware and database management systems, to make it fit with the needs of organizations and cities in ERP implementation, organizations may still experience worse off financial effects. This is due to the high cost involved in implementing this system. Even though all these risks come along and may jeopardize the process, if the necessary process are performed properly, an ERP software will improve the growth of the organization and it goals. This thesis shows how an ERP software was implemented in a specific chosen company.

In recent times many organizations have embraced the Enterprise Resource Planning (ERP). Softwares like SAP, Oracle among others, is increasingly been used by companies to monitor employee's performances. ERP softwares have all business function and are used for logistics, inventory management, human resource management etc. ERP integrates information and incorporate organizational data enabling the company to collect, organize access, store, gather, summarize, interpret, and utilize data.

Today, all aspect in modern organizations depend heavily on information to endure. Information system is the life-line of all organizations, organizations are using ERP to gain competitive advantage in all their functional areas. Companies use the ERP software packages to improve their efficiency, decrease their cost of production costs, giver businesses the competitive advantage as well as increase firm's productivity. However, the smooth implementation of an ERP system is expensive and complex because it requires huge

investment in software acquisition and consulting, this means that only large firms that have adequate finance can purchase them.

Gartner publications declared ERP l dead which was originally named ERP in 2000 because it was initially focused on automating functions such as *back office.* It was later updated to EPR ll. It portrays web-based programming that gives a real-time ingress on ERP systems on organizational representatives and accomplices like suppliers and customers. It is more adaptive over the primary era ERP rather than keep ERP framework abilities inside the organization, it dives past corporate dividers and join with other structures. (Seo, 2013). ERP systems normally aid in empowering in collective activities including supply chain oversaw economy (SCM), Client Relationship Management (CRM), furthermore the benefits of the business sagacity (BI) within business associates through the utilization of different e-business advances (Drew, 2003).

The main objectives of this thesis are to describe the main issues involved in the ERP integration process. It will focus on the project approach to integration. This thesis will be arranged as follows. (Idorn, 2008). Chapter one will be on the background. Chapter two will review literature on ERP. Chapter three will focus on the methodology. Chapter four will conclude this thesis.

1.1 BACKGROUND

In the 1990s a lot of businesses begun to acknowledge the need for a common stand for communication and integration between business components. Built on Material Requirement Planning (MRP) and Manufacturing Resource Planning (MRP II), Enterprise Resource Planning (ERP) happened to be one of the most significant advances in the use of information technology in businesses (Al-Mashiri et al., 2003; Somers & Nelson, 2004). It became the new era of technology use ignoring the use of the old legacy systems and the many combination of efforts between them that was in use. For some time, it also became a means for integrating with suppliers and customers and a source of viable advantage. Within an amount of time, ERP systems assured reimbursements in many advantages such as supply chain management, shipping and receiving, inventory management, production planning, accounting, Human Resource Management (HRM) and others (Gefen & Ragowsky, 2005). An ERP system also delivers organizational outline based on real-time facts which provides managers up to date data that helps them in making decisions (Davenport et al., 2005).

Apart from the organizational view, this paper talks about enterprise systems integration from the point of view of management. This thesis also focuses mainly about ERP implementation. In this case research was conducted about the resistance from ERP implementation users. Different types of resistance were classified and the period they occurred were found. One of the outcomes portrayed that there are always resistance users , but it's not resistance on systems per se but relative resistance to the process that change (Andersson et al., 2006). Another outcome that occurred is the way the company goes by their business, that is the way organizations processes are affected by the system. After thorough investigation on the approach ERP and the implementation, the project will also focus on because these changes the business processes an ERP implementation bring about. In view of this diagnosis problem a survey of the possible outcomes of using Project Approach to Integration Management in an enterprise. (Idorn, 2008).

1.2 BUSINESS TECHNOLOGY

Business technology which can also be called Electronic Business is intended to improve the affordability of organizations by establishing advanced information and communication technology through organizations and into the future, through relations, associates and customers. It uses other methods in technology to aid in the change these current practices. To be successful in managing in the world of technological business, a range of data is needed from dissimilar processes and accomplishments from through the value chain, for instance marketing and sales using a technological based business, through invention, developed, incoming and outbound management. Organizations and industries also are required to manage the change necessary by the new processes and technology through what have customarily been supporting activities such as human resources management.

Form the discussion above, it is obvious that electronic business implicates observing how electronic communications and management can be used to enhance the technological aspects of business supply chain management.

Business is now universal through the worldwide market. It symbolizes benefits and trials for all the economy. Enterprises and organizations approach, arrangements and tasks are being transformed. In view of these, there are implications for all phases of organizational activities, starting from operations promotion. Productions that respond rapidly are gaining first over benefits. (Jacobs, 2007).

1.3 ENTERPRISE RESOURCES MANAGEMENT

The attempt beyond MRP that happened some time ago in the late 1970s and during the 1980s was motivated by a necessity for integration between the practical enterprise storage tower that controlled organizations during this time. It was obvious that software engineers realized the potential of data integration earlier before the push towards organizational facilities that happened during early 1990s.

In view of this ERP (enterprise resource planning) is defined as a ''software for organizing, majoring, and regulating the business processes needed to successfully plan, strategize, manage and control a company in other for an organization to use its inner information to pursue external advantage'. This description focuses on the wide-range of applications that is suitable under the ERP framework. ERP is used in most companies for manufacturing, planning and controlling systems are our main attention but the system itself is planned to function as a business process. (Lunenburg,2012).

It's used within other efficient areas such as finance and accounting, human resources to effect payroll and sales. For businesses and organization smooth productiveness, ERP systems have now extended to a level of development in which both software dealers,experts and operators comprehend the technical, human resource and financial resources necessary for implementing current consumption. ERP systems should now enter the era of relatively easy configuration that takes days and weeks with implementation completed in weeks, or at most 2-3 months. Major corporations have realized the benefits. ERP software integrates these diverse bricks to shape a strong groundwork and eventually a strong workable business and below is the basic component of ERP systems.

Figure 1:ERP Component
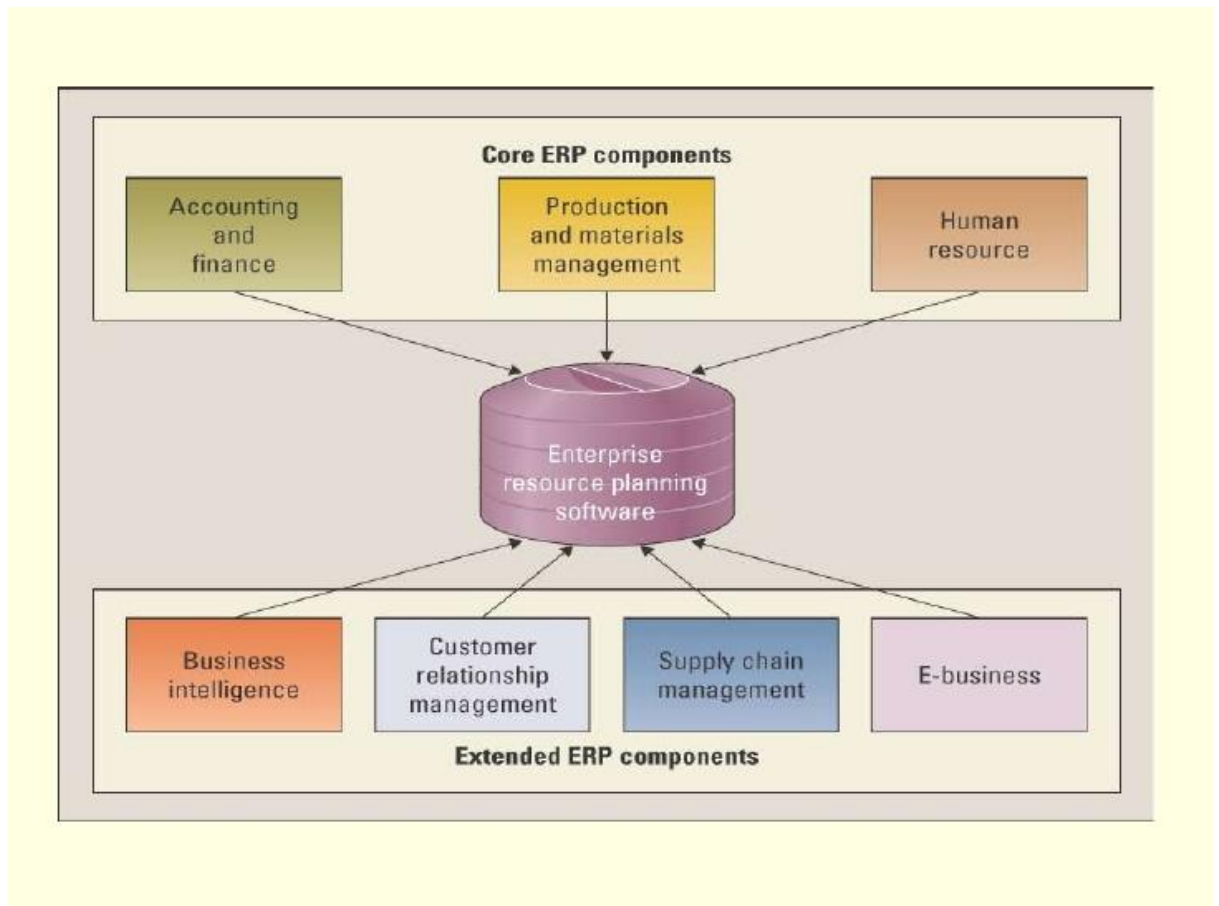
1.3.1 Accounting and Finance

