

**LOGISTICS SYSTEM TRANSITION TOWARDS ENTERPRISE
RESOURCE PLANNING: A CASE STUDY**

ATILIM UNIVERSITY

THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES

SAEEDA ALANSARI

MASTER OF SCIENCE

THE DEPARTMENT OF INFORMATION SYSTEM ENGINEERING

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

LOGISTICS SYSTEM TRNSITION TOWARDS ENTERPRISE RESOURCE PLANNING: A CASE STUDY

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Today, in order to achieve a competitive advantage organization should implement supply chain effectively and have such a product in logistics services. Otherwise, the traditional way of this process causes a problem of not covering everything and it is releasing the risk in organization of missing invoices yearly and not recording it.

The director needs to have statistics recorded and accounting payment for every purchase and inventory. In the traditional way, the clerk enroll the data by using excel sheet and count manually by hand with old calculation methods which is very risky for he company. Further more, old machine can be damaged or crash from different reasons an example of that, viruses' issues in hard disk that crash the machine then all the data will be lost. Moreover, only one clerk is responsible so if the clerk gets sick the all works for purchases and inventory risk to be delayed.

To perform activities effectively and value chain for organization competitiveness it is required to run supply chain in best manner by logistic services information system. Supply chain management has two purposes, firstly product reaches to the end users for multiple departments of the organization, secondly to deliver product to the final customer because it provides many benefits in managing product with coordination and monitoring everyday materials management.

To improve the departments **in terms of** best strategic information system and avoid

all the associated risks it is required to have a specific system for inventory control system. Therefore, the main objective of this thesis is to illustrate transition of existing system towards Enterprise Resource Planning Systems (ERP). It also explains inception plan to develop the software and search towards the best system keeping in view many organizational constraints. This also include survey outcome to measure the relationship between management models and organizational innovation in internal processes as part of management efforts towards new system planning.

Keywords: Program Purchases, Inventory Invoices, ERP, Supply Chain

ÖZ

İŞLETME KAYNAK PLANLAMASINA YÖNELİK LOJİSTİK SİSTEMİ GEÇİŞİ: BİR VAKA ÇALIŞMASI

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Bugün, rekabet avantajı elde etmek için organizasyonun tedarik zincirini etkin bir şekilde yönetmesi ve faaliyetlerin lojistik hizmetler konusunda bir ürüne sahip olması gerekir. Aksi takdirde, bu sürecin geleneksel yolu her şeyi kapsamama konusunda bir soruna neden olur ve yıllık olarak eksik faturaların düzenlenmesi ve kaydedilmemesi riskini artırır.

Geleneksel yöntemle, şirketler veriyi Excel sayfasını kullanarak kaydedilir ve eski hesaplama yöntemleriyle elle manuel olarak saymaya devam eder, ancak farklı şirketlerden büyük bir teklife sahip çok sayıda veri vardır ve her öğede her üründe bir sayı vardır. Görevliler verileri Excel programını kullanarak sayımda hata yapmaları riski çok yüksektir. Eski bilgisayarla ilgili başka bir risk, bilgiyi çıkarmak için uzun bir sürece sahip olabilir, ayrıca normalde eski makine zarar görebilir veya farklı nedenlerden dolayı çökebilir, örneğin sabit diskteki makineyi çökerten virüsler ve sonra tüm veriler kaybolabilir. Ayrıca, yalnızca bir memur sorumludur, böylece memur hastalanırsa tüm alımlar ve envanter riski geciktirilebilir.

Etkin bir şekilde faaliyet göstermek ve organizasyon rekabetçiliği için değer zincirini sağlamak için lojistik hizmet bilgi sistemi ile tedarik zincirini en iyi şekilde

alıřtırmak gerekir. Tedarik zinciri ynetiminin iki amacı vardır, ncelikle rn, kuruluřun birden fazla departmanı iin son kullanıcılara ulařır, ikincisi de rn nihai mřteriye ulařtırmak, nk rnn koordinasyonla ynetiminde ve gnlk malzeme ynetiminin izlenmesinde birok fayda saęlar.

Departmanları en iyi stratejik bilgi sisteminde geliřtirmek ve ilgili tm risklerden kaınmak iin envanter kontrol sistemi iin belirli bir sisteme sahip olmak gerekir. Dolayısıyla, bu tezin temel amacı, mevcut sistemin Kurumsal Kaynak Planlama Sistemlerine (ERP) geiřini gstermektir. Ayrıca, birok kurumsal kısıtlamayı gz nnde bulundurarak yazılımı geliřtirmek ve en iyi sisteme doęru arama yapmak iin bařlangı planını aıklar. Bu ayrıca, yeni sistem planlamaya ynelik ynetim abalarının bir parası olarak i srelerde ynetim modelleri ile rgtsel inovasyon arasındaki iliřkiyi lmek iin anket sonularını da iermektedir.

Anahtar Kelimeler: Program Alımları, Envanter Faturaları, Kurumsal Kaynak Planlama, ERP, Tedarik Zinciri

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LIST OF ABBREVIATIONS

ABAP	Advanced Business Application Programming
ABC	Ranking System for identify and grouping
ACAP	Application Configuration Access Protocol
AJAX	Acronym Standing for Asynchronous Java Script and xml
BIW	Business Information Warehouse
CMMI	Capability Maturity Model Integration
CFEs	Community forest enterprises
Citrix	Citrix System
CRM	Customer Relationship Management
CPM	Certification Purchasing Manager
CSF	Critical success factor
CSS3	Cascading Style Sheets Level3
ERP	Enterprise Resource Planning
GUI	Graphical User Interface
HR	Human Resource
HTML	Hypertext Markup Language
HTML5	Hypertext Markup Language
IBM	International Business Machines
ICT	Information and Communication Technology
IT	Information Technology
ITSM	IT Service Management
ITS	Internet Transaction Server
JavaScript	A Script Language

KM	Knowledge Management
LOT	Internet Of Things
MAXIMO	Maximo Enterprise Assets Management
MySQL	Structured Query Language
Oracle	Oracle Corporation
PHP	Hypertext Processor
PLM	Product Life Cycle Management
RFID	Radio Frequency Identification
SAP	System Application and Products
SCM	Supply Chain Management
SEM	Strategic Enterprise Management
SRM	Supplier Relation Management
TQM	Total Quality Management
VMI	Vendor Managed Inventory
WBCSD	World Council for Sustainable Development
WEB SERVICES	Web based Application

CHAPTER 1

INTRODUCTION

The key business process across members of supply chain will determine the ultimate success of the single enterprise [1]. According to Christopher [2] businesses no longer compete as spurred by developments in information and communication technology (ICT) that enable the frequent exchange of huge amount of information for coordination purpose.. Supply Chain Management warehouse is a chain which can follow activities of services and material distribution and provides a maximum value for consumer. A great planning in business process can be driven by the objective value of customer, each chain related together and can impact quality and risk management.

Nowadays being only a traditional organization is not enough to survive in the market. Organization have to create new business model and new management model to differentiate from their competitors, they have to innovate and aim to be a market leader, they have to shift their organization culture according to their vision and mission, to be an open system and benefit from external environment in order to innovate and adapt with the new path of doing work.

The new century came with new challenges that organizations should deal with such as accelerating the path of strategic renewal, creating an engaging work environment, and making innovation everyone and every day job [3]. For decision-making material, invoice, purchases order, money with bills and tenders to meet customer requirement between different department in all section of organization. It is included the manufacture types of purchases number material depend on logistics and task workflow between employee and customer.

Enterprise Resource Planning Systems is used to integrate all the functions, activities and knowledge of departments to move data by using internet and in the same time it saves data in the organization like World Wide Web receive information by using web[4].

For this purpose, in the following chapters, first a literature review of the management models framework in organization will be presented, then the relation between management and staff in organization and then hypotheses are developed. After the literature review, the research methodology is introduced then the findings of the research are presented. The aim of this paper study is to uncover the Enterprise Resource Planning Systems system's importance and the benefits of its implementation as improving the company skills to success and change management in order to be able to design a good system that will provide efficiency in the enterprise. The final chapter consists of the discussion and the conclusion of this research.

CHAPTER 2

THEORETICAL FRAMEWORK

1.1 Motivation and Background of The Problem

Motivation is important to represent the learning of process, not only in learning a language but also in other subjects. If the manager or the management can motivate their employee to have course or trained in specific target of the task it can be a started point of the beginning their willingness in learning to be giving them motivation. Can be as benefits, and a goal to organize their work by having new software, which is as archive to record their entire task. Motivation has a close relation with the goal of learning, whether the student wants to study hard or not as based on their motivation in learning. If the staffs have maximum range of motivation in learning, they will have willingness to learn to reach their goal in their work, and they will make their organization in high rank in Capability Maturity Model Integration level for software. Supporting staff and also organization depend on the manager or Management to achievement procured work order with purchase order items order have a code number unique than other can be classify form other item even in the printing invoice detail items. Communication with employee regarding detail about payment and how does the clerk calculation each item require to listen to them as carefully.

The problem could be missing paper and take a lot of time in search in excel for example , the clerk cannot found easily the tender related of two year purchases because every month entered new data and save in some location in his computer and only him know how to do these by calculate manually and make mistake in calculation because using old manual tools calculator and no any paper saved in the system if someone come from other department or manger ask about it cannot found it easily and could be damage form virus even though clerk need to type manually like items number but other software can be already in the system with invoice detail

without needing to make calculation and a clear detail about all purchasing and inventory what it is in store what is not in the store so all these can be take times and to do these tasks it is need to organized both from Management and IT strategy planning to make new software and to motivation the staff by knowing the problem.

Communication with the staff is most the important roles which a part for listening for staff also component in reading skills and speaking skill, first listen to employee what is the missing requirement in that excel program and why cannot up lode the old paper invoice order or compare sheet in tender between different year or months. Cooperative learning is a kind of learning strategy based on constructive understanding. Team working with employee some as a small group with different abilities. In understanding the learning materials or some works given by the regulation list of rules task, they will have to be cooperative and help each other. In cooperative learning, it would not finish if one in the group has not understood of the material or the new policy to do the job because the operational and technical in the structure in the organization.

Recently ERP system like sap is growing in the industry [5] it is solution to enhance the performance of the organization with inventory involve give faster demand of cycle these stability important by implement ERP by forcing to change all department but with few challenge issue with encounter with new system as background ability for organization [8].

The new strategy by transition of existing system towards ERP make new planning to develop software or purchase new one where staff will have more activities in the work through this strategy they will have archived and finished the task fast in order to improve their motivation in the organization and learning more than person to do these task by having new software should have new skills by learning new software.

Problems are summarized as following:

- Missing papers and requiring lots of time in search in the Excel sheets.
- Clerk cannot access easily the tenders related to two-year purchases.
- Storing data in same computer for clerk.
- Mistakes in calculation because of using old manual tools.
- Personal desktop could be affected form virus.

- It takes time to search in the inventory system.
- Using old software which were not updated and each section has different inventory system.
- ERP system could not be implemented so far.

1.2 Purpose of Program Purchases and Inventory Invoices

The purpose of program is to provide all function of stock and purchasing management system for all different department which will help, control, and prevent items situation and make guarantee of product activity with type of position related for specific material from accepting to return shipment order with purchase invoices paper. Therefore, staff will be able to concentrate on the needs of customer's requirement. This processes give a high transaction regarding the order of delivery statues which is the main operation in monitoring and is useful to use software with high level security to make sure about hacking or any auditing error detail in the software. The new century came with new challenges that organizations should deal with such as accelerating the path of strategic renewal, creating an engaging work environment, and making innovation everyone and every days job as observed by Hamel [3].

For decision-making material, invoice, purchases order, money with bills and tenders to meet customer requirement between different departments in all section. It includes the manufacture types of purchase numbers which material depend on logistics and IT flows. The problem could be missing papers and it takes a lot of time in searching in excel sheets for example, the clerk cannot easily locate the tenders related of last two-year purchases because every month new data will be entered and saved in some location in his/her computer. Further only he/she knows how to do these by calculating in manual way and it leads to mistakes/errors in calculation because use of old manual tools for instance calculator and no proper organization of records and files. If someone requires it from other departments or manager cannot find it easily and these could also be damaged from the viruses. Also, clerk needs to type like items number but other software/database can be already in the system with invoice details without any need to make calculations and cannot provide details clearly about all purchases and inventory in an organized manner. It may further take

more time in knowing recent update that which items are in store and which are going to be finished in the stock. Therefore, this kind of tasks require to be organized both from management and IT strategy planning perspective towards transition to new software and provide motivation to staff by knowing the problem clearly so all stakeholders can contribute towards finding the best solution. IT department and other departments require to have one integrated system for inventory system. Currently, in IT department they are using one software for this purpose without contract and old up gradation support. They also used easy designed and developed Hypertext Markup Language program for such system but with lots of missing items due to lack of communication with all stakeholders. The critical problem is related with logistics department because they have different stores (sections) and also other departments have their own stores (logistics) for their inventory purposes. This creates problem of inconsistency, lack of sharing related data and due to this latest stock items and control cannot be taken in an effective manner. Citrix is small patch inside the server which allows opening older software. If patch in the software crashes then software cannot start properly. So they need backup in this situation. ERP's software supported most precise calculation regards in good distribution order. Many types of calculation guarantee product with right price and gives detail of low stock cost. The highly automated allocation process also leads to saving time and cost. This software ensures results and stock control in goods distribution across all branches is managed centrally, following either a push or pull principle or a combination of both can be stood alone or group of integration ERP system links between central administration and each branch in our network which is designed to provide flexibe communication channel between logistics areas.

Need of Program Purchases and Inventory Invoices

Purchasing and inventory management providing high quality services in supply chain management by reducing the risk and integrated technology with application by moving organization using ERP system module packages. IT technology and real time data availability of data vision gives facilities a better matching between supply member with external partners in the supply chain [4]. IT in SCM reduce cycle time by improve disturbed order to many sites [5] increasing data between company by using interface system Due to complex data and many risks of inventory has been increasing [8] [7] that lead to an increasing electronic risk, SCM control data flowing

with processes, item, payment and external product by reduces transaction motivated risk with low cost and high quality assurances [8].

This will help the department if the customer order by installing and updating the system to make sure that different department are integrated in the same system avoiding any delay or lost. These processes give an idea about payment in different sections or in warehouse as by using computer can list all item from screen to ship and provide the accounting module that establish reports to all stakeholders[12].