For any ERP implementation to be successful, it always starts and completes with a resourceful accounting and finance software in an organization. As of the original introduction process of creating general record accesses, account numbers through the last accounts reports and financial statements is the central of any organization and a value ERP package with a workable accounting and financial software that is both adaptable and easy to practice is a countless support. Inside an ERP system, the accounting software can do recording and processing of accounting business transactions in functional spots, for instance as accounts payable, accounts delivery, and payroll.

On the other hand, implementing a smooth ERP system requires strong financial management software that is completely integrated with the organization's central parts of manufacturing, shipping and deliveries, and sales order management.

1.3.2 Production and Material Management

The 'Production and Material management' software is very vital for companies and organizations that manufacture products and materials, their requirements for producing software functionality that will be the core of any ERP software. Though there are stand-alone engineering software packages offered in the market, thus far, the best manufacturing results can be strongly connected into a centralized ERP system. (Davenport,1990)

The structures of manufacturing software diverge based on the business product and the manufacturing process used. Furthermost, ERP and manufacturing results are positioned into the classes of process business software, distinct manufacturing software, or varied style manufacturing software. These diverse manufacturing groups directly relay to the creation of environment and they can be classified as constant process, contract manufacturing, work shop, batch processing, restoration and preservation. Understanding a company's production environment and its corresponding functioning flow to an ERP software package with the appropriate manufacturing software functionality is serious for project accomplishment. (Lunenburg,2012)

1.3.3 Human Resources

In most cases a company's most valued resource is its employees. This entails spotting the finest human resource management software (HRMS). HRMS is serious as dealing with the difficulties of gift, payroll, and government principles should not be handled in a physical process. ERP system that can efficiently accomplish the daily tasks, as well as the requests of the human resources department is essential for an ERP generally accomplishment and final Return on Investment (ROI).

Progressive human resource management module competence will save employee records in a progressive human resource management module competence will save employee records in a safe way, however also providing rapid access to the employee's whole employment data software made by robust human resource offers submissive processing of employee payroll, taxes, profits and refer all appropriate transaction data to the financial management and business intelligence software units for continuation process.

1.3.4 Business Intelligent

In this component in ERP discusses the effects of business intelligent on organizations providing effective, efficient and rather firm results due to the accessibility of dependable and easy to comprehend information. Business intelligence software abilities comprises a decision support system focused by an attached data warehouse. This data warehouse provides management with present access to unplanned reports, accessible charts, tables, and graphical dashboards that provide a series of information in the method of monetary accounts, and vital routine indicators. (Klaus,2000)

Various ERP results deliver actual business intelligence ability that is open for data mining and financial analysis. Through this software component data can be observed. In summary form with the possibility to zero to a detailed level to examine distresses or possible variation. This component of ERP delivers a 360-degree view of the company's general strength and aids to the executive workforce with the tools essential to provide an improved and faster decisions to achieve excellent results. Basically, information in which people use to support their decision-making efforts. (Klaus,2000)

1.3.5 Customer Relations Management

Customer Relationship Management software also known as CRM software aids front office jobs or the customer service, sales, and marketing purposes. CRM software is presented as separate software and recently, it is one the primary component of both Tier I and Tier II ERP software results. In a regular or higher market ERP systems completely, integrated CRM systems with other ERP component including manufacturing, developing, engineering, warehousing, and buying permits actual contact to records that aid by improving the promotion efforts. (Davenport,1990)

CRM software functions of incoming generation may help in activities including quoting, support call management by providing an inclusive data set to let the sales and marketing department to perform in an additional probable and active way. This integrated method to CRM software will contribute to organizations and company's distributing high ranks of customer service and definitive customer fulfilment by managing all customer aspect about the customer which increase the loyalty and relations and in so doing increase profitability of the organization.

1.3.6 Supply and Chain Management

The Supply chain management components aids in the management and transfer of resources, inventory, and completed goods from a specified point to the final point of utilization. These supply chain activities help form the strength of the company's pricing arrangement and ultimate productivity. In view of this, solid supply chain management software functionality is serious for effective and prosperous organizations and hence an essential concern for many ERP software variety developments.

Not long ago, many companies have removed their operations to take in additional significance goods which are now considerably more dependent on oversea providers. (Jacobs, 2007). This modification has positioned more highlighting on lasting development and gaining of raw materials and dispersed goods. Due to this many companies have been forced to reevaluate their use of standing supply chain management software and assess the capabilities of their current ERP software. Due to this, companies start to grow their practice of supply chain management software and depend on ERP results to regulate all features of dispersal necessities like developing, buying, import management, containerization tracing, supplier relationship, management, and controlling the shipment of goods between their inside warehouses and distributing centers.

1.3.7 E-Business

E-Business also known as electronic business has progressed significantly in the last few years. It is defined as any process a business or an organization conducts over a computer mediated network such as the internet. E-business sites have a multi-tiered architecture for its operations. There are characteristically three layers of servers in conducting e-business.

The first is comprised of web and validation servers. Inbound requests are sent to any of these servers based on rules executed by load balancers. The topmost categories of items purchased by larger firms on the internet include computer hardware and software, airline and hotel reservations, financial services, collectibles, books, CDs and gift items. The most successful and profit-making large sites include Dell, Expedia, e∗Trade, e-Bay, Yahoo! and Amazon. In some cases small businesses are using the web to sell directly to customers rather than through traditional channels (e.g. www.martins-seafresh.co.uk).

Small manufacturing businesses may be predominantly business-to-business (B2B) in their approach to e-commerce. (Idorn, 2008). Small service businesses may be more focused on

the business-to-consumer (B2C) category in larger firms B2B e-commerce has tended to lag B2C in the rate of implementation due to the greater technological challenges and the barriers in overcoming existing business models. Many small businesses struggle with technology and lack the necessary skills and knowledge. Other startup businesses, notably university spin-outs, have been founded to exploit opportunities presented by the growth of high technology and knowledge intensive industries

Therefore, it is suggested there may be significant differences in the adoption and use of e-business its important benefits both small and large organizations cultivate from it to improve businesses.