1.3 Disadvantages of Current System

- It is not supporting all functions of logistics
- Expired contract with third party company
- Losing a lot of data printing
- Using manual calculation and data entry
- Using an old type procedure for saving data like excel sheets
- Losing document because it is saved only on one desktop
- Take time to search for document
- Cannot follow/track the purchase progress
- Missing many items in the store.
- Different departments have different logistic software.
- Cannot follow the payment records easily
- No printing of hard copy items for products
- Each department have different systems.
- Using manually paper system to follow progress.
- Using manual table sheet to check items in the store.
- Organized some items and devices without tags.
- Each department is using different inventory system and it may lead to inconsistency.

1.4 Benefit of Using Inventory Management System

- Supplies, vendor, customer available record system
- Integrity and available of appropriate cost
- Not lost storage.
- Vendor material manufacturer qualifications with maintaining inventory

- Purchase agreements
- Controlling expiration periods
- List of supplies or materials to be purchased
- look for the best price, accounting tracking
- determine how payments will be made, and how the vendor will assure reliable availability and delivery of supplies and reagents.

Advantages of ERP system

- All departments will be working in same system and information.
- Store all database and staff which can access the data in same time.
- Give a report about user data and detailed of invoices purchase.
- Provide a report for the tender or the reports which can take long time to search.
- Can edit in dashboard any module or required function
- It will include functions of accounting modules
- Tracking inventory processing
- Offering a code for items
- Online banking.
- Post invoice system
- It will include all functions and modules (customer management, human resources, business management, financial, inventory and supply chain).
- Reduce mistake/errors while entering data.

Software to integrate with ERP due to many constraints and interoperability issues. Software people are trying their best but the software development and the maintenance engine for planes are not working with system because some of this software are older version. Some applications like HR and Financial application is not complicated with new Oracle version integration with ERP. Also, the programmer takes one year to update the version to new update because it requires rigorous testing to get a higher level of update. Then only it can be integrated with ERP system. Hopefully, an expert programmer's team makes a program similar like Internet Of Things supply chain management with a full requirement items from received items, proper calculation with accounting purchase and tendering process till delivery to stock and warehouses.

Even while tracking the stock in the store other solution in the organization may be

to choose/purchase a third-party program from a company but it will be expensive and require making a contract every 2 or 3 years towards systematic up gradation.

Therefore, the best solution is to have SAP- ERP system and upgrade the older ERP system. In this way integration with ERP will help the organization to resolve problems from the old software. This will ensure sharing of all required information among different departments towards the best logistics operations in organization, many types of ERP like SAP, Oracle, ERP a module package develop to share data these packages reduce risk the biggest one is SAP which developed by IBM engineering in 1972. [16]

1.5 Analysis of Program Purchases and Inventory Invoices

By tracking real time order sell will reduce stock and automatically record in the system to make sure have few or many items in the store and tracing the cost by seeing data on the web site avoiding any disappointed stakeholder or manager. Bar codes labels in the items in the store self-automatic tracking product provides real time of information to reduce the error [16]. The number which label as tags in the product able to read and scan has able to recognize as planning capacity and a missing item in the schedules the industrial inventory can develop bar code to eliminate unnecessary or expired product. Bar code use to reduce the risk but a risk can be occurred be add or modify wrong data .

Normal situation process to movement material in different department using tools web mange software and hardware items to manage resource in organization, tracking software system is very important to track components in the store to match material with different sites and staff can awareness about delivery items by using these web it will give details about sites, product and cost and many details a full management tools allowing clerk to manage money, stocks, tenders related to decisions make in the organization . Using these tools can save time money and be recorded of information on the system and avoiding any type on mistake counting or mistake in enter data which is connected with bar code scanning system when scanning items it will registry from device laptop to the software if it is required any audit can be done quickly with accrue data [16] . Tracking items when checkout gives a detail about repairs assets and who and why have been received in the past or now this is give ensures with rule and strategy of organization. Record of attachment

document and track assets date, cost and tender, customer and vendor names kind of reporting and maintained of availability or delivery or in stocks assets, will control all data fields by tracking system software.

Enterprise Resources planning is organizational planning system have a main activity systemic flow information through all life cycle of supply chain management a real framework activity benefit for accounting and manufacture resources (procurement, production planning) managing and coordinate resources in a company [14], ERP system is an enterprise information system designed to integrate and optimism the business processes and transaction in corporation [15] ERP system assets many organization by integration with Supply Chain Management by snapshot of capturing a data for all company in a package from raw material to end customer because it can decreases by make the cost low, ability across supply chain increase customer services and network relationships [16].

The purpose of program (software) is to provide all functions of stock control and purchasing management system for all departments which will be helpful and control items the latest situation and also ensure product activity with type of position (for instance in stock, going to finish etc.) related for specific material from accepting to return shipment order along with purchase invoices. This will help staff to focus on the need of customer's requirement along with internal stakeholders. These processes commit a high level of transactions regarding order delivery status which is the main operation monitoring. Therefore, it would be useful to adopt software with high level security to make sure about hacking or any auditing error could provide detailed information as it will assist in fixing the problems.

1.6 Research Outline

Manual of checking inventory, by communicating with different members of the staff, and asking how much of your work as a supply chain manager is using systems and dashboards of logistics, operations, and flows. What follows are some templates that can help manage and streamline workflow, did manager understanding and sharing inventory reports.

Table 1.1. Manual Document

FEATURES Enter up to 50 features below	PRIORITY	PRODUCT 1	PRODUCT 2	PRODUCT 3	NOTES
Flexible requirements	1	N	Y	Y	
Advanced filtering	1	Y	F	P	
Comprehensive drill-down capability	1	Y	Y	Y	
Exception management	4	P	P	P	
Agile order management	1	N	N	N	
Aggregates requirements	1	Y	Y	Y	
Workflow support	2	F	F	F	
Designated timeframes	1	F	F	F	
Multiple quantity display	3	N	N	N	
Forecast consumption	1	N	P	P	
Supply chain visibility	2	P			
Integrating into multiple environments					
Software support	1	F	F	F	
Free trials					
Encryption					
Access control	1	Y	F	N	
Data policy	3	F	P	Y	
Pricing					
Cloud-based					
Barcode printing					
Bills of material					
Stock management					
Work order management					
Barcode support					
Vendor management					

By using the dashboard (Table 1.1) the company can check if the stakeholder have an idea about the inventory system, the Hypertext Markup Language which they have, or the new inventory system .They use the system and some of them not they record it in paper and put it in the file but these old file can be damage and there is until know no archiving system for these paper or lost or someone takes these paper or the place for the store is destroying by fire it cannot return any old paper moreover the newer manager does not have any idea about the new environment in the store, and he needs at least one year to know the task because managers are managing many multiple sites and hunger which make it more complicated and difficult. Even if the non-educated people use the system without understanding it after a certain routine, they start understanding similarly to educated people. All people on the store and all sites in the internal campus of the defense agree that (MAXIMO) system and which is out of contract and Hypertext Markup Language is an easy developer web system to manage many missing items, which require and need to cover all campus. Each site use different inventory system one system they use manual paper, second Hypertext Markup Language, third (MAXIMO).

Each site have own inventory system and third party and not all of them as one

integrated system in information system department cannot follow and control the product and the vendor with customer cannot track their paper with a lot of delay and missing and mistake paper.

1.7 The Research Aim and Objective

This study attempts to discover the nature of relationships between the IT department and different section in organization. The underlying assumption of this stream of research is that organizational innovativeness is facilitated and influenced by practices and principles of the management model in terms of specific principles related to coordination, decision-making, setting objectives and motivation principles. More specifically it is discussed here that certain principles in each management model impact the emergence of certain innovativeness types. In order to survive ordering assets, organizations have to obtain a sustainable innovative organizational environment. Organizational innovativeness is a key component for the firm performance[18]. Because of the force competition that organizations face in all industries, organizations are obliged to adopt new management principles that promote innovation within the organization. Traditional management models are no anymore effective in the new business environment and order. Therefore, shifting to new management principle, and making smart and right choices while combining them to create the appropriate management model is the hardest challenge facing the managers. From this point of view, conducting research about the issue in purchasing and inventory management can be evaluated as the major important theoretical aspects of the study. Besides the theoretical contribution, the effort of the study is to draw a frame for the principles and management models that promote organizational innovativeness and by implication the organization performance can be considered as a practical contribution. Consultants of the organization are ensuring quality assurance of the work in progress; they have made progress for ERP project and do plan software project and also to modify the old version of ERP by making a proposal for same company and another company. As management decided to select only one company the contract was finished with Consult so now the task can be done with the internal project manager and company's team. Now the new company (ERP company) which is chosen in testing stages is trying to integrate with other system. They bring a team with project manager from their company specially to do

this task but still the company face same issue with older program (software). Now they are still in testing stage from last one year. Organization need a full model of ERP to solve all the requirements for stakeholder because many campuses (locations) have different activities and task because each of these model in ERP is a big separated campus which requires to know each other for example customer relationship to know detailed about stores customers and who received and which clerk has been allocated for tasks. Hopefully Consult will succeed in ERP implementation along with interface with existing software in future keeping in view organizational constraints. The main cause enterprise system to integrate information to improve data sharing and decision-making ERP system integration tools as a core business courses a variety of customer in the market competition between company and ERP have a license agreement to implement maintenance to open source of under as a support contract.

1.8 The Research Method

In this study, quantitative survey is conducted in order to measure the performance? of the function job related to stocks between managements and organizational in innovations. Data collection is based on primary data; questionnaires first were translated to Arabic.

Table 1.2. Questionnaire (English)

	1	2	3	4	5	6
Outputs are created through management processes, i.e. the formal coordination of inputs and structuring of effort						
Outputs are created through mutual adjustment, i.e. the informal and spontaneous coordination of effort by individuals acting in their own best interests						

Our default assumption is that information about internal processes (e.g. budget numbers, service levels achieved) is confidential and viewed on a need to know basis

Our default assumption is that information about internal processes are available and open to the scrutiny of all employees

Assumption of employee and customer delivery warehouse of the items including time deliver , date ,invoice and payment bills

H1: Management Models affects the emergence of organizational innovativeness

Please evaluate the following statements and mark the appropriate number.

1= Completely Disagree; 2 = Disagree; 3 = Almost Disagree; 4= Almost Agree; 5 = Agree; 6 = Completely agree

CHAPTER 3

LITERATURE REVIEW

1.9 The Importance of Purchasing Inventory Invoice Program

A supply chain is more practically defined as a connected network which typically crosses organization boundaries [17]. The supply chain encompasses every effort involved in producing and delivering a final product or service, from the (supplier) of raw material to the customer due to its wide scope, supply chain management must address complex inter dependencies, such as those in the form of ‘extended enterprise’ Viswanadham and Gaonkar [18] define an ‘integrated supply chain network ‘as a group of independent companies, often located in different countries, forming a strategic alliance with the common goal of designing manufacturing and delivering right quality product to customer groups faster than other alliance groups and vertically integrated firms.

Reducing types of risk when specifying a detail of customer or accounting bills, other campus allows to connect to all campus simple connected ERP between departments. When delaying any product to customer the system offering to them exactly where the items is stuck. Supply chain management is a management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost. In the current age of globalization, the organizations have realized there is need of integrated information system which can link from supplier to their customer.

Fatimee, Shah and Hussain [19] observed impact of ERP implementation on supply chain efficiencies through one case study. ERP's system has enormous impact on organizations and towards global business. Zhang et al. [20] suggested most of the organizations select ERP systems with objective of improving system including IT and infrastructure, operations, strategic capability in their business. Supply chain efficiency is one of the main objectives of ERP systems but it has itself many variables which may affect its efficiencies as observed by Fatimee, Shah and Hussain

[19]. Themistocles et al. [21] affirm that conventional supply chain has four tiers with many facilities at each level as supply, manufacturing, distribution and consumer. They argued main issue in supply chain is the measure of its performance and it is linked with cost, activity time, flexibility and along with cost and customer responsiveness. Research on ERP and SCM by Barki and Pinsonneault [22] shows the benefits of ERP in terms of reduced order cycle time, throughput time, and customer response time and delivery speed which is a significant measure of the supply chain efficiencies. Cook et al. [26] elaborated ERP system to four constructs for instance operational, managerial, strategic and organizational benefits while three constructs for SCM are operational, planning and control, and behavioral processes.

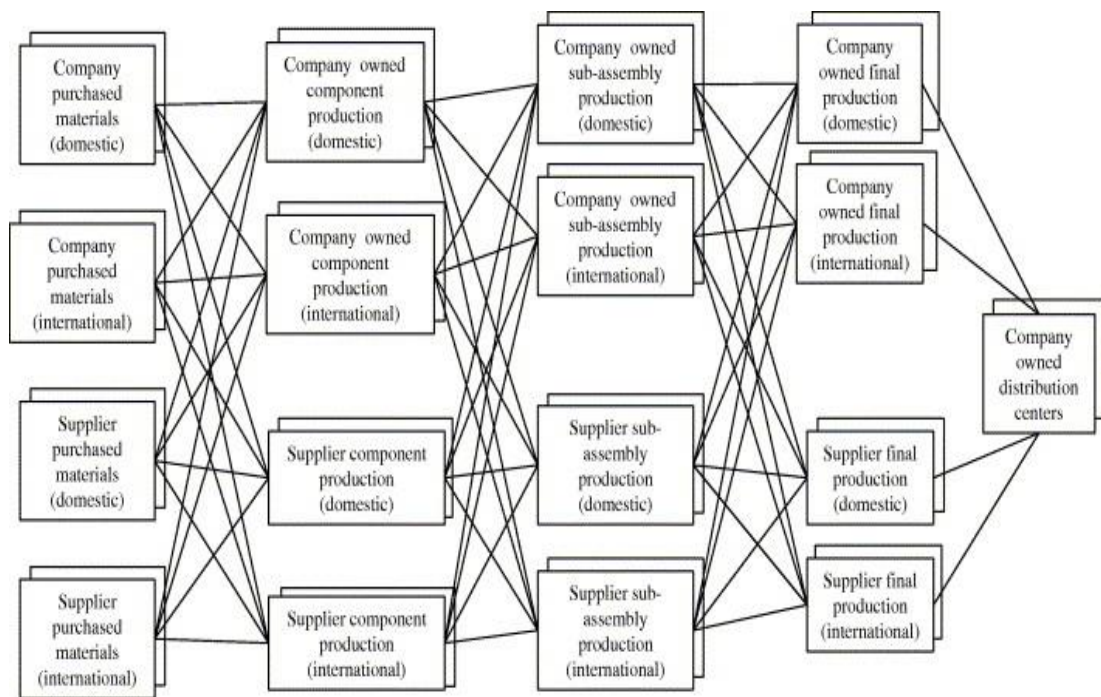


Figure 2.1. The diagram given in the figure depicts a generic network of supply chain [23]

Culture

Important to share idea between organization and gives benefit knowledge but culture of employee critical management initiatives (Disterer 2001) specially culture traditional they don't need to share skills. cannot manage skills of people characteristic with colleagues (Disterer,2001) to success management require provide these issues however facility with system knowledge because feedback of

implementation between engineer it will make grouse of culture [26].