2. LITERATURE REVIEW

2.1 Problem area

Regardless of the important growth of ERP from the 1990s to the modern day, there has been a series of problems that has emerged that companies and organizations have encountered during the implementation of ERP integration. One thing that separates ERP systems from common developed systems is that they are formed from how the processes in a company should be created. Rather than building a system to entirely familiarize to the company's processes, an ERP system gives a set of processes for the organization to follow (Somers & Nelson, 2003). Though the programmed job of the system is to upgrade the movement of information in an organization, it's predictable that the business processes are affected as well (Ross & Vitale, 2000).

Dillard and Yuthas (2006) stated that most international firms are using ERP and most of the small and midsize companies have started to engage in ERP. Even with ERP's remarkable advantages for companies and an extensive capital investment, ERP implementation has not always provided successful outcomes.

It is possible that the ERP integration project schedule given to the project managers does not match following-on an initial difficulty to the flow of the ERP integration project. Based on research conditions, the project can be proven that the supposed scheduled of ERP integration cannot be acceptable. Though, project managers may come up with many reasons as to why it is supposed to take for example, seven months instead of five months to achieve a successful ERP integration.

Another problem that arises in association with ERP is the ERP been impossible if organizations gives impressions of taking a resigned notion of committing to a project. If the organization involved is too result-oriented and wants to implement the ERP software to be able to manage their resources effectively despite the problems to be predicted before committing to the ERP service provider before this could be a problem.

The construction between a method meeting on process change and Information Technology is not something that is new. (Chan,2011) The process re-engineering methodology by Guha et al. (1993) includes stages that advocate for the identification,

selection and development of IT solutions that will help the process of reengineering. Although projects launched to change processes have used IT as a portion tool, the same is not true if we let the concepts exchange places. IT projects have not used process change solutions more to discuss about the changes that unavoidably follow with struggle to the changes as a result. ERP requires to be supported in strategic reasoning since it affects all part of an organization (Ross & Vitale, 2000). It is an important subject for developing number of companies as a choice of IT structure. (Lunenburg,2012)

2.2 Problem Discussion

In this modern world, IT based organizations have more choices than ever when selection enterprise resources planning (ERP) resolution. From on-premises systems to cloud-based software-as-a-service to industry-based solutions, there is a stunning display. (Le Loarne,2005). Due to this decision makers in organizations are sometimes over astounded when trying to implement it, including the features and functions which are important. In figuring out problems in ERP systems, dozens of ERP manufactures and experts are have been able to provide information on how to navigate this difficult background   questions were therefore specifically asked the mistakes and issues the executives from organization experiences when choosing, deploying, implementing and managing the ERP systems as well as suggestions as to how organizations will come up with solutions and also how to avoid it and in the process avoiding costly faults. (Klaus,2000) From information that was gathered by ERP experts in organizations, there was a couple of errors IT leaders and organizational leaders make which can be avoided. Some of these are as follows;

It was said by Ed Feadtherston, the vice president and principal of architect at Cloud Technology Partners, a consulting company that "It is very communal and alluring to take existing business development and program them with an ERP system. In order to really understand conceptually, you must take the time and effort to analyze the process that is entailed in gathering the ERP requirement which hardly organization do carefully in order to avoid problems. Brian Berns , the CEO of Knora Software said that, "too many companies and organizations are unsuccessful in recognizing the essential software usage issues and pin pointed the   critical matters before starting the migration to the new ERP solutions. (Motwani,2005) If all these are addressed before moving to a new platform, unnecessary complex and inefficient errors will be avoided to produce a successful outcome for ERP systems.

In many cases, many organizations focus their time and effort on gaining consent from leaders, executives instead of training key employees to use the system for effectiveness.. Also engaging not just the IT expert but all organizational departments and branches such as finance, operations, manufacturing, marketing, accounting and more in the decision making will ensure that everyone in the organization is committed and been invested to implement the right solution to achieve effective products. In a research made by Carton and Adam (2003) testified some four major case studies of issues that arose from ERP in a certain firm. Each of these firms mostly deals with manufacturing and operating international pharmaceuticals, an international subsidiary of computer equipment manufacturer, a manufacturing of another pharmaceutical company and a minor of manufacturer of electric devices. (Zhang,2005) These organizations are attracted to ERP systems because they gain productivity with less practical risk than any other tool used in IT field. Nevertheless, there were certain issues that were pin pointed out and some are as follows shifting to ERP can be a difficult learning process requiring old unlearning techniques of working, multinational firms interested in ERP often tackled with changes forced rather than strategy, implementing ERP systems usually lead to integration of data, which as affected the centralizing ownership away from multinational organization. IT support often unifies in the form of minimizing cost whiles concerned for accurate data entry which is therefore shifted back to the point of access, lastly ERP systems can change the stability of authority in an organization usually focusing on the central administration at the expenditure of subsidiaries. Below are the tabled results found from interviews with IT experts and vendors on challenges involved in the implementation of ERP system.

Table 1: Challenges in ERP implementation companies

Priority	Issues	Reply (%)
1	Failure to change	81
2	Lack of senior managers commitment	75
3	Lack of project management methodology	65
4	Inefficient wide training end users	64
5	Idealistic expectation	60
6	Cost overrun	50
7	Insufficient time	45

Source: Vishal Bishnoi (2010)

2.3 Symptoms of ERP implementation

This part of the thesis talks about the symptoms of ERP implementation failure in the view of project management, important benefits resulted from investigating reasons of ERP implementation failure from this hypothetical outlook because of the close position between symptoms of ERP implementation failures and the problem areas that project management discipline reports "Quality and ultimate achievement of a project are customarily defined as assembly or exceeding the expectations of the client and higher management in relations of cost (budget), time (schedule), and performance (scope) of the project " (Gray and Larson, 2000)..

ERP implementation failures repeatedly reveal the incapacity to meet these expectations. Over $600 million in a year revenue found that many have failed in achieving its goal, a study by the Standish Group on ERP projects. Below is a table which demonstrate the relationship and outcome of the symptoms of the failure of ERP implementation.

Table 2: Symptoms of ERP implementation

Investors and organization expectation	Problem area	Implementation of ERP outcome
Remain in budget	Cost	178% cost overrun
Completion within scheduled time	Time	230% Longer
Well accomplished system	scope	59% less than expected

Source: Buckhout, S., Frey, E. and Nemec J., 1999

In view of this, the major symptoms of ERP implementation failures after extensive research papers, articles and literature are as follows,

- Time Overruns
- Cost Overruns
- Achieve Less Benefits than Expected
- Misalignment with organizational Change
- Lack of Integrated IT platform

2.4 Project risk management in ERP

After thorough assessment of the factors and failures identified during implementation, risk management was a crucial factor to achieve success in ERP implementation projects. Risk management is a reduplication method that begins with evaluation framework of risk progression to risk identification, risk investigation, risk estimation, risk treatment, monitoring and assessment, consulting and communication. (Holland,1999)

In this case, there are two methods:

Reduction of risk conditions

Treatment when the risk is revealed

Figure 2: Risk management in ERP

Source: Brahma 2012

2.5 Survey of ERP systems

In this modern business setting, are have been several characteristics competitive burdens and sophisticated customers requesting quicker resolutions. Understanding and cultivating business procedures are foundations of accomplishment in these rapid growing organizational atmospheres. To adjust the way businesses are conducted, companies and enterprises around the globe are taking benefits of diversity of information technology systems. (Klaus,2000) Six years ago, thousands of manufacturing businesses globally have involved packaged enterprise resources planning (ERP) systems as a source for organizational functions.

ERP is created on the notion of recognizing and implementing the set of followed, process and tools that different functions of a firms can employ to achieve total organizational

excellence through integration. Recently several vendors have marketed packaged software that delivers organizations with valuable ERP tools. Market leaders such as SAP, Bean, PeopleSoft offers standardized occupational measures and processes for enterprise management and sponsor these products as system to efficiently advance business performance.

Evolution in ERP applications has been of importance in the past time. In 1991 the industry was about 1.5 billion. AMER Research that by 2002 the yearly sales of the ERP software and services will surpass 85 billion. The speedy progress recommends that the significance of packaged ERP system to business significant as these programs are never inexpensive. Installing full ERP system in big companies and businesses can result in software licences fees in millions with referring expenses almost as six times level of software expenditures and training and hardware costs are also included. (Le Loarne, 2005).