Technology

Ability to transaction technology for distribution ,maintained, organize apply and so on (Disterer,2001) ERP as system to handle organization process (Distere,2001) all people agree about technology effect the knowledge these information can transfer between system in each section and hold the data ,activity and knowledge together technology and ERP similarity solution mange the access to many system [27].

Leadership

Knowledge areas from the top management failure about 32percent miss understanding of communication. Should make team to share knowledge (Distere,2001). Leader ship means have good decision and decided with all of the member before make any final decide and of the top management don't have background of idea then cannot support the all department and make all section in the sink [28].

Measurement

Measurement the activity process of the work between hardware and software (Nonaka,1994) by scan all area information and compare the result of stages if is it evaluate and reach the target .it can be difficult also to manage relation with team , culture , knowledge and quality of implementation of activity in the environment [33].

1.10 First Step Gap Integration and Implementation ERP System Application and Products

First Step gap Integration and Implementation ERP (SAP) ERP have many functional for organization content information, flow material, finance and resources [24] a related link between stakeholder by providing facilities like marketing, human resources, product, purchasing and logistic with high longevity of product [15] [25] [26] SCM supports the integration of the customers from the beginning of the process [27] [28] [33] [34] in order to provide an efficient coordination and to successfully implement ERP. Top management plays an important role in ensuring a good communication with all customer and controlling the progress during the integration process of ERP system.

Some site has a gap because new campus and new staff there which require providing for them the new infrastructure with laptop, desktop and networking these daily the project because it is new sites and require a patches and installing a finance and HR application mover over about the new employee require to train them to use application it is a critical to delay a project in the schedule. Linking between two applications one of them old the other new teams trying a lot but not working with trying to re correct code but not useful. Testing programming specially a script and a big patch like Citric without a road back and back for the plan system engine can destroy all the maintenance control with these slowly testing still in the same point in the scope of project make two times of crashing the system because the programmer who assist the expert one cannot remember of the code because they used and low level of programming agile that make the programmer cannot remember code structure.

In the beginning of year the software project management showed from the consult the curve change in the Microsoft project management tools the consult make meeting with team and project management they show them the stuck phase exactly with testing fail in some complex application, experience people toked and they miss some gaps of point, and they want to continue to complete testing until now, in the first months the straggles with gathering information with daily kick meeting try to establish on finance department only one application and have a lot of tasks to cover in each person, and they track the application on finance department and HR department but the approval green light from the management come so late in end of the year.

Some site has a gap because new campus and new staff there which require providing for them the new infrastructure with laptop, desktop and networking these daily the project because it is new sites and require a patches and installing a finance and HR application mover over about the new employee require to train them to use application it is a critical to delay a project in the schedule.

1.11 Second Step Gap Integration and Implementation ERP System Application and Products

Second Step gap Integration and Implementation ERP (SAP) Chandra and Kumar [30] said the main issue in integration supply chain is the communication, structure

of organization and coordination between level. ERP can be implemented by consider on the positive of role management to implement ERP effected external and internal of the functional of the organization [31] by control the task help to release the new system top management a main role to successful the project [32] by founding the main issue to fail ERP data, process, old system and training employ with a coordination with stake holder. Re engineering process integration joining ERP system with other system should adopt in the organization [33].

Other gaps culture deletes the traditional organization very low present implementation in Chinese because different culture and behavior of the company [34] which is affect the project of ERP. Out of contract specially company ignore to pay the update of the system by Rahim and Malik [26]. Most of the countries not successful to implement ERP because of the culture [35] effect organization in. Asia develop ERP system to Sir Lanka however in US develop business process but in Asia it is difficult because of multiple culture of customer in the organization in Asia countries.

After 2 years the SAP update of the contract is off date, and they are in the third year and cannot support without contract and the user is asking for the inventory system but it is required to start over again and make new contract with the SAP company, hire a project management, check the project plan from the beginning and there is no documentation about the implementation progress as SAP process flow. It was required to document all the detail of the implementation, make communication meeting, and they start from the beginning with similarity issue to find a gap with the old version of Oracle and HR and then they updated it but it took 5 months stuck on the other application. World Council for Sustainable Development (WBCSD) provide a reason of reduction on logistic, reduce of capacity raw material, reduced in activity of raw material and services, removal the waste of poisonous material, spend a lot of iterate items, maximal strength of services and product.

1.12 Challenges Supply Chain Integration By ERP

SCM involve design, planning, execution, control and monitor these modules can account of assure of the logistic.it is difficult in logistic without a system integration to go monitoring and track all the product special require communication and organize process and product which make more complicated process [36] while

strong communication offering data which is required to flow these data between customer and work flow which is give company long life suitability these effect can grow special on the infrastructure environment when needs to exchange data.

According to Pfohl [38] found the 3 risks that effect the exchange of information:

- Union and not similar exchange of information
- Recover of technical aspect by provide new technology environment
- Unsecured data

ERP's system integrated all the process rather than legacy system have much information for company separately but ERP provide comparison of model that asset management to track the cost using tool to analysis and compare it with the plant activity [39]. Range organize data and have common risk through all chain Kellen ve Akbulut, [40] suggest having a common information which can develop product, cost purchases life cycle and minutes the cost however without tool assets in logistic can complex the date of plant items [40] suggest important to use tool to manage product. ERP system make organization structure in activity. Other Critical factors for Enterprise Resource Planning implementation. As an explanation of Critical success factor for Enterprise Resource Planning Mashari, Mudimigh and Zairi [41] mention 12 Community forest enterprises bellow famous items display different name and same name of Community forest enterprises . Strong communication, top management support, data accuracy, Enterprise Resource Planning and limited software, legacy software and performance evaluation. Purpose of Critical success factor for Supply Chain Management and Customer Relationship Management a module for ERP [42]. Chen and Paulraj [17] described about framework SCM component, communication, supplier reduction, long term relation, supplier selection.

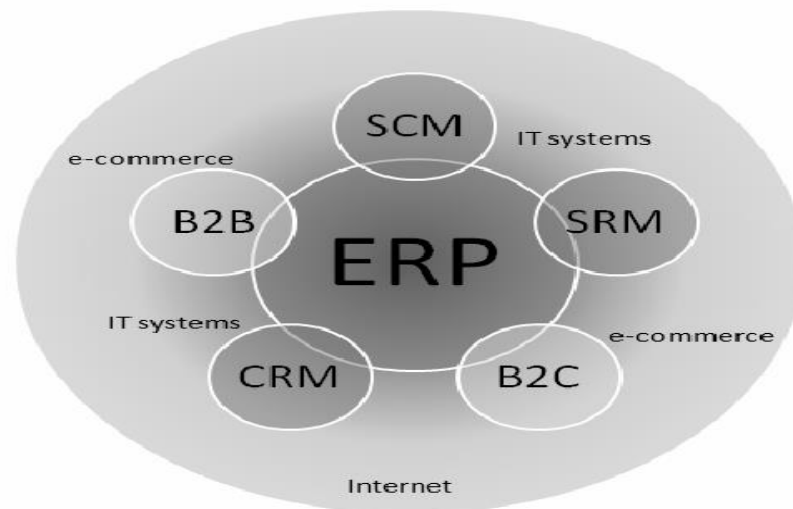


Figure 2.2. ERP models [45]

1.13 SCM Have Variety Type of Model Integration

SCM have variety type of model integration: [52].

- CRM customer relation management, the company should ensure the customer satisfaction in order to gain his loyalty [52]
- Service management, track items ability, date, time, reach a complete produce of CRM knowing the patch different view of customer.
- Demand management depend on:
 1. sophisticated request schedule strategy modifies
 2. look for customer predictable
 3. Order realization, linking between factory
 4. Inventory with market demand.
- Manufacturing flow management, elastic factory of items, quality assurance, statistic of the different items on the stock.
- Supplier relation management (SRM) Having strong supplier management practices will enable organizations to identify cost savings opportunities in the supply chain and scrutinize the quality of supplier output. This directly impacts and contributes to the company's bottom line.

1.14 Ecological in Integration SCM

The figure 2.2 includes 10 items and describe the linking in supply chain to all these items each item has a unique function:

Accurate Pull data: activity that comes from the coming data from different person in the logistic it is determined with archiving tables and save in aid of computer.

Lot sizes reduction: maximums the management of economy freight by truck heavy of product, reduce amount of the yearly size of shipment, manumits the payment example purchase devices.

Single stage control of replenishment: organize and track supply chain by monitor logistic depend on data

Vendor managed inventory: provider in many sites can be managed to keep continued inventory system.

Blank orders: organize with provider agreement to buy product from them approval document for shipment and provider to offer company the stander level of quality product [53].

Standardization: All item should flexible as the agree of the contract between company with efficiency items. Items allow employee to work in suitable stander [42].

Postponement: any type of changes in the product should be as normal without modify types to reduce the issue in the logistic shipment.

Drop package and special packaging: the way to deliver ship from provider to the customer only one path to the user.

Pass through facility: good delivery resources however low activity stuck make them to quickly shipment between different location.

Channel assembly: transmit items, group of packages product like factory member when they deliver packages to company [53].

1.15 Benefits of Integration Supply Chain With ERP

The system will give benefit for the organization and has been seen a complex system [55]. It is adopted to front and back user and internal and external inventory

ERP competence for business processes with handling any changing [56] [57] [58] a lot of company using ERP to develop new system, IT infrastructure, operation and strategy development [59] with providing best model principles [60], can be benefit for organization by integration between different task of organization which make available data to all department [67]

Moreover ERP helps in reducing and avoiding mistakes that can happen in the beginning of the planning [66].

According to some researches ERP has many benefits such as, arranging information quickly and tracking investment, making efficient work task, and reducing mistakes in documents [67].

1.16 ERP Framework Activity

Weston [42] was determined the framework of ERP and the items in the tables when the system joined by ERP. The framework analysis tic by these value of items as beneficial to categories framework in the begin of released [42] established in method category as root ERP, result of layer include many contents that improve function of ERP like Supply Chain Management , Customer Relationship Management, Supplier Relation Management, Product Life Cycle Management Certification Purchasing Manager. The model purpose to determined e-business layer provide ability to coordinate with external activity outside of business in portal web [68] most modern technology system can be combined with ERP system it content a small many part bundle offering to joined with old software [68] however the biggest ERP is SAP and Oracle both these which have arranged of element content matches with [68] activity framework a lot of questions about the ability of these 2 and the latest new ERP system can involve all the module [68]. Due to the problem of many companies' ERP support chain of the framework to make the data systematic specially linking between each chain.

1.17 Setting Objectives

This dimension is about the way managers set their organizational goals. Two principles are defined, alignment which is the widely used traditional way. And the alternative principle is to manage objectives obliquely—to set one's sights on goal A and, in the process of pursuing A, to arrive at a worthwhile goal B [73]. "Alignment

is simply the adjustment of an object in relation to other objects. In the business context, the principle of alignment means that all employees are working toward the same common objective”.

In modern companies, both principles can be used, it depends only on the environment and the firm nature. If the business environment is stable and predictable the principle of alignment is appropriate, but if the business environment is uncertain and dynamic then the obliquity principle is more accurate [74]. Again, it is the manager’s job to define which principle is accurate.

With this integration will improve the process:

- Ability organization to differentiate itself
- Reduce life cycle order
- Operating at lower cost
- Product on time
- Logistic competitive advantages
- Increase information availability
- Better demand
- Reduced over stuck
- Faster inventory
- Calculation for money and tender without using a calculator

Some researchers found that employees have no training in ERP and are unaware of IT system changes, as a result the implementation fails [75].

1.18 The Useful Program in Calculation and Tender

Vendor Managed Inventory (VMI) is a technique developed in the mid-1980, whereby the supplier has the sole responsibility for managing the customer inventory policy, including the replenishment process VMI was adopted by many companies in different business sectors two of the first companies to put the theory into practices were Procter & Gamble and Walmart in the USA, the inventory policy is based variation of stock level in the customer main warehouse or distribution center.

By using “economic order quantity” method calculate the total of orders at time based on demand, then divide by cost of holding one unit of inventory for a year and take square root of total, that equals the order size that will minimize holding cost while providing enough inventory to meet demand. [77] ABC classification when more product using the average of overall demand won’t give good data, it is better break down your stock using ABC analysis 10 to 20 percent of company top sellers by breaking down inventory and identify the units with the highest demand, you can prioritize which ones to reorder first [78] . Calculation for money and tender without using a calculator, can calculate the huge number of items for purchasing without

calculate manual just only enter the number of cells and will be calculated automatically also for big huge company in the tender can be easily automatically get the result of each product in each column [78].

1.19 Coordinating Activities

In this dimension two poles were defined, bureaucracy and emergency, the managers are delivering the activity of coordinating by choosing or unconsciously adopting bureaucracy principles or emergency principles, this dimension reflects choices about how activities are coordinated in the company. Bureaucracy is “a mean of coordinating economic activity that relies on formal rules and procedures to ensure conformity of behavior and to generate consistent outputs [74]. The bureaucratic organizations approach is credited to the German theorist Max Weber who introduced most of its concepts. Weber argued that organizations should rely on formal structures and positions instead of particulars because rational authority is necessary for changing and being adaptable. But if the company’s main objective is innovation then emergence as an alternative principle for coordination is more worthy and valuable than bureaucracy [73].

As an alternative management principle emergence is all about a spontaneous order where the guiding structure are defined and employees coordinate activities by themselves but in accordance with the guiding structures [74]. In fact, the emergence principle even if it is placed on the opposite side of bureaucracy it does not mean unformal structure or a chaos in the coordination activities but it is more about a structured self-organizing. In the coordination spectrum it is not necessary to choose one pole and principle and there is no right solution, managers should make choices that depends on their companies’ situation and circumstances.

CHAPTER 4

METHODOLOGY/CASE STUDIES

1.20 The Research Aim and Significance

This study attempts to discover the nature of relationships between the management models and the types of organizational innovativeness, treating them as the main constructs.

The underlying assumption of this stream of research is that organizational innovativeness is facilitated and influenced by practices and principles of the management model in terms of specific principles related to coordination, decision making, setting objectives and motivation principles. More specifically it is discussed here that certain principles in each management model impact the emergence of certain innovativeness types .

In order to survive under such dynamic and turbulent market circumstances, organizations have to obtain a sustainable innovative organizational environment. Organizational innovativeness is a key component for the firm performance. Because of the fierce competition that organizations face in all industries, organizations are obliged to adopt new management principles that promote innovation within the organization.

Traditional management models are no anymore effective in the new business environment and order. Therefore, shifting to new management principle, and making smart and right choices while combining them to create the appropriate management model is the hardest challenge facing the managers.