In addition to been expensive, ERP systems implementation can be very problematic, and it is also expected to bring on the potential improvement that inspires their procurement. A META group study of 64 organisations concluded that many companies experience a negative return for their ERP asset. Circumstantial evidence up to date propose that implementing an ERP system has been very tough and the benefits has been undefined.

2.6 ERP in companies

The main Enterprise Resource Planning software implementation projects in European multinational organizations have been considered to recognize and examine the numerous costs and Profits of ERP implementation and to realize the effect of its implementation in the profits of ERP implementation and to realize the effect of its implementation in the European organizations. Major European organizations have been nominated for thorough investigation on the many economic factors to test the recognized assumptions and to identify their influence of the several operational costs. In this last chapter of the research, we focus on the one of the finest metal parts and surface treatment companies that implement ERP management in Europe and one of them is Electropoli.

Electropli is one of the finest leaders in metal parts and surfaces treatment. It mainly specializes in surface treatment of metal parts which includes anti-corrosion and paint protection. The company was built in 1954 in Paris. Electropoli was then transferred to Isigny-le-Buat, a municipality in the department of Manche located in the district of

Avranches capital of Canton 1974 by Jean Gosse. Antoinie Gosse took over the company from his father in 1988. Second and third production site was initiated in 1992 and in 1995 in Dettwiller Saumur.

Electrophori then continued to grow in the specialty in Eastern Europe gaining the Polish German Galwanotchnika back in 2005 and also the German company Mwg Gruppe in 2006. The European center then regrouped all electropoli groups managers created in Saint-Genis-Pouilly in the suburbs of Geneva in Swi 2007. By 2013, the French have taken over Electropoli. Following part in 2014 and 2015, a centre of Electropoli was setup and invested in Czech Republic and in Poland by 2016.

Electropolis administration center located in Saint-James and the historical site of the production and research also development is Isigny-Le-Buat. Since 2007 the management sector has been resituated in Geneva. Electropoli has had a revenue of 100 million euros, has 8 production sites which excludes a management site, 5 partner sites with Electropoli licenses which includes Mexico and the United States recently and also produces 20 million cars yearly. Even though Electropoli operates and specializes in the automotive industries which is 88% of its activities, it also operates in other fairs which includes 2% of motocycles,3% trucks and construction, 4%, and aeronautics 3%.

Electrolopoli group has 1,600 employees in 2009 which includes 410 in Isigny-le-Buat. The income of the company started falling because of the separation of the company's sites abroad and economic crisis. The company's employees reduced to 1,300 in 2010. Electropoli's customers are diverse as they are respected.

Electropoli also provides solutions that meet new environment requirements and adapt to all types of specifications. Electropoli has an R&D centre to develop the necessary coatings to meet the REACH directive and fulfil your expectations. The new coatings developed by the Electropoli improve resistance to corrosion and surface quality in all industries, such as automotive, aeronautics, defence, rail, oil, gas, etc. Electropoli worked in a couple of branches in automotive, motorcycle and trucking industries for over 60 years, consistently meeting all specifications and automotive standards. Its logistics management and international makes it possible to fulfil all follow up request throughout the automotive supply chain. Electropoli offers services that are tailored to your needs including transport, packaging, component fitting or assembly, labelling, specific finishes and more. Electropoli has establish trusted long-term collaboration with the manufacturing producers including Volkswagen, Fiat, Opel,

Toyota,ford, Mercedes, Suzuki, BMW, Audi, Volvo, Peugeot, Citroen, Renault, Iveco, Man, Skoda, Scania and more. Electropoli offers services that are personalized to your needs including transport, packaging, component fitting or assembly, labelling, specific finishes and more and also has exclusive variation of coatings in Europe to meet its customer's specifications.

The new coatings established by the Electropoli increase resistance to corrosion and exterior quality in all companies, such as automotive, aeronautics, defence, rail, oil, gas, etc

Aeronautics &Defense: Due to the company's specialty in surface treatments, Electropoli has prolonged its coating offerings into the aeronautics and military industries such as zinc nickel, wet paint. Electropoli has spent numerous years capitalizing on the required time and energy to see the specific requirements of these industries.

Energy & Industrial: Electropoli offers solutions for all types industries such as energy, connectivity, naval, rail, watchmaking and more. Due to the heavy external corrosion seen in these environments like stone impact and marine environments, etc., we have adapted our processes to better protect your substrates. There are cases were customer combinations like cataphoretic coating and painting and others. The current sales revenue generated in Electropli Czech Republic s.r.o alone is 38.28 million CZK as of 2018.

2.7 Business Functions and Process

Business functions are defined as business processes that contains logically-related activities which are performed to accomplish a defined business result successfully. These are set of processes business functions that form a business system the way in which a business unit, or a collection of units, carries out its business.

All ERP systems come with a predefined concept about how the methods in a company must work and it's hence important to have the process change as a part of the implementation objectives (Ross & Vitale, 2000). It's therefore vital to analytically observe what these processes and functions will be like as they are best practice for the implementing company's ERP and the business itself (Harris, 2004). This provide a smooth pathway for a mindful decision about processes that can help the company be more cost efficient and well-organized since an ERP system generally originally increases the cost of processes.

An ERP system is a method for an organization and makes the data stream through the organizations and companies without complications between business components (Ross & Vitale, 2000). This way extra data points are accessible, and the ERP system also has a very close over the flow of resource activities (Shang & Seddon, 2007). Figure 3 below shows the business functions and processes below.

Figure 3: Business functions and process
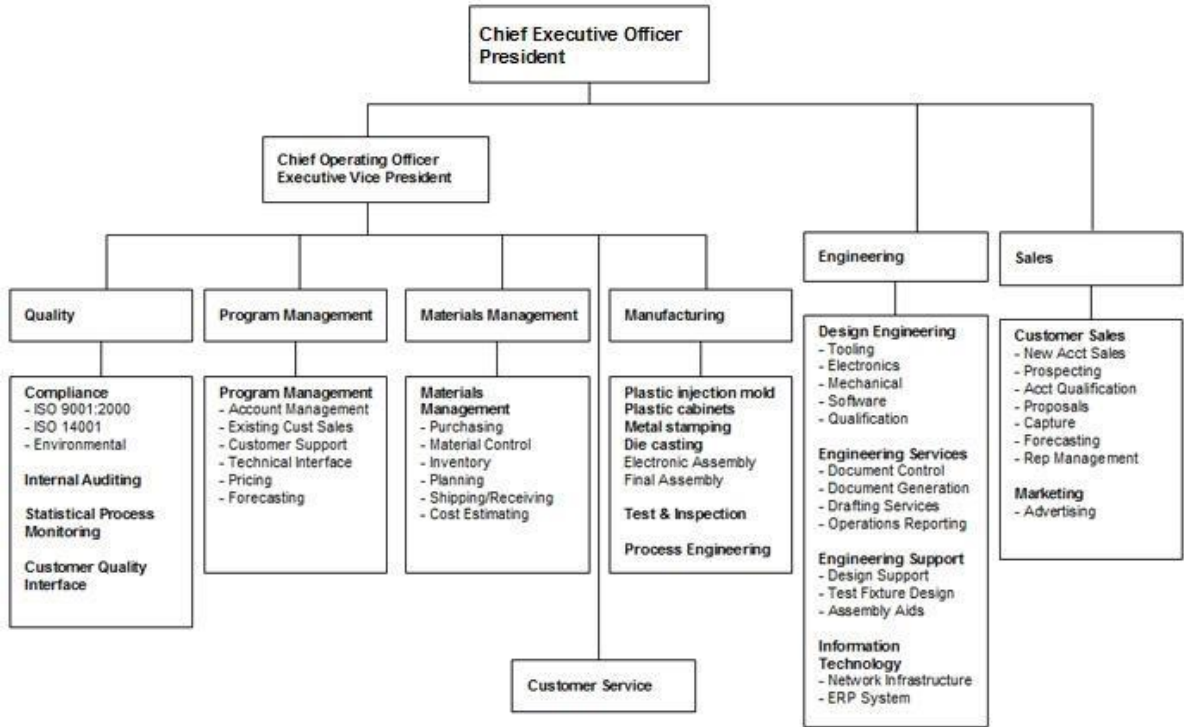
2.8 Implementation process of ERP system

ERP implementation is derived from what is reformed in the company hence ERP should be considered a business project instead of a technological creativity. Implementing an ERP system is a key project necessitating an important level of assets, capital, resources, obligation and variations through an organization, frequently the ERP implementation developments are the single largest project that an organization has ever embark on. It is obvious that ERP implementation is an intricate and challenging process that can possibly earn massive profits for prosperous companies and be catastrophic for those companies that fail to accomplish the implement (Holland et al1999).

Even if the implementation of ERP entails a separate software solution or is share a longer project, one method may be proposed for a much more successful implementation that comprises of discrete phases. Comparison were made between ERP experts and researchers who have developed a process models or phases to implementing ERP systems in companies. These are six phases made proposed by Esteves& Pastor (1999), which includes adaptation decision phases, acquisition phase, implementation phases, use and maintenance phase, evolution phase and retirement phase. Ethie and Madsen (2005) also suggested five-stage ERP implementation process, each phase has a certain deliverable that must have supervision backing and project navigation team buy-in before the following phase can initiate. These phases have been suggested by (Vishal, 2005)

Project preparation refers to an understanding planning phase which includes forming a project team with leadership characters, setting a budget targets, and states the project aims and strategy. During the business design phase, the existing business process is evaluated in detail to choose a suitable ERP system. A group of project team is then trained to be skilled on functionality and configuration to be able to select perfect and fitting ERP system. In this case, a comprehensible of the selected ERP system allows a project team to acquire understanding to reengineering its business processes. (Kähkönen,2017).

In the realization phase, a project team focusses on implementing an ERP system including modification, development of interfaces, and data change. During this process, each process design is tested on a meeting room for suggestions and verification. In the final preparation

phase, the whole process is completely combined and tested through the organization with full data and several ideas and ways. End users are trained in this phase in addition. To conclude, in the activation and support phase, the ERP system is continuously alleviated and sometimes delayed for competitive benefits.

2.9 Organizational Structure of Electropoli

Organizations can be distinguished along three basic scopes: firstly, the key part of the organization that plays the major role in determining its success or failure. Secondly, the prime coordinating mechanism, that is, the main scheme the organization uses to manage its activities; and lastly the type of decentralization used, that is, the level to which the organization involves juniors in the decision-making process and this is suggested by Henry Mintzberg.

Organizations therefore exists to achieve goals suiting the collaboration dependants and grouped departments. These goals are broken down into responsibilities as the source for jobs. The Jobs are then grouped into departments. Departments in organizations may be categorized into marketing, sales, advertising, manufacturing, and more. Within each department, there are even more divisions that can be found amongst the jobs people accomplish. Departments are connected to form the organizational structure. The organization's structure gives it the ability to accomplish its function in the environment (Nelson & Quick, 2011). The term organizational structure refers to the formal formation between individuals and groups concerning the distribution of tasks, responsibilities, and authority within the organization (Galbraith, 1987; Greenberg, 2011).

Not long ago, social scientists have discussed Chandler's thesis by competing that an organization's tactics determines its environment, technology, and responsibilities. These factors, joined with growth rates and influence distribution, affect organizational structure (Hall & Tolbert, 2009; Miles et al., 2011). The figure below shows the various categories such as jobs, department, team and units, its project and more. (Lunenburg,2012)

Figure 4: organizational chart
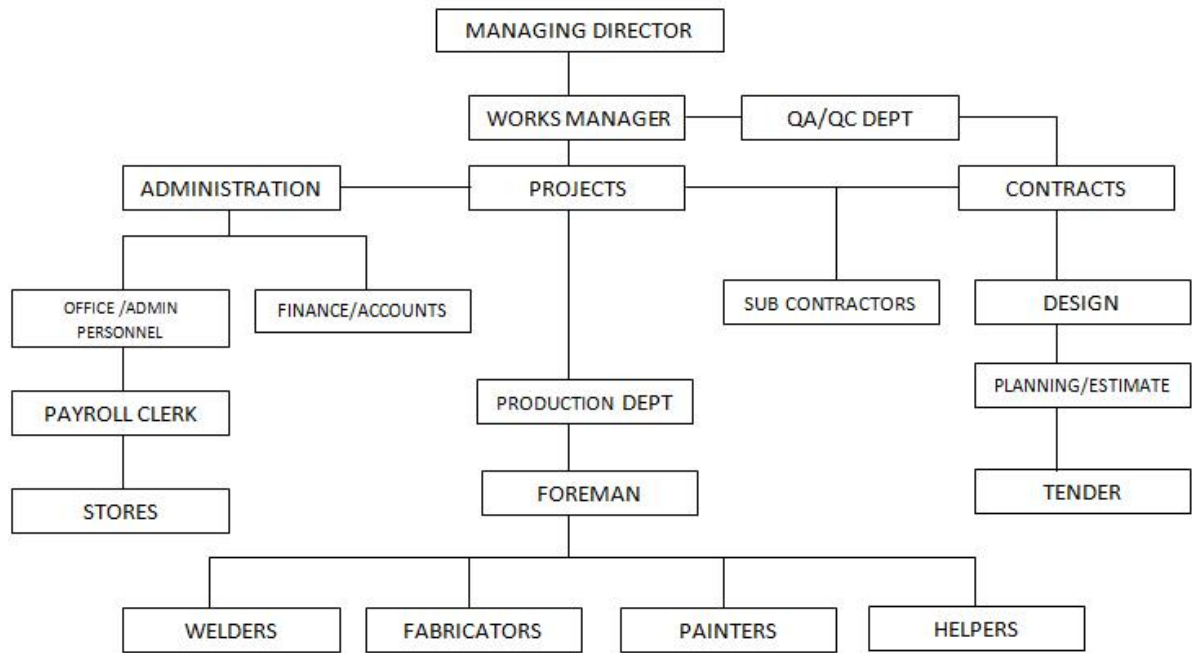
3. ERP PROCESS IN THE COMPANY

The real prototype for the Information Systems (ISs) involves large number of ISs distributed over huge, computer communication networks. This type of cooperative information systems (CIS) have access to great quantity of information and must interoperate to attain their goal. The cooperative information systems architects and inventers usually must face a hard problem in this situation.

Even though the process through technology substantially enhanced the efficiency of applications advancement and development, its disadvantages and restrictions are obvious and stern. The application models involved in a single application are several and dissimilar, individually coping only with specific and partial features of the general task. Furthermore, the components technologies are diverse, platform- and machine-dependent. The limits and barriers demonstrably delay the development and the maintenance process mentioned above. Interoperability between organizational and engineering, activities is critical in manufacturing enterprises. (Lezoche,2011) Manufacture services must produce, rapidly and efficiently so as effective product at the precise moment. Hence, they need at that instant information imminent from other production services, which need in reoccurrence specific and update data on the process of production.