From this point of view, conducting a research about the contemporary management principles and models can be evaluated as the major important theoretical aspects of the study.

1.21 The Research Scope and Method

In this study, quantitative survey is conducted in order to measure the relationship between management models and organizational innovativeness. Data collection is based on primary data; questionnaires first were translated to Arabic.

1.22 Sampling Design

The population of the study is firms of organization was founded in and is hosting 1971 nearly 234 firm. The study was focused on the firms of Organization. In order to measure the variables accurately, the main sample consists especially of a managerial level represented by general managers or founders of the firms. A Total of 150 sets of questionnaires were distributed and 90 questionnaires were collected. However, among these 90 questionnaires 10 cases were not complete and only 80 respondents were set as the sample size in this study.

1.23 Data Collection Method

First a self-administered survey method in the form of drop-off surveys technique and the email deployment method was used. However, the response rate was very low; only 2 firm responded the questionnaire. Therefore, it was decided to use the household drop-off survey method, and the questionnaires were handed to all the firms and after a time picked up. The survey was conducted in the workplace where respondents could return the questionnaire after fill in it. The voluntary nature of the participation was explained verbally as well as being indicated in the survey questionnaire. Respondents were invited to complete an anonymous survey questionnaire that took approximately 20 minutes of their time to complete.

1.24 The Research Assumption and Limitations

It is assumed that the answers given by respondents are sincere and honest. It is also assumed that the respondent is representing all the organization. At the same time, it is assumed that the instrument used in this study is appropriate and fulfill all the conditions required to collect data for this study.

The data analysis was performed after satisfying the multivariate analyses' necessary assumptions below;

- (i) whether the data show multiple normality distribution, and in this study no outliers have been determined in the data set and the variables are normally distributed.
- (ii) Whether there is a linear relationship between the independent variables and dependents variables. In this study, distributions were scattered close to the elliptic shape and linear relations were found between the data.
- (iii) whether there is a multicollinearity between the variables. In this study no high level correlations were found between the variables.

1.25 Findings and Analysis

Information about the participants like the year of establishment of the organization, the activity area, the target market, the type of the firm, the number of employees, the position in the organization, the education level, and abroad experience are detailed below.

According to the responses given by participants (Fig. 3.1), most of organization were founded after 2004, it can be said that most of participating firms were founded within the last 10 years.

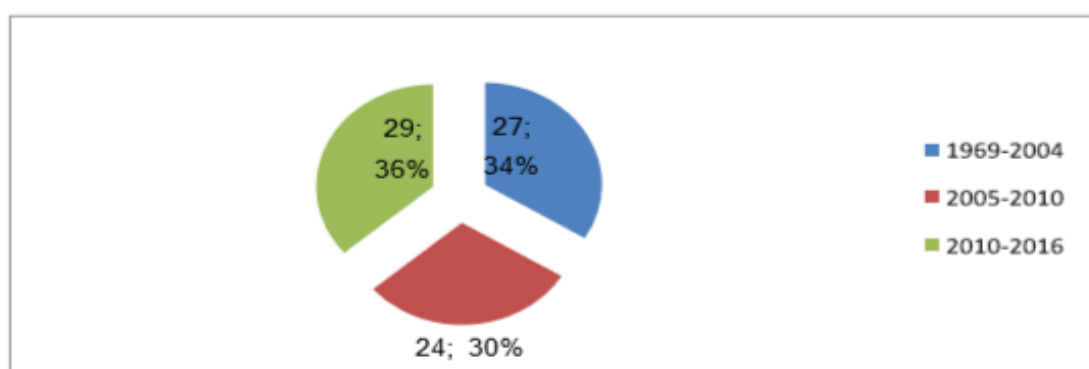


Figure 3.1. Analysis of company

The results of activity area as shown in figure 3.2. indicates that 58 of total participating companies operate in software with 72,5%. Thus, the large majority of the companies are engaged in software sector, 6 of total companies operate in telecommunication technologies with 7.5%, 6 of total companies operate in pharmaceutical sector with 7.5%, 4 of total companies operate in hardware with 5%,

4 of total companies operate in hardware with 5%, 4 of total companies operate in digital mobile media with 5%, and 2 of total companies operate in audio and video processing technologies with 2.5%.

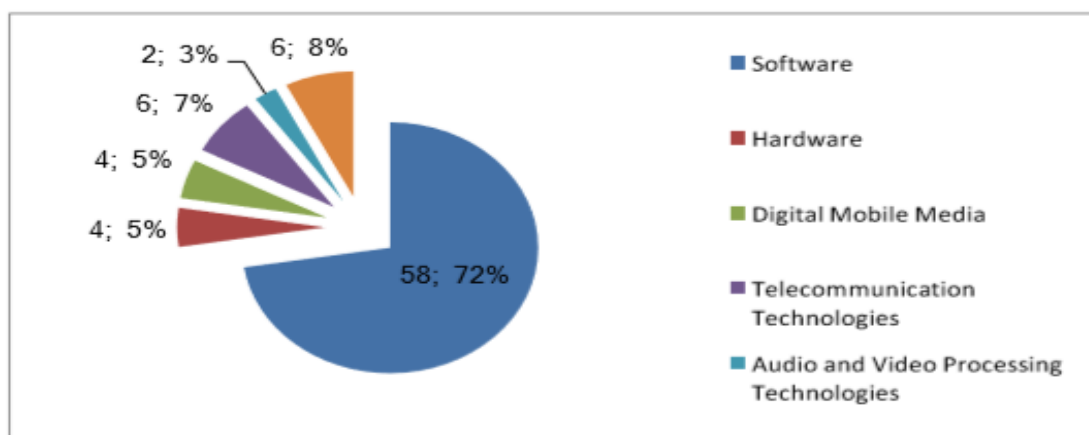


Figure 3.2. Technologies used in companies

According to results regarding the type of the firm (Fig. 3.3), 72 of the 80 companies are independent with a domestic capital with 90% while only 6 companies are independent with an international capital, and only 2 companies are subsidiary of an international company.

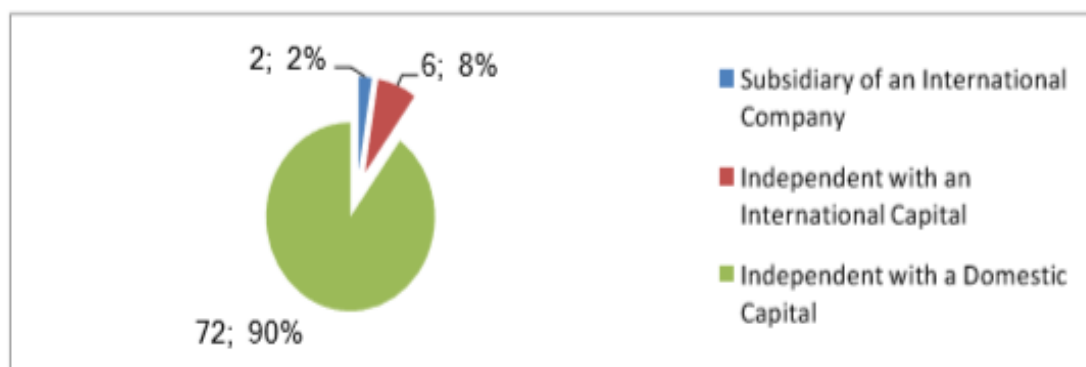


Figure 3.3. Dependency of the companies

Positions of the respondents as shown in figure 3.4. are company owner with 15%, managers with 32,5%, and specialists/engineer with 35%, while only 17.5% of respondents were administrative/ support staffs.

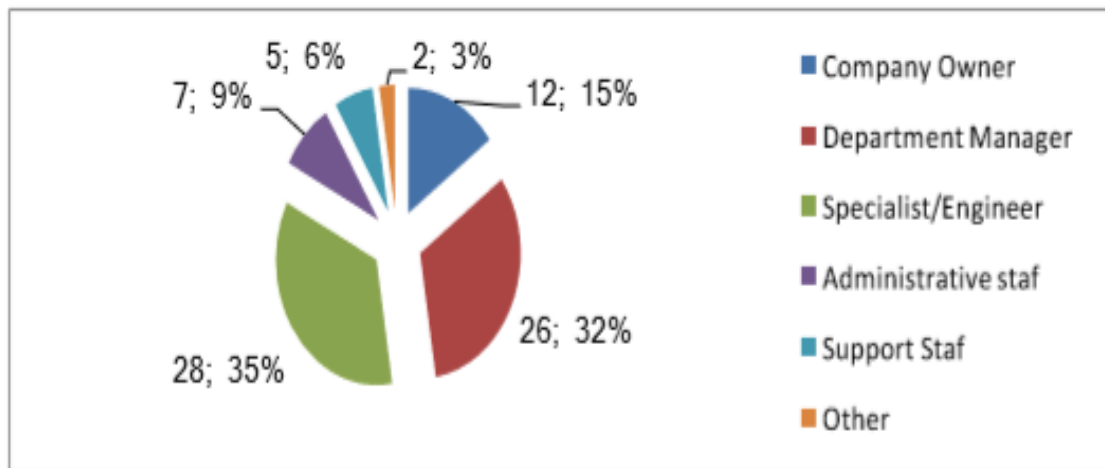


Figure 3.4. Statics amount of employee

As figure 3.5. indicates a total of 50 of respondents were male with 63% on the other side 30 respondents were female with 37%.

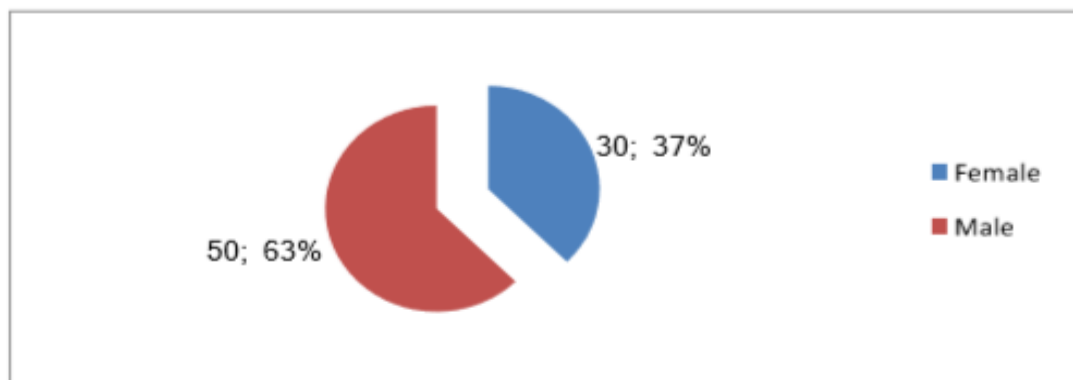


Figure 3.5. Female and male worker in company

According to the results of the respondents' educational background (Fig. 3.6); a large part of respondents had graduated from university with 56%, 15% had a master degree level, 5% have a PhD degree and only 2% had a high school level.

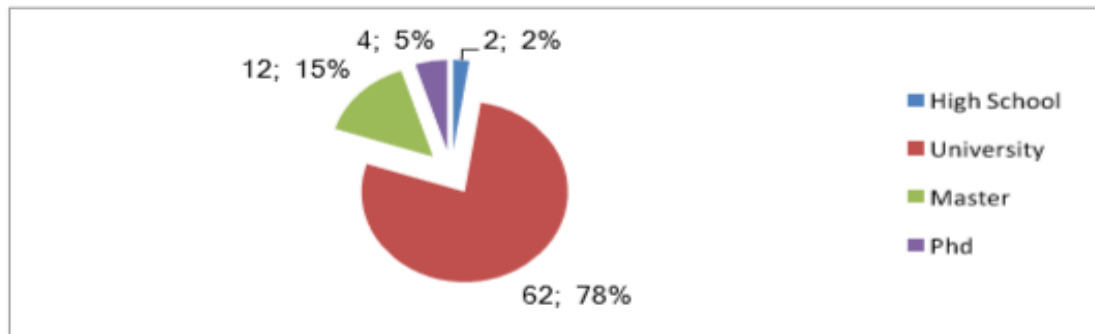


Figure 3.6. Educated range staff in company

The results of the employee's number as shown in the figure 3.7. indicates that 30 of total participating companies have less than 10 employees with 38%; 31 of total participating companies have between 10 and 20 employees with 31% and 25 of total participating companies have more than 21 employees with 31%.

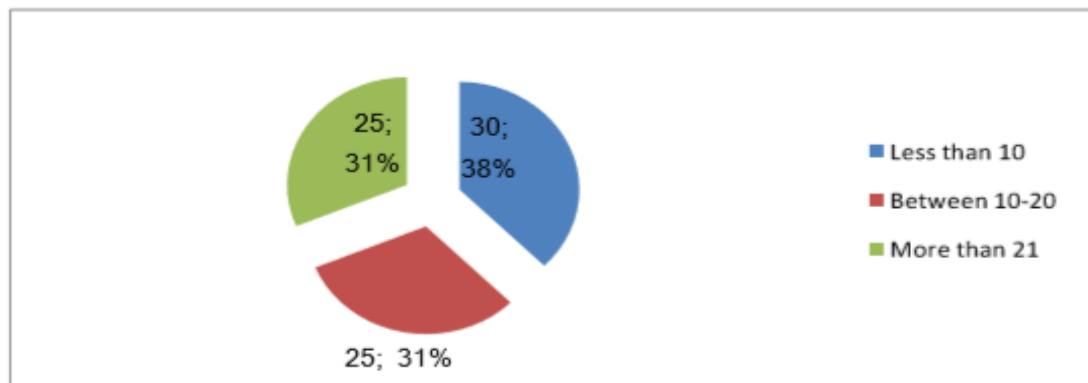


Figure 3.7. Longevity of work

As shown in figure 3.8.; 36% of respondents work for the company for more than 4 years, 24% work for less than 2 years, and 27% work between 1 and 4 years.

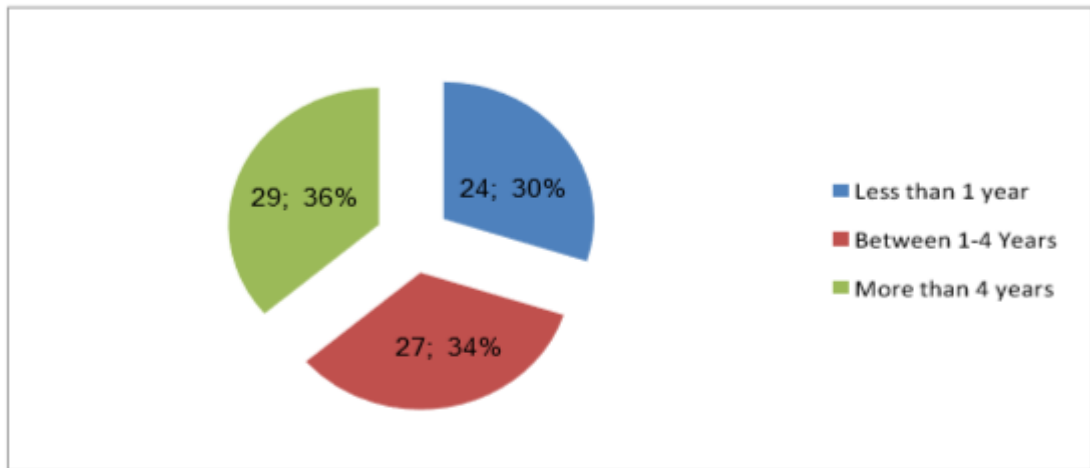


Figure 3.8. Operation of company abroad

According to the results listed in figure 3.9. 47 companies with 58,75%, mentioned that they don't have any operations abroad and 33 companies with 41, 25%, are operating abroad. As shown in Figure (14); 28 companies are operating in Europe too, 24 companies have operations in the Middle East, 12 companies are operating in North America, 12 companies are operating in Middle Asia, 9 companies are operating in Far East, 4 companies are operating in West America and 6 companies are operating in other regions.

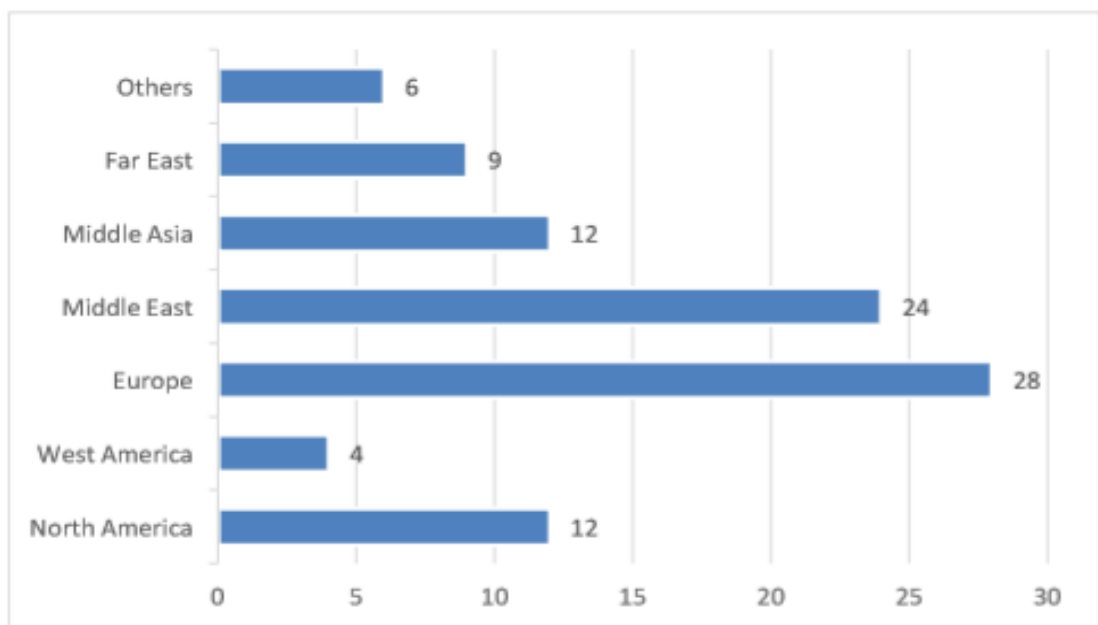


Figure 3.9. Comparative between other company

As shown in figure 3.10. below 45 respondents with 56%, have no experience abroad. While 26% of respondents were abroad for education, 15% were working

abroad and only 3% were living abroad.

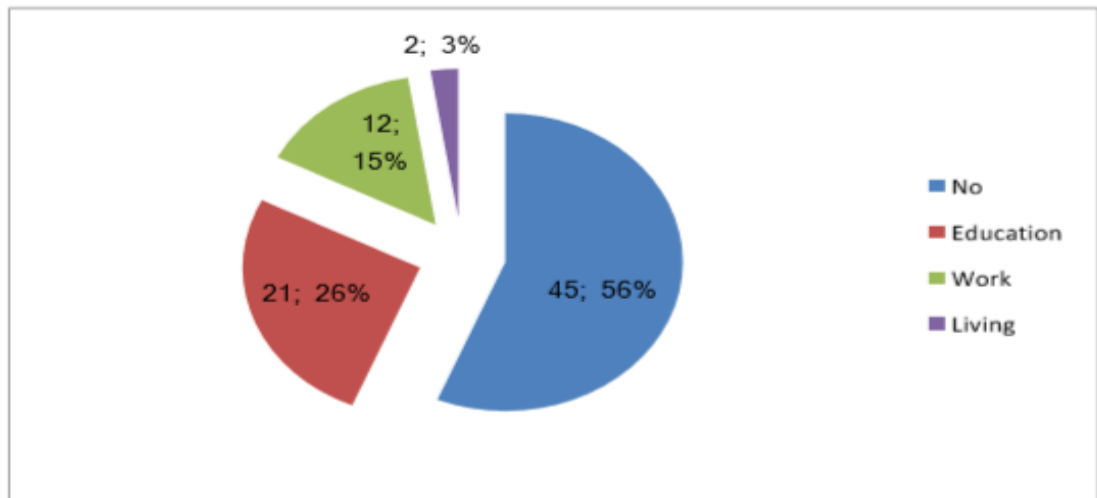


Figure 3.10. Result of all statics

3.8 Sample Management Models

After diagnosing the management models of each company participating in the research according to the framework proposed by Julian Birkinshaw, the results (Fig. 3.11) show that a large majority of the participating companies' management model 64 of total can be labelled as discovery model, 12 of total have a quest management model with 15%, 2 of total have a science management model with 2%, and 2 of total companies have the planning management model with 3%.

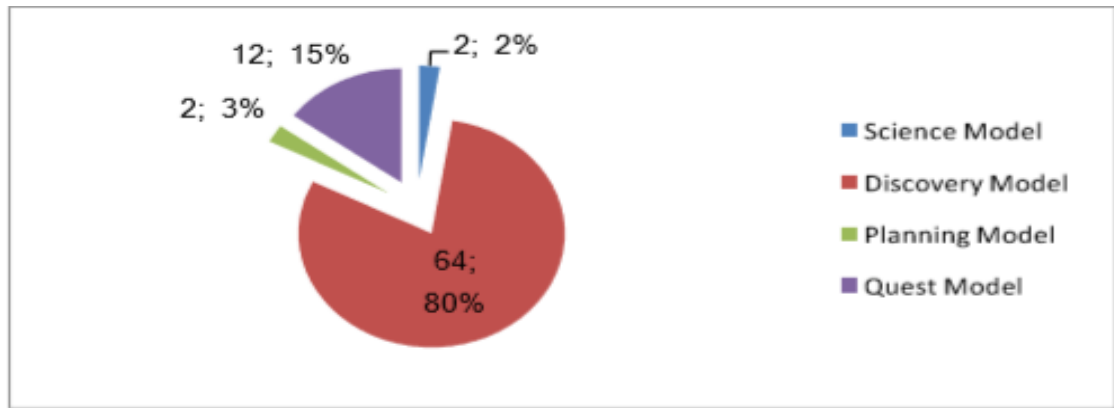


Figure 3.11. Types of model survey

Relevance of Management model ERP from Internet survey:

To encourage customer with provider as rule guide by using documentation for each stage:

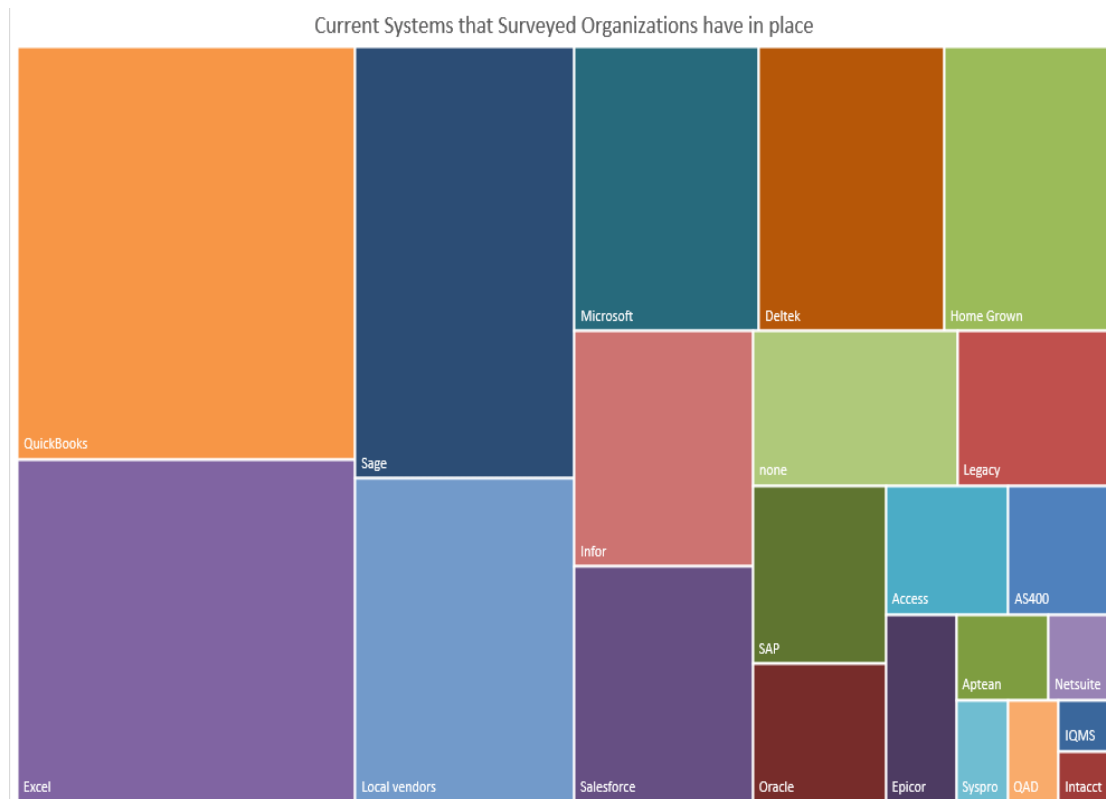
- All phase frequently has a benefit advantaged depend on the last decision of each stages require to implement ERP.
- Determine the requirement need for the company by list all the items in a list. (Software requirement)
- Providing the requirement on time otherwise will be risk delay by misunderstanding knowledges.

This report will provide anatomy of observable stages with under control of the results to each step however each company have different target and purpose of requirement these some process which help their task. This process gives advantages value to all companies for software requirement decision and for select any types of new software [84].

All Industries

As a speed and agility of the sprint daily of the work engineer provide their work with optimize plan of implementation because they need to manage the software example of using payment software solution to transfer these system complex the benefit solution The most popular solution currently used by companies surveyed was QuickBooks (provided by Intuit), followed by Excel, multiple Sage products, and local vendors. 10 percent of many company they don't use software on their department and depend on sheet paper and access own database but in the begin record by using pen and paper most of company have around 50 worker not more.

The chart below provides a visual analysis of the mix of software that is currently utilized by our business sample:



Company grows and software no exist more which not adoptable because of functional as important aspect to choose product if the function of software be low it will affect process and all company and require to update and need new software these aspects give customer able to choose the product [82].

Buyer Behavior

It is very difficult and changeable cannot be evaluate because can be individual for purpose only the teams can be making the decision cannot be follow the path of the work because they take the decision not logical. To be successful in the product if they follow the basic rules by:

- Determine the priority and consider the strategy of the work when make as final decision.
- Cooperate many types of vender and company and coordinate with them [82]

As a growing business, it will grow in many areas in each department with complex application. the best solution is to implement ERP system in the company because it can handle all the complex of application in your work like inventory, manufacture.

Difficult area like purchasing to choose vendor who not have the functionality of the product that you want. so, the important think makes good long relationship with the vender .it will not end just of payment but strong relation will support you continually to provide you requirement of product in the feature [82].

Finance and accounting



Accounting



Forecasting



Budgeting



Manufacturing



MRP



MES



Financial reporting



Multi currency



Job cost



Discrete

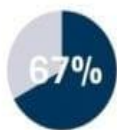


Shop floor



BOM

Inventory and distribution



Inventory



Warehouse



Procurement / purchasing



Projects



Distribution



SCM



Shipping



Quality

Other functionality



Payroll



Fixed Assets



Material management

CRM and sales



CRM



Sales orders



Integration

Technology



Reporting



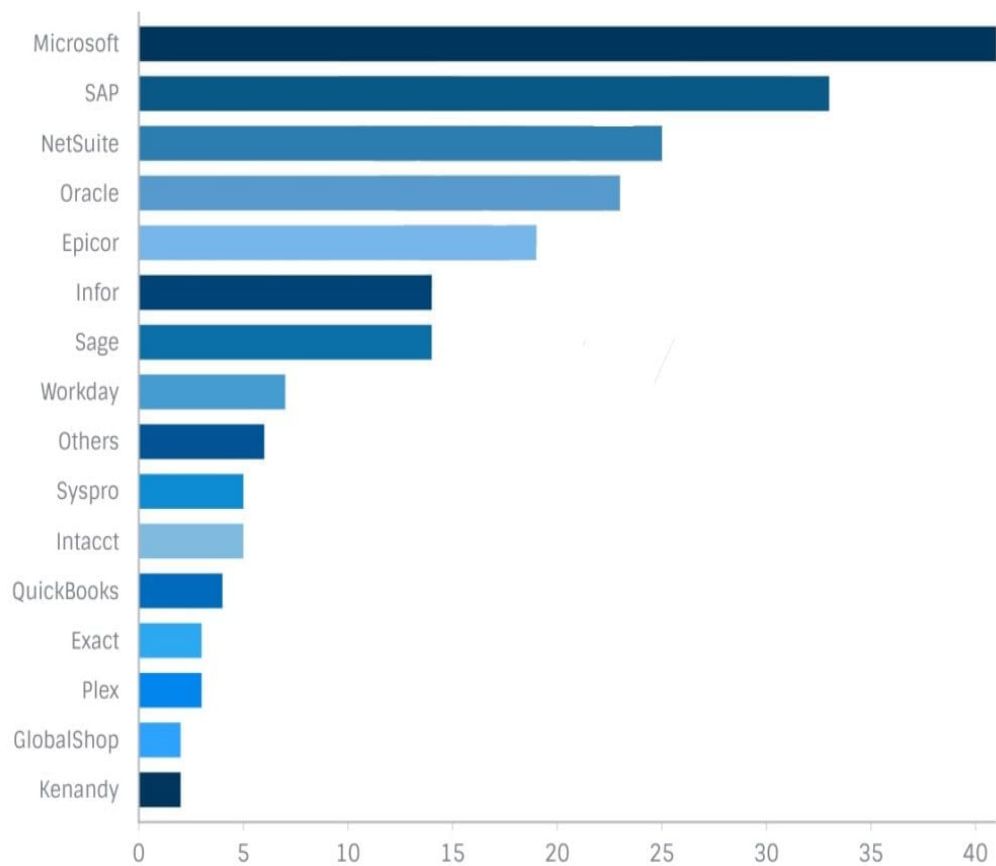
Scalability



Barcodes



Mobile



Decision Selection Process:

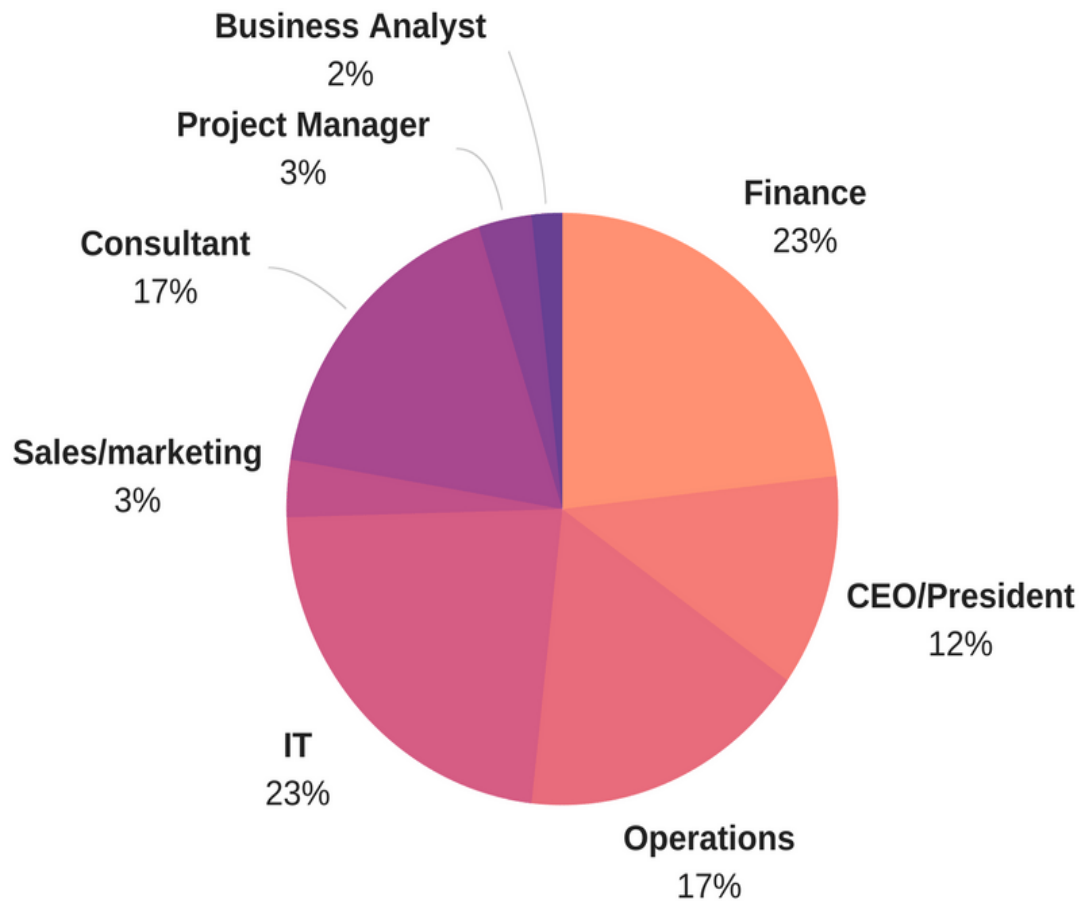
This pie chart shows the result of the people who have the responsibility to choose the product and distrusted [82];

- The employee of payment and accounting about 23 percent
- Employee in information section department about 32 percent

The important other employee:

- The consult which assist the company about 17 percent also the manager 17 percent
- The manager implementation 12 percent.

The most signification for project management and the analysis team only around 5 percent



Majority of the company which looking for ERP or need to produce ERP system and distribution system a about 74 percent. The result shows the test using the system before deployed it is already charge from the account department of the of the information technology of these company [82].

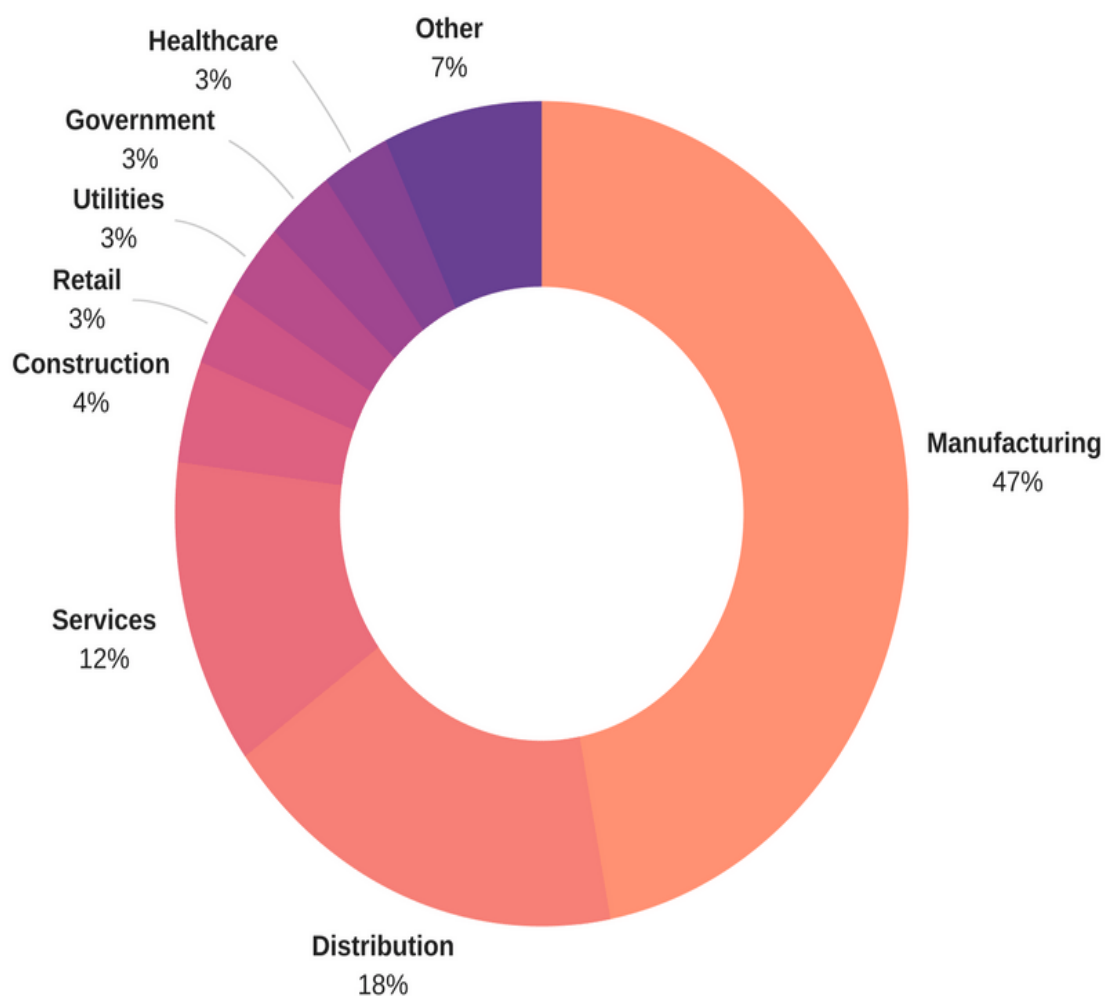
Conclusion: Working with the consult can bring big advantages to choose company and determine the level of experiences. It could be risk if depend of the expertise because give a big weight of input member of the team. The dynamic working internal environment working team for all task.

3.9The Software Deployment Process

The result of the analysis shows that 95 percent of the company was opened to deploy in the cloud but more than 50 percent of company was planned in their strategies to resources in different area ,and 65 percent like to produce and destitute the product. It is normally in different area in the industrial make investment for devices and the employee of the information technology cannot be ready to

The interesting of these result shows that the organization knows about the cloud so they should know about all the vender strategies on the cloud but most of company like to access to commercial vender which they know it like SAP, Microsoft, Oracle. Cloud only solutions like Acumatica, Financial Force, Intacct, Kenandy, Plex, and Workday were considered by only 20% of the companies [82].

All types of manufacturing were present, from discrete, to process manufacturing, and engineer to order. Some distributors mentioned that they also include in their operations activities such as assembly, which is a light form of manufacturing [82].



3.10 Company A

As the finer in IT Solution Qatar Implement ERP plan stages it is including 7 steps:

Steps 1: Decision from manager to allocate resources, goal and cost of the project.

Step 2: Involve the stakeholders gathering requirement

Steps 3: The Manager select the team to do the project

Step 4: Hire consultants team and take suggestions from the consultants to do the steps of implementation of ERP.

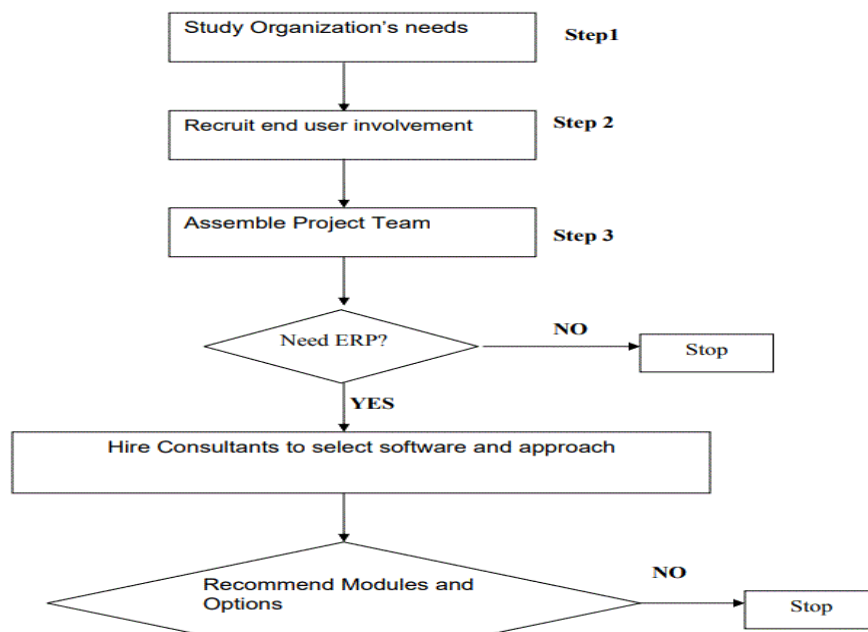
Step 5: Training staff and user for new system

Step 6,7 & 8: Risk regarding the software installation

Step 7: link and migrated currently data? with ERP system

And the plan steps in ERP take place as listed in the figure 3.12 below one by one.

this phase too.



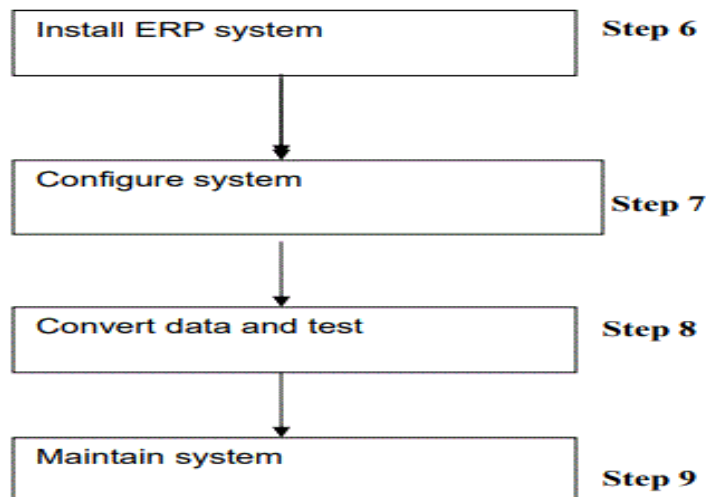


Figure 3.12. Plan steps in ERP in IT Solution Qatar

3.11 Successful Implementation

First, users of the system and their requirements/needs from the system in Question

- **User could be broadly categorized as 3 main groups:**

(1) Normal users: those responsible for daily actual usage of the system including Data entry

(2) Management type users: those responsible about revising the work done by the above-mentioned normal users, their responsibilities are mainly supervision and their needs are focusing around seeing the big picture & generating reports about the overall situation within their organization scope/are of responsibility

(3) Support Staff: those who are not related to the business of the solution, rather on the technical part of it. i.e. the operation of the Solution their tasks are normally: the smooth operation of the solution, minimizing down time, ensuring performance levels according to user expectation. As mentioned, these are broadly the 3 types of users, there could be more sub types depends on the company/entity and how it is organized

Secondly, the important part about the implementation of any solution is related to authorization (i.e. who can do/see what within the Solution). This is very important , for e.g. as no one want normal users to see the Info as the managers , or the mangers could do data entry , or users from one department to see the data/info of another department. Most ready-made solutions will have an authorization module or

will integrate with a standard library for that. (No capital letters in general in sentences except Names, Place etc.)

Third, and talking about ERP type of Solutions: there are the Following topics to be considered

The organization Structure with all of its Details whether simple or complex

The Subject of the Inventory/Purchasing functionality i.e. Products/Assets: Physical items, Digital items or Services

The Money \$\$: Expenses/Cost & Revenues /income & how it is to be integrated for all other functionalities. E.g. Invoices & payments.

For the cost it will be include:

- Software & Hardware
- Consult payment depend by contract between company for one or two years
- Training
- Data implementing, testing, analysis, and migration, maintenance

Other optional functionality could also be present like:

- Bank accounts
- Requisition/Work Orders and their customized workflows

Once you have the above understanding, then the Actual Implementation work needs to be Followed in the Following Sequence:

- Gathering all the needed configuration/Setup Parameters
- Defining the Organization structure within the System and setting the Authorization Accordingly
- Defining the groups of users and which Functionality they will be using, and prepare training Plan for each user group
- Doing the training appropriate to the work of each group
- Starting the Actual work gradually, first in parallel to the existing system, then as there is more confidence, we start spreading out again gradually

Once the system is up and running, we need to think about the post Implementation support in all its levels, typical levels are:

- **1st level:** for new users of a functionality to ask questions about how to do things

- **2nd Level:** is there are bugs or issues or new business Scenarios
- **3rd level:** is there is a new requirement /enhancement that will need to be reverted back to the development team

Please note that ERP solutions are considered Enterprise systems, which means that they do change as the circumstances change and as the business, they support change. These are not static system and once implemented, rather users of an enterprise system like an ERP will always have new ideas and new requirements and enhancements for all kinds of reasons that you need to satisfy during the Solution Lifetime

Note: One Final consideration, needs to be considered is “Data Migration” from old system to the solution ... these are normally run as Different Projects and not Part of the Implementation projects as they can be very complicated.