There then was proposition to study and present a B2M interoperability issue by introducing a specific IS implemented in a real manufacturing environment: Sage X3 as an Enterprise Resource Planning (ERP) application. Its purpose is to enable the movement of information between all organization functions inside the borders of the organization and manage the contacts to external stakeholders. (Klaus,2000) Constructed on a centralized database, Sage X3 ERP systems integrate all business operations into an even system atmosphere. (Jacobs,2007). Sage X3 offers different enterprise managing functions which includes finance, marketing, manufacturing and other services. The focus will be laid on first, to investigate how the process inside the Sage X3 application is demonstrated, and lastly to use the planned modelling and implementation process to express the understood knowledge in the architectural construction. Sage X3 in the management order aspect is the management function of production of orders and planned events and activities. It lets the creation of a production order by differences of one or more categories and only one production line. In every production order, the success of the material profits and sequencing processes is possible. This block records overall information about the work order, like, planning facility, also the facility of production, situation of the order. It paves way for the input of general information about the production order. (Klaus,2000) The accessibility of components is examined through the information provided by the bill of material associated with the launched products. As soon as that original information is determined, the system then updates the list of materials and all operations of the created orders. This uses three steps in accomplishing it goal which includes,

Firstly, is the reverse engineering. All this information is implied in the Sage application database system. (Davenport,1990) The initial step of this method used is the reverse engineering which is to extract the original theoretical model (Holland,1999)

Secondly is the expert knowledge injection method, as a results of reverse engineering stage is enhanced by a domain expert because the architecture of the Sage X3 ERP which is constructed with all the database relations implemented straight into the application layer and not in the database system. The reverse engineering outcome generates a model containing separated modules with coded names. (Davenport,1990)

Lastly, the transformation is all about applying the pattern transformation rules, presented in the previous section, class attributes are transformed into NOLOTs to increase the atomic illustration of the knowledge entrenched into the model. These rules have been implied using a programming language and then routinely implemented inside MEGA Suite.

3.1 IMPLEMENTATION LIFE CYCLE OF ERP

The ERP systems may be considered as one of the vital applications of information technology in the business world. Due to this many companies have been implementing since the beginning of twenty-first century. Its therefore integrates all functional parts of business, such as sales, marketing, logistics, billing, production, decision making, management, quality, and human resources management, contained in a single organization system.

3.1.1 Description of Implementation Process in a Company

In Electropoli, the implementation process of Saga X3 ERP application was made through lifecycle phases which comprises of the numerous stages that an ERP system passes through during its entire life inside the company. These processes are as follows, decision making phase, attainment phase, implementation phase, testing, use and maintenance phase, evolution phase and retirement phase. In the next subsequence in this chapter will be the description phases that entails in it during the implementation process. Below indicates the scheme of the phases of implementation elaborated. (Esteves,1999)

Figure 5: phases of Saga X3 implementation
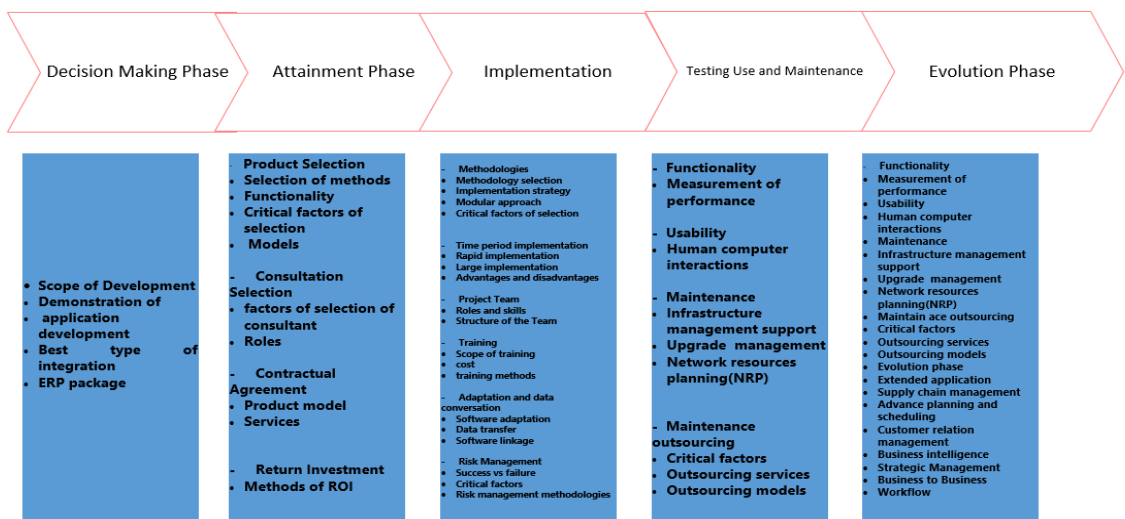
Source(own)

3.1.2 Decision making phase

During this phase, manager and other heads of Electropoli Company have a forum where they must have enquired on the necessity for a new ERP system while choosing the overall information system method that will best discourse the serious business challenges and enhance the organizational tactic. During this decision phase includes the description of system requirements, its achievements and profits, and a study of the effect of adoption at a business and organizational stage. Discussion were made on the issues that are related to as why there should be a new resolution for the information system of the company, and the type of solution that have greatest fits the requirements of the organization to improve the quality and smooth running of the company.

Electropoli managers decided what kind of enterprise information system they want for the company, unlike joining a new software program or adding on a new part of hardware, the decision is made to implement an ERP system causes change in the entire enterprise, as well as how the Electropoli is managed, how its inner divisions interrelate and how it responds to the business market. This decision will have a huge influence on the business and company's processes and might also affect the organization' strategy. The table below shows the time worked by the resources during the implementation.

Table 3: Resources and time worked

Name	Start	Finish	Remaining Work
CEO&Managers	Tue 3/12/19	Tue 3/19/19	48 hrs
Managers and Project Director	Tue 3/12/19	Mon 3/18/19	40 hrs
Project Director	Tue 3/19/19	Wed 7/24/19	48 hrs
Project manager	Fri 3/22/19	Wed 10/9/19	808 hrs
Project Analyst	Wed 3/20/19	Tue 7/9/19	88 hrs
Project Consultant	Wed 3/27/19	Mon 7/29/19	48 hrs
Contract manager	Mon 4/1/19	Mon 4/8/19	40 hrs
Trainers	Thu 5/23/19	Thu 7/4/19	232 hrs

Source: (own)

General information systems approach considered by Electropoli are: developing a bespoke branded system; integrating best-of-kind packages; and implementing an ERP package. (Idorn, 2008). The decision should be evaluated from the outlook of the four scopes of in the

discussion and not only from inexpensive or practical standpoints. Below indicate the average hours of work in the implementation.

Figure 6: Chart of Resource names
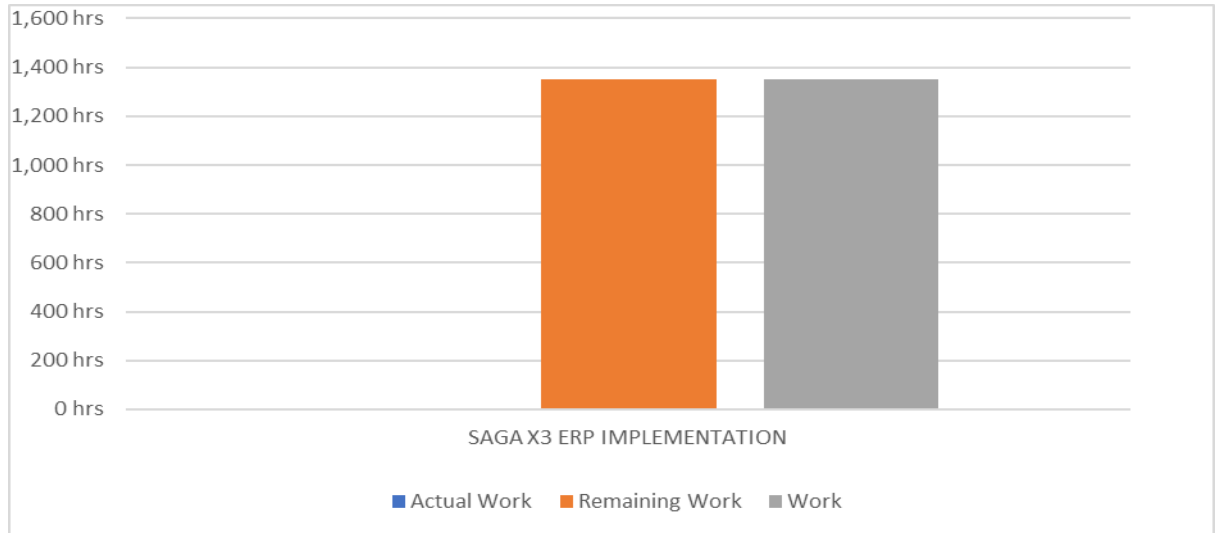
3.1.3 Attainment phase

Electropoli then focused on the application selection that best fits the necessities of the company which includes a consulting company hired to help in the following steps in the creation of the ERP life-cycle specifically in the implementation phase thus minimizing the need for modification. They also support to determine where the ERP system is not necessary to supply the company's needs and help to modify ERP usefulness to meet them. Factors that were also considered includes price, training and maintenance services are evaluated and, the contractual agreement was also clarified. The return investment of the ERP was also a vital to make analysis upon.