3.12 Data Migration

Data migration is a unique activity, very specific to each situation, some of the question that needs to be answered:

- Which Data to migrate?
- Which type of Data will be migrated: all, only balances, transaction ... etc
- Time frame for the Data to be migrated: e.g. last 3 years, 5 years ... etc.
- What mapping needs to be ready for configuration information?
- How long this Data has been in the old system?
- Is the Data consistent within the Old system itself? or we need to cater for different scripts for different intervals
- sequence of Data migration?
- Who will be responsible about the preparation of DM scripts & who will be responsible about ensuring that Data has been migrated successfully?
- Does the Data migrate needs correction as well?
- Will DM happen in one short or it will happen bit by bit as needed?

DM activities is not straight forward, they are very Labor intensive and they are never 100% accurate, a margin of error will always be accepted depending on situations.

Most of the Issues: will be related to (1) requirement gathering or lack of. if this is done correctly then things will go smoothly other than this, the issue of (2) resistance to change, as some users will not be willing to convert, this is where the TOP management role has to come to provide incentive or force it on them.

Note: No integration, this is a Replacement, unless you are talking about other non-ERP systems ... e.g. an Archiving system, then integration will happen as per the standard of the ERP provider

New releases: within Enterprise system as very minimum & iterative, it is not expected to do much harm... though most people avoid it if there is not really a good reason for it

Quality assurance is done as normal, the new version is installed on a test server, tested then deployed to production.

Stages from Planning Process to Implementing ERP (SAP) System with Inventory System

As a life cycle for software SDLC to implement to monitor the project especially SAP have many phases:

- Sales system: depend on the company
- Project preparation: as requirement gathering information decided about the cost, items and takes information from the stakeholder then the company agree which team to be in the project
- Business blueprint: compare the different between two systems and agree which resources to be in the schedule, technical items. Developer also do their task as configuration list, test people do a list of stages

Task for each team:

Each of them knows there takes probably the project owner in the organization. It will be the top management and he responsible to choose the project managers for project one person they choose and the add his name in the list. The functional team the help the software team in analysis and design the software. The editor who reports the project task daily from the begin to the end of the project. Implementation team responsible on implement the software and database. Consider about the internal data in the company. ITSM team responsibilities about backup for these data

and network team for bandwidth to providing security a supported team only to maintain hardware. They are sending a hardware guy to visit site and check the progress. If any teams ask him to do a task. Each of teams have their own servers. They are responsible in specific server for their section. Each of these team as a separated section and they coordination in a meeting by mail or phone or when the top management ask for an urgent meeting.

- realization: these steps for development teams and configuration teams, takes all data from one server to another and test data when do these steps by unit and integration test team and every day doing the test stages.
- go live: user configuration transfer to another type of service, stop the old system and have new one and user training requires in these phases
- post production support: support user for they face issue

Management Information Systems (General) implement

The MIS module ensures that you know your operations completely and that too at the click of a button. It contains reports as mentioned above in respect of purchase, sales, inventory, production and all other Departments and processes. Although these reports have been designed with our long experience in the industry, they can be further customized to suit the requirements of the management.

Billing & Support

Support Tickets

Mail Box

Billing Transactions.

Oryx Orders Transactions

Users Status

Oryx License Register Status

Data Services

Shutdown

Data Base.

System Configuration

Company Configuration Data
Data Manager
Employee Configuration
Fixed Assets Control Parameters
DM – Biktronic
System Procedures
Unlock Stock Voucher
Open Account Voucher
Open Other Voucher
Closing Year Procedure

Manufacturing

Manufacturing Resource Planning OR MRP II by itself is the original modality of what we know now as ERP, and covered materials planning. Manufacturing module in provides a collaborative environment for performing manufacturing tasks. It contains the necessary business rules to manage the entire supply chain process whether within a facility, between facilities, or across the entire supply chain. It constitutes of number of functionalities, mainly, Bill of Material, Engineering Change Note, Shop Floor Control, Sales and Distribution Plan, Master Production Schedule, and many more. As per the production plan one can view transactions related to shop floor. You can integrate Production with marketing to get View pending orders, orders in process. Plan your production effectively to cut costs by reducing overheads.

Quality Management

Total Quality Management (TQM) is tightly integrated with Quality Control Management and Quality Assurance. The TQM configuration and acceptable tolerance is a configurable feature, enabling the Quality Department to scale the ERP even with any new product development. ERP Quality Control Module not only

monitors quality by control plans in purchasing and manufacturing but also provides real-time process capability index for quick review.

Logistic and Maintenance

When you start physical workshop location you can enter new Store Parameters in Oryx with the right links to ledger, just save the group into the item Card and system will do the balance of account works

Plant maintenance module in ERP provides with technical and business reports for different work area within the plant, location, Organizational unit, Machines and downtime analysis for each different categories or machines. Preventive Maintenance Schedule and record can be captured. Tracking of Components, Spare part replacements, maintenance warranty claim tracking are easily available to view at one single screen

Selected Software Solutions

ERP custom software solutions are built in a modular fashion that allows us to integrate them directly in to ERP System. By doing so, your business is able to benefit from the flexibility of custom software, and the cost-effectiveness of a prebuilt solution. ERP solutions are able to mold and adapt to business as it grows and can be modified or enhanced to better fit your business model as needed.

Scope of Work

Analyze and Select the best modules for your business.

Customize new modules into ERP System (Commercial Proposal)

Setup and implementation.

Testing and Training

Setup users Accounts

Activate and implementation

Write the implementation detailed project plan.

Regularly updates and publish the implementation detailed project plan.

Deliver and implement the first modules.

Activation of the System Admin. Management Services

Installation and configuration of the users and company-data.

Online and Local Testing:

Install and Test and Validation

Create a sample toolbar for testing sampler

Create testing samplers user

Run the test on the application

Training:

Management Services Training

Definition and implementation of the end-user training on a “training trainers” basis
– for: System Administrator, Accountant, or another module if included.

Project Calendar

The following trail project calendar excludes Content Creation and any Training Plan if existing. A final project plan will be delivered upon project analysis completion...
(For Additional Modules only)

Setup and implementation

Testing

Training

Data entering

Table 3.1. Project Calendar of IT Solution Qatar

Week	1	2	3	4	5	6	7	8
Deliver the required information	Blue							
Analysis and detailed	Red	Red						
Applying detailed approval by (Customer)			Blue					
Setup and implementation				Red	Red			
Testing						Green		
Training						Green	Green	
Data entering							Dark Blue	
EVALUATION						Green		Red

As shown above in table 3.1 the milestone checking to implement SAP system in the organization, we used these steps, however we used our own ERP system and it was only successful on the HR and finance and the rest of the modules were not used. Only these two modules are used because it is easy to develop and implement, and the rest of that not require for organization and top accepted from the top manager until now and about other application try to develop but only, we implement ERP for two applications.

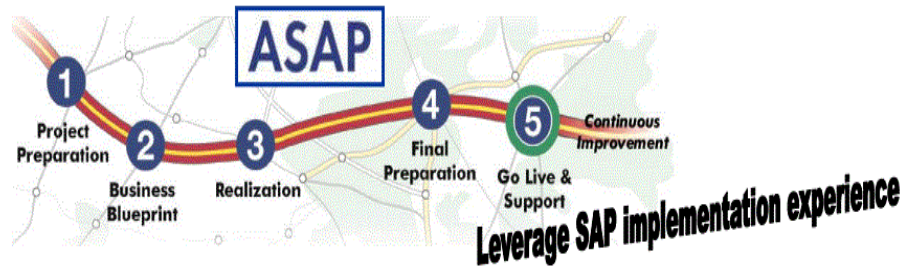
However, for a better SAP implementation experience an Accelerated SAP methodology could be used. The figure 3.13. Illustrated the phases of As Soon As Possible for a successful implementation.

The different color in the tables shows show the task completed in 8 months :

Blue color : one week

Red color :two weeks , duple work and important task , feedback

Green :Last stages of the project considering traing and testing



Description

AcceleratedSAP methodology is proven, repeatable and successful approach to implement SAP solutions across industries and customer environments.

AcceleratedSAP provides content, tools and expertise from thousands of successful implementations.

Figure 3.13. The Methodology of SAP Phases [77]

3.13 Data Base

The in the company using Oracle database doing two steps:

- Integration with functional of the Oracle
- Integration for the application

SAP already in Oracle database however most important for any organization to update and release these new features that require to upgrade data base otherwise it will be missing this new feature this is done by data base teams and using SQL server to check the traffic transection when they move the data.

These team do many tasks:

- Recovery data
- Snap hoot of their work
- Active data
- Backup the data (share with ITSM storage team) specially to make a backup

SAP tools for implementation:

There is a tool special used in the company for implementation road map tools to

improvement, and implement SAP by following the phase as listed in the figure 3.14 and figure 3.15 roadmaps. There are many standers and it is available in the manager tools for SAP system but you should do these steps to have knowledge and solution any issue regards SAP systems

Benefits of Roadmap SAP:

- Reduces any types of risk with a time
- Provide view about the project and other old project that done before
- Organize and take information to know about implement SAP

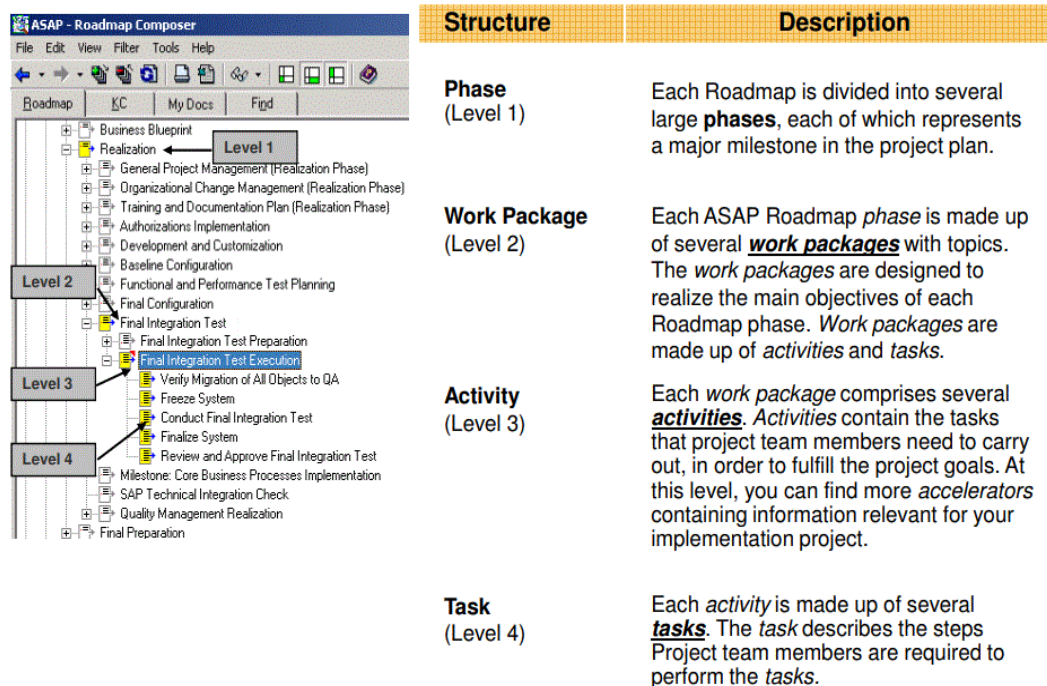


Figure 3.14. First steps of Implementation Roadmap [78]

Source: Implementation Roadmap – Deliverable based (DBR)

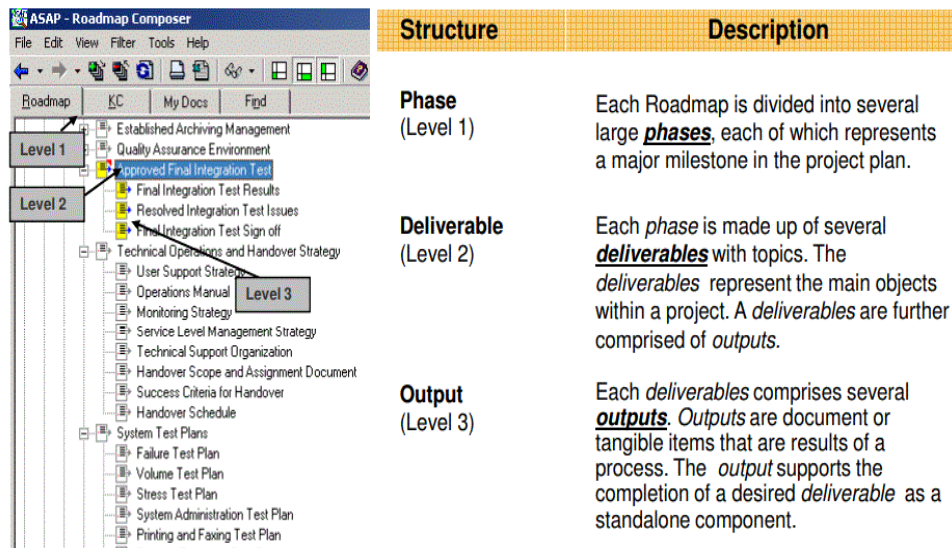


Figure 3.15. Second steps for implementation [79]

SAP integration with each department because each department in different sites and after development:

As mentioned before, SAP or any other ERP system is an ENTERPRISE Solution, all departments will be included, even if they work from different sites/location, of course if a Department has different requirement than others. That are a different functionality. BUT if it is the same functionality the Solution is Standardized all department need to comply and work within the standard way

3.14 Monitoring Operation

Monitoring of Solution operation is for the technical people

Monitoring of the functionality is the responsibility of Managers and their managers through Reports generated from the system according to their own requirements

Development release but also satisfied stakeholder and also:

If functionality deployed meet requirements. all should be satisfied. If not, you need to review where the problem is & fix it.

3.15 Company B

In the current system, the firm's general accounting are composed of cost accounting and financial activities such as cash, checks, promissory notes and foreign exchange transactions; stock control, warehouse status, stock management and procurement activities like demand and offer transactions. Primary focus is on helping clients lower operating costs and increase revenues through the strategic application of tailor-made web applications. The return on the investment will be realized within months, not years, ERP design solutions based on features that provide real value.