Additional important issue in this phase that was addressed was the definition of the hardware and base software requirements that must be associated to the ERP system. The product selection is always one issue that should be related with the focus part of the implementation which includes the technical part (system itself) about its software and hardware conditions then there is the capability (people and functionality process) and the change management part which link to the influence of the new system on the company.

3.1.4 Implementation Phase

In this circulated on the customization and transformation of the ERP package developed giving to the needs of the company since it is the most critical part of the ERP life cycle procedure. (Motwani,2005).Generally, this assignment is performed with the help of consultants who offer implementation methods, knowledge and training in the implementation process. The implementing an ERP system required resources to set up software and hardware, demonstrating business processes, train and skilled operators, connect to legacy systems and change the data from various systems. Since the implementation of ERP systems bonds up considerable business resources for a rather lengthy period, if not years, and the company cannot make mistakes which will jeopardize the project a consultant is hired to help shape it up to it potential. Due to this, efficient and effective planning, preparation and execution of the implementation project were taken to ensure to obviously improve chances of success.

One of the structures in ERP systems is their customization to the user desires since ERP systems are established to meet the public demand of many organization (Huang, 1999). Therefore, the main work within the implementation phase is the adaptation of the ERP software to the precise requirements of the company. During the process and after, the ERP adaptation start which involves training. Even though training will be a constant activity during the life-cycle process, in this phase it is more appropriate because of the need of training technical users. The final part will be the software configuration and data conversion and linking it to the other systems. (Lunenburg,2012)

In the implementation phase the risk management related is evaluated. Even though the issue of risk management is significant in all the phases of the life-cycle, its analysis is vital from the start of this phase for the subsequent implementation stages (Holland & Davis, 1998) declares that the foundation for a successful implementation is the management of technical, business and organizational risks involved. Some questions asked from the technical view are; Will the system perform correctly, according to requirements anticipated? Will it be completed on time? Will the budget planned for be enough? For business risk, is there a chance the system will not settle in money and purpose for the implementing company? Organizational risks which is related with the people and change management scopes is the chance the company will not use the complete potential of the new system. The implementation costed about 95 million dollars. The chart below indicates the cost involved in the whole implementation by the resource. (Lunenburg,2012)

Figure 7: Resource cost
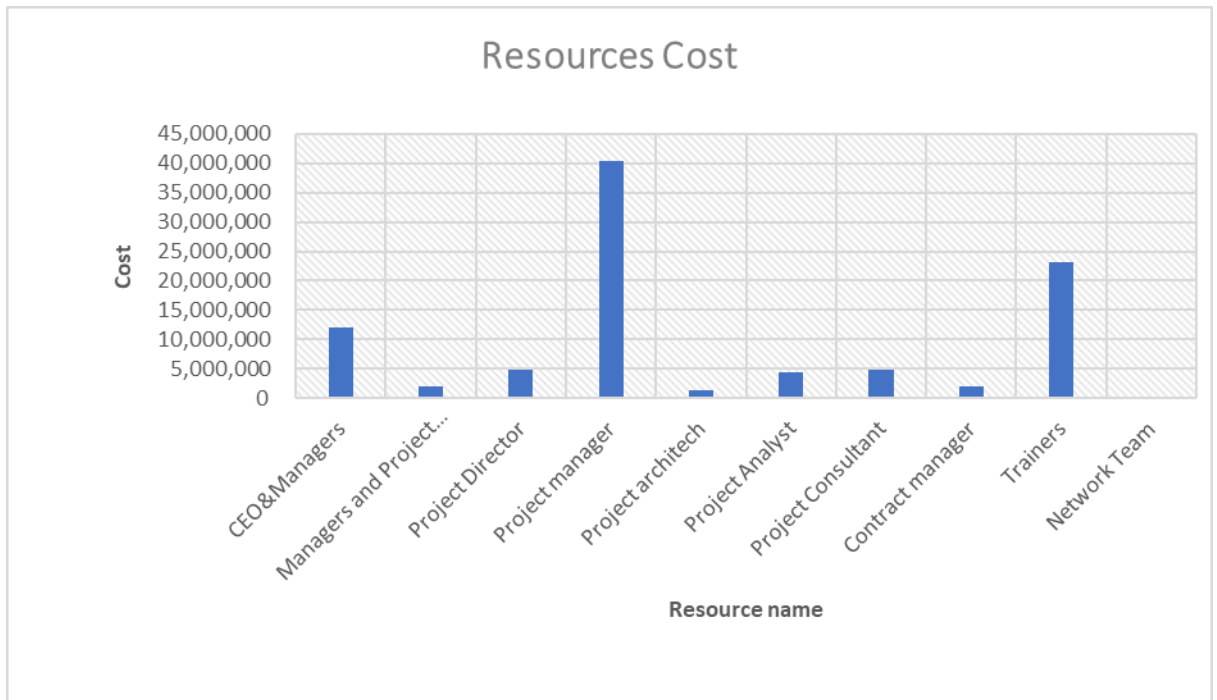
3.1.5 Testing Use and Maintenance Phase

This phase involves the use of the system, the expected return benefits and the process of decreases disruption. Throughout this phase, there was awareness of the parts associated to functionality, usability and suitability to the business processes and the company itself. As soon as a system was implemented, it very important to be maintained, because errors have to be corrected, special development requests have to be met, and overall systems enhancements and advancement have to be made.

Managers then are eager to see the anticipated results of the investments made and creation of the new system. Problems related to usability, performance routine examinations, organization management support, advancement systems and network resource planning are very significant in this phase. (Hayes, 1998) stated that managers who make ERP systems the pillar of their corporate computing environments are discovering that it affects all the supplementary technical decisions. (Seo, 2013). For instance, getting peripheral systems to interrelate with the main ERP system can be problematic, the interfaces should be comprehensible for users. The use of maintenance outsourcing was used to reduce costs and to avoid lack of proficiency. Due to this it was important to study the outsourcing models and it critical features. (Motwani,2005)

3.1.6 Evolution Phase

This phase matches to the integration of further abilities into the ERP system, giving out new benefits, like innovative planning and scheduling, supply-chain management, customer relationship management, work function, and growing the limits to outward partnership with other business partners with the aim of increasing profits to the company. Nowadays, organizations are "spreading ERP systems to deliver better business worth, with toughened relationship with customers, dealers, and finally end users, both internally and internationally". The idea of "extended ERP" is gaining power now. (Stein, 1998). This was the point where other advance application where added to increase the traditional capabilities of the ERP system. In this phase concludes to the stages. It's when the advanced technologies or the insufficiency of the ERP system or method to the business needs, managers then agree if they will replace the ERP software with other information system approach that is more satisfactory to the company's needs of the moment if there is a need. (Idorn, 2008).

Currently, most organizations and companies are in the stage of implementation or in the use and maintenance stages but there are cases where companies for several reasons have left their ERP implementation projects and have quickly returned to their own developing systems. Others have also changed from ERP products to something entirely different in the process of the implementing stage. The retirement phase is mainly related to change in management. The following shows the schedule performed in each process during the implementation of Saga X3 ERP.

Table 4: Schedule process of Implementation

Nam **Name**	**Start**	**Finish**	**Predecessor**	**Remaining work**	**Resources name**
Scope of Development	Tue 3/12/19	Thu 3/14/19	1	24 hrs.	Managers and Project Director
Demonstration of application development	Fri 3/15/19	Fri 3/15/19	2	8 hrs.	Managers and Project Director
Best type of Integration	Mon 3/18/19	Mon 3/18/19	3	8 hrs.	Managers and Project Director
ERP package	Tue 3/19/19	Tue 3/19/19	4	8 hrs.	Project Director
Selection of methods	Wed 3/20/19	Thu 3/21/19	5	16 hrs.	Project architect [1], Project Analyst
Functionality	Fri 3/22/19	Fri 3/22/19	6	16 hrs.	Project architect [1], Project Director, Project manager
Critical factors of selection	Mon 3/25/19	Tue 3/26/19	7	16 hrs.	Project manager
Models	Wed 3/27/19	Wed 3/27/19	8	0 hrs.	Project architect [1]
factors of selection of consultant	Wed 3/27/19	Thu 3/28/19	9	16 hrs.	Project Consultant
Roles	Fri 3/29/19	Fri 3/29/19	10	8 hrs.	Project Consultant
Methodology selection	Tue 4/9/19	Mon 4/15/19	11	40 hrs.	Project manager
Implementation strategy	Tue 4/16/19	Thu 4/18/19	12	24 hrs.	Project manager
Modular approach	Fri 4/19/19	Fri 4/19/19	13	8 hrs.	Project Analyst
Critical factors of selection	Mon 4/22/19	Mon 4/22/19	14	8 hrs.	Project manager
Rapid implementation	Mon 4/22/19	Tue 4/23/19	15	0 hrs.	Project architect [1]
Large implementation	Wed 4/24/19	Fri 4/26/19	16	0 hrs.	Project architect [1]
Advantages and disadvantages	Mon 4/29/19	Fri 5/3/19	17	40 hrs.	Project Analyst
Success vs failure	Thu 6/6/19	Fri 6/7/19	18	32 hrs.	Project manager, Trainers
Critical factors	Mon 6/10/19	Tue 6/11/19	19	32 hrs.	Project manager, Trainers
Risk management methodologies	Wed 6/12/19	Thu 6/13/19	20	16 hrs.	Project manager
Measurement of performance	Fri 6/14/19	Thu 7/4/19	21	120 hrs.	Project manager

Human computer interactions	Fri 6/14/19	Thu 7/4/19	22	120 hrs.	Trainers
Infrastructure management support	Fri 7/5/19	Tue 7/9/19	23	48 hrs.	Project Analyst, Project manager
Upgrade management	Wed 7/10/19	Mon 7/15/19	24	32 hrs.	Project manager
Network resources planning (NRP)	Tue 7/16/19	Thu 7/18/19	25	0 hrs.	Network Team [1]
Critical factors	Fri 7/19/19	Wed 7/24/19	26	32 hrs.	Project Director
Outsourcing services	Thu 7/25/19	Mon 7/29/19	27	24 hrs.	Project Consultant
Outsourcing models	Tue 7/30/19	Thu 8/1/19	28	0 hrs.	Project architect [1]
Supply chain management	Fri 8/2/19	Thu 8/15/19	29	80 hrs.	Project manager
Planning and scheduling	Fri 8/16/19	Thu 8/29/19	29	80 hrs.	Project manager
Customer relation management	Fri 8/30/19	Thu 9/12/19	30	80 hrs.	Project manager
Business intelligence	Fri 9/13/19	Thu 9/26/19	31	80 hrs.	Project manager
Strategic management	Fri 9/27/19	Thu 10/3/19	32	40 hrs.	Project manager
Business to Business	Fri 10/4/19	Tue 10/8/19	33	24 hrs.	Project manager
workflow	Wed 10/9/10	Wed 10/9/10	34	8 hrs.	Project manager

Source(own)

3.2 Functions of ERP

Saga X3 ERP software is clearly application software. Therefore, it can be distinguished from software like database management software, operating systems. The application modules of Saga X3 ERP are assimilated across the functions supported and the data involved. Electropoli implemented this ERP software which is based on a fundamental integrated database that stores major and transaction data in a dependable way and with precise redundancy. The main functions of Saga X3 ERP software include providing business solutions, aiding in the central process of the business and administrative, managerial functionality. The preposition of Saga X3 ERP by Electropoli was to assist the company in so many ways. Its significance is to support all business functions of the company particularly attaining, material management, production, logistics, maintenance, sales, distribution, financial accounting, asset management, cash management, decision making controlling, strategic planning, and quality management and more. In addition to these general business functions, high capacity warehousing transactions for retailers is one of its primary use. (Grant, 2003).

In companies such as Electropoli, if differences are little and customer demands rises, companies in the metal industry need to adjust preparation, workflows and guarantee limpidity. The right ERP such as Saga X3 system helps them in accomplishing these difficulties. Saga X3 ERP also simplifies all processes along the value-added chain. This allows minor and mid-sized companies in the metal business to uphold high value at all steps, be it production planning, marketing, the documentation or the completed product. This ERP integrates them with all divisions and due to that there is full cost control at any point in time, regardless of unstable raw material expenses. The Saga X3 also aid in advanced planning and scheduling giving company an advantage over their global opponents and facilitating multi-resource planning and supporting distribution dependability.

CONCLUSION

This last chapter recaps the major conclusions and vital aspects other companies may consider while implementing ERP software in their organization in other to implement it more cost effectively and accomplish better efficiency in organizational process during the procedure such as how Electropoli company implemented Saga X3 ERP.

Chapter one elaborates on the conceptual framework of Enterprise resource planning software. The term Enterprise Resource Planning has evolved since the early ages from Manufacturing Resource Planning (MRP II) that followed Material Requirements Planning (MRP I). ERP software are made to be a world-wide organizational application software that integrates all functional areas in an organization including sales, logistics, decision making, billing, production, inventory management, marketing, quality management, accounting, human resources and more.

The second chapter emphasized on the structure of companies such as Electropoli that uses ERP and how it benefited them and how it helps most organizations. Most of the studies have discovered that Enterprise Resources Planning software has allowed organizations globally not only to improve its own cost in the short period of time but also to produce financial profits for organizations. As some companies in big countries are demonstrating great probability in worldwide growth in the market and almost all essential part of business, ERP may deliver competitive powers over its opponents. (Lunenburg,2012)

Chapter three described the objectives and research methodology of the study. When deciding on data collection method for the study, several factors have been considered. As every method has its strengths and weaknesses, it was important to assess each method's correctness regarding the study that was carried out. The study also focused on how a company such as Electropoli implemented an ERP including its cost, resources, and more combing in creating and implementing an ERP in supporting the company in so many ways such as, supporting budget, planning and management and decisions making, it also provides reports for any kind of activities that takes in the company different languages and outlines, providing financial combined reports using numerous systems, it can also manage a department, a company, more or less a group of companies and it can unite more companies into one solitary group.

Electropoli has enjoyed so many advantages after implementing Saga X3 including high income and smooth running of the activities in the company but the pressure from competitors

and customer assurance in integration projects impose tests and challenges. Technical processing barriers are connected to integration product selection, and its system development and configuration. There were also common categories of ERP integration challenges that arose. During this implementation, the company fingered they did not reach their expected return on ERP system investment until it started yielding beneficial results in time. ERP systems implementation was much costly than anticipated and it also required important secondary which shows in the figures and analysis on the table above and some current maintenance effort.

Although the study emphases on the spectacles of ERP implementation from a neutral way, the observed evidence has been collected from accessing companies. Conducting a comparable study but with evidence built on data collection from the business that will use the ERP system might end in different assumptions. However, following the process in implementing Saga X3 in Electropoli will open up for a wild range of organizational factors like structure, culture attitude to participate in implementing ERP in their companies and be involve in the IT driven world fir better and smooth running of organizations. (Lunenburg, 2012)

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