The System requirement specification and implementation may be needed of a solution covering the following tightly integrated modules:

- Financials
- Fixed Assets
- Inventory
- Purchase
- Sales & Distribution
- Human Resources Management System
- Payroll Management

- **Chart of Accounts**

Complete list of accounts required for any business. This list can be added to, or deleted from, depending on your requirements. In addition, you can start from scratch with your own set of accounts, or simply merge together a combination of both.

- **Department**

Also called Cost Centers. Allows for breaking down of each individual transaction into different cost centers. Great for doing Profit and Loss reports by departments etc. to track individual sections within your company to see how they are performing.

- **Foreign Currency**

Allows reporting by foreign currency. Fixed foreign currency values per supplier can be set, as well as auto loading of a currency adjustment values when payment is made. Products can also be pre-assigned with a supplier who has a fixed dollar amounts in the supplier's currency, which auto loads and adjusts the current currency amount by the foreign amount.

- **Tree or List Views**

View all your accounts in tree structure or list view. Switching between is a simple click of the mouse with full drill down capabilities in either view.

- **Instant Reporting Features**

You don't have to wait for end of month rollovers or batch updating anymore, your reports are instant and up to date to the mille-second. As an added bonus any piece of data that is displayed on any report can be simply drilled into, this fantastic feature will give you extensive detail of what makes up the value displayed, right back to being able to open the original transaction on the report.

- **Trial Balance**

Run a trial balance or General Ledger at any time as required. True real time system, any transaction that has been created will appear on the report instantly.

Purchase and Supplier Management

Purchase Module in OPRO streamlines procurement of required raw Materials, Packaging materials, sub Assembly and other non-inventory materials. The procurement plan in OPRO is derived from the Material Requirement Planning or a direct PO can also be indented. The purchase module is well integrated with the Production Planning and Inventory Control Modules and also the supply chain process

Features of the Inventory System

- Purchase Plan – for Factories

- Purchase parameters

- Reorder Level

- Vendor Master

- Transporters Master

Suppliers Vs Items Price Register

Purchase Vouchers

Purchase Order -N

Purchase By Delivery Vouchers

Purchases Vouchers

Purchases Vouchers Return

Cash Purchases

Cash Purchases Return

Reports

Purchase Transactions By Deliveries

Monthly Suppliers VS Store Report

Items Purchases & Transport

Purchases Transactions Report

Top Purchases Summary

Items VS Supplier Report

Etc.,

Sales & Distribution Management

The sales module implements functions of order placement, order scheduling, shipping and invoicing. It provides the right solution and efficient flow of information. Sales with marketing can be integrated to get Issue Sales Quotations and Invoices, Tracks Orders received. Barcode the products, generate reports for Sales Orders, pending orders and more...

Features of the Inventory System

Area Master File

Job Items Master File

Customers Price Structure

Cash Customer Master

Salesman Master File

Vouchers

Credit Sales Transactions

Cash Sales Transactions

Invoice By Delivery Transactions

Services Invoices

Cash Sales Voucher - Normal

Sales Order –N

Job Invoice Transactions

Completed Job Invoice

Reports

Item VS Customers Sales

Salesman VS Items Summary

Stock & Sales Report

Customer Master Report VS Area

Credit Sales Summary Report

Customer VS Items Sales Summary

Top Customers Report

Sales Commissions Report

Customers Bonus Sales Items

Sales Profit Analysis

Salesman VS Client Sales Summary

Sales - Price List Report.

Customer VS Sales Vouchers.

Stock And Sales (Quantities)

Salesman Monthly Sales Report

Customer Sales History

Customer VS Items Monthly

Customers Collection

Fixed Assets

Tracking assets is a concern of every company, regardless of size. Many organizations face the challenge of tracking the location, quantity, condition, maintenance, and depreciation of their fixed assets and having this information on hand can save you thousands of \$. Fixed Asset Module includes the features that you need to easily handle your fixed assets.

Features of the Fixed Assets

Purchasing & Acquisition information

Asset locations

Asset types

Disposal

Hierarchical assets up to two levels

Costs

Relocation

General Ledger Interface

Renewal and Addition to Asset code

Reports

Fixed Assets Master Report

Annual Accumulated Depreciation

Assets by location

Physical inventory worksheet

3.16 Critical Factors for Successful ERP System Installation

Different critical factors for the successful completion of systems based on the fact

that the installation takes place in three main stages:

1. Critical factors before installation period
2. Critical factors in installation period
3. Critical factors after installation

Analysis of the Critical Factors:

The system installation has three main stages.

(pre-installation, deployment and post-installation) the company's SAP project these three basic stages will be examined.

- Analysis of Critical Factors in Pre-Installation Period
- As stated in the second section, this is the period during which the project was laid.
- Company it has adopted a process-oriented management and organization.
- This the new strategy has brought many new approaches in business
- has been one of the triggers.
- One of the triggers is the problem
- In addition, communication within the organization cannot be provided effectively.
- Data problems encountered in making transfers.
- Desired coordination between departments
- Failure to take it to the next level was indicative of the cumbersome old system of 24 mainframes.

These triggering factors have been seen by the Management and Computing Unit and development of communication within the organization, integration between departments

to provide critical functions such as, solve the problem of system

Installation.

3.17 Management and Leadership

- The decision to install an ERP system at the top management level.
- It has received. In addition, the company is at the top of the Logistics project

installation organization as one of the top managements.

- It is an indicator of the importance and support the management attaches to the project.
- Section with monthly meetings
- Managers and senior management with quarterly meetings.
- Has been reported. A more systematic and detailed version upgrade project
- Communication plan was created and communication network became more effective. With these meetings
- Middle and senior managers to follow the project, their commitment and support to the project
- It was targeted. As a result of this structuring, the decision of the establishment of the logistics family
- The necessity of inclusion of the Finance family in the system
- Adding these modules to the system by making arrangements in the project plan.
- With this restructuring, the firm aims to provide full support to senior management.
- Some situations in which it does not reach the desired level. Especially the ERP package
- The resistance of the top management was encountered in the selection.
- Top Management First Choice Coach

3.18 Vision Determination and Planning

At the beginning of the project preparations for the SAP project, the project objectives, and objectives in parallel with the strategies. The objectives of the company and to put the objectives clearly at the beginning of the project and disseminate it throughout the institution.

3.19 Main Objectives for The Sap System

- Entering the year without any problems with modern technology
- Examination of the processes, standardization and information systems environment
- dissemination

- Computing and supporting the growth and change in the organizational structure gaining infrastructure flexibility
- As a result of the development and integration of information processing capability,
- foundation creation

3.20 Developed Project Plans by Utilizing Methodology

The installation process is divided into four main phases:

1. Organization and conceptual design
2. Detail design and system installation
3. Preparations for transition to actual use
4. Production / Operation

Until the version upgrade project, the project plan proposed by As Soon As Possible was used.

In the project, the company has developed the Project Management System developed by the Information Processing Unit.

The proposed project plan was used. The project plan proposed by the company's own system is also 4 consists of phases.

- Start: 9% of the total process,
- Planning: 21% of the total process,
- Execution and Control: 67% of the total process,
- Shutdown: 3% of total process

3.21 Company Has Developed As Soon As Possible Methodology

Conceptual Design: 20 Weeks

- Project preparation
- Setting up the system environment
- Training of the project team
- Determination of functions and processes

- Identify interface and development requirements

Detail Design: 24 Weeks

- General adaptations
- Determination of company structure
- Creation of general data
- Establishing functions and processes
- Preparation of interfaces and improvements
- Preparation of reports
- Delegation
- Preparation of the backup procedure
- Final test

Prototyping and testing: 12 Weeks

- Preparation of transition plan to actual use
- Preparation of user documentation
- Preparation of usage system
- User training
- Establishment of system management
- Transfer of data to the usage system

Application: 12 Weeks

- Supporting actual use
- System optimization

3.22 Systematic Project Plan

- Ensuring that the requirements of the system and the organization are responded to in situation
- The integration of the ERP system with the organization
- The complexity encountered. Developed project plans

- The success of the project throughout the process
- The necessary studies have been carried out for.

3.23 Founder Center and Founder Team

- The firm has prepared a project room during the first month of the project infrastructure works and system organization.
- The company's Logistics organizational structure developed for the project.
- A project owner and a project manager at the head of the project team responsible for direct execution leader.
- Full-time support from within the project leader
- The percentage share of the team.
- The project owner, who is on top of the team in the logistics project.
- The assistant manager.
- The owner of this project is a is an administrator who takes part in functions.
- In-house engineering in the past. He is a manager specialized in product development.

The position of the project manager in the senior management, past experiences and Analysis of Critical Factors of Propagation Period

- What has been done until this period is to ensure the progress of the system
- These are the studies that will prevent the deviation from the determined targets. This infrastructure
- After the preparation is complete, it is time to take action.
- Define the studies critical for success.
- The factors of this propagation period determined.
- The company will be evaluated in the case study.

3.24 Package Selection

Packet selection is critical to the enterprise, a process consisting of 13 steps

It is therefore:

1. Create vision
2. Create attribute / function list
3. Create candidate list

4. Reducing area to 4-6 serious islands
5. Develop suggestions
6. Review bids
7. Select two or three finalists
8. Accept the promotions of the finalists
9. Select winner
10. Verify investment
11. Negotiate contract
12. Pilot before installation
13. Confirm selection

3.25 Change Management

- The company has already ongoing change has weakened a possible resistance
- experience gained from change to managers in the management of change in SAP projects
- The company benefited the most from the trainings as a change agent.
- In the logistics project, 20000-man hours of training were provided and the employees
- and they are familiar with the new system.
- The method chosen by the senior management and project team for change management is evolutionary.
- It has been. Evolutionary approach is a kind of small but solid steps to achieve the goal
- Can be defined as Revolutionary change management takes big but risky steps
- The transfer of change into the institution.
- It is clear that this method yields results in a short time but also great resistance and chaos that cannot be removed in the wrong applications.

3.26 Communications

In order to ensure the continuity of the communication environment in the company

developed a communication plan at the beginning and according to this plan to be weekly, monthly and quarterly.

meetings aimed at three different audiences. With these meetings, the organization all managers were targeted and their participation in the project was ensured. This communication plans.

Follows:

- Weekly Meeting:

Participation: Project team and management

Weekly Report: Project team

- Monthly Meeting:

Participation: Project management team and department managers

Monthly Report: To senior management, business managers and project managers

- Quarterly Meeting:

Participation: Presentation to Senior Management.

Apart from these meetings, the company's own corporate culture is also within the enterprise.

helped to use the power of communication. In addition, the trainings applied again an important factor in linking the project team with all levels of the organization

It has been. Communication plans are further elaborated in the project.

between which tools and how often.

3.27 Project Management

- In general, the company's system, according to the conditions of the first founding team at that time.
- Despite the important constraints, it is clear that he has been working successfully. Installation of system
- Objective; project plan, communication plan and project infrastructure.

- Project management using a four-stage installation strategy
- It is seated. Big bang approach is preferred in transition to new system
- The system was completely shut down and the actual use of the system was introduced simultaneously.
- Although many analysts do not prefer big bang as the transition strategy.
- Structure of the system system will cause harmony problems.
- System management and so on. Considering other problems, such as big bang strategy firm's
- Structure is the most appropriate system. The potential risks of the Big Bang approach are.
- Prototype tests and rapid problem solutions.

3.28 Installation Project of The ERP System

- There are also some applications that arise as a problem for the enterprise.
- The first is the selection of the modules of the package, project mainly Logistics and application
- Tools family modules have been decided to install, but later system
- Other modules are also needed and installation of these modules
- It was decided. As a result, all modules except HR
- It was passed. This change in module selection will lead to a reorganization of the project plan.
- Is required. As many ERP analysts have argued, this type of project plan
- Changes are an application that can prevent success. Due to the problem
- The transition date of the financial to actual use could not be changed. Therefore, the project.
- Tests and trainings that need to be done have to be confined to a narrow space.
- It was thick. The team members, who are planned to work part-time in the project team,
- They had to take part in the project full time.
- Another wrong application in project management is that the system
- Software, and new interfaces.
- Development of such applications. Especially like SAP and PeopleSoft

- Standardized packages, according to the requirements of the software company's own processes Software system
- Back to itself as a major problem in version upgrade
- It returned.
- The project team of the company, January as the target of the transition to the actual life in project management

3.29 System Integration

- System integration problems of the project team
- There have been organizational and country specific problems. Many of these problems are the current software
- Adaptations and interfaces have been developed and tried to be corrected.
- Logistics project, six in Finance project, two important adaptations in Sales-Distribution Project It is made. Examples of these applications are the import and check-note system.
- Adaptation to the needs of the organization. A country-specific problem
- The problem faced by the project team as has been inflation and inflation on the software
- Accounting had to be made adaptations.
- The only method used by the project team for system integration is to adapt the software and interface is not development, some processes within the organization demanded by the system
- In order to reorganize it, it has undergone change engineering studies.

3.30 System Test

After the system tests have been put into actual use, the proper functioning of the new system

is an important factor to ensure. Conceptual design of the company system installation

After the completion of the phase of system tests began. Time for these tests 23% of the total project duration. Three tests in this process

The first of these tests is unit tests:

This test is expected from the system it is intended to control how much functionality is met by the system.

Other test is integration tests:

In these tests, the system's multiple module families If the system is used together, the system It is aimed to evaluate the performance.

Although the transition to the actual use of the logistics family to be done simultaneously, increased the importance of integration tests. However, integration due to time constraint tests had to be compressed into a narrow space. Integration testing Sales module project.

The final test type is the pilot test:

In these tests, end users and the organization's own actual data used. These tests evaluated the responses of the system to real data. This therefore it is an important preparation for transition to actual use. Interfaces developed with these tests, change-engineering studies and software adaptations with real data and Controls with users are made.

3.31 Performance Evaluation and Management

- It is unacceptable that the project has succeeded with the transition of the system to actual use.
- Continuity is required.
- In this stage, the actual use of the system for healthy operation and continuity support is required. Although many tests have been performed before actual use.
- The success of the project will show the actual performance of the system at this stage. Company
- used IT support for performance management and key users, problem solvers and IT staff as support IT was used.
- Quick solutions to problems encountered and especially wrong data tried to be prevented from entering.
- IT department, software development Since the mission has largely survived, the structure changed over time and system
- The individuals who specialized in the system were recruited. Information-

Processing structure

- The growing SAP team has been an important factor in the continuity of the use of actual use.

CHAPTER 5

DISCUSSION

4.1 Comparing Organization A and Organization B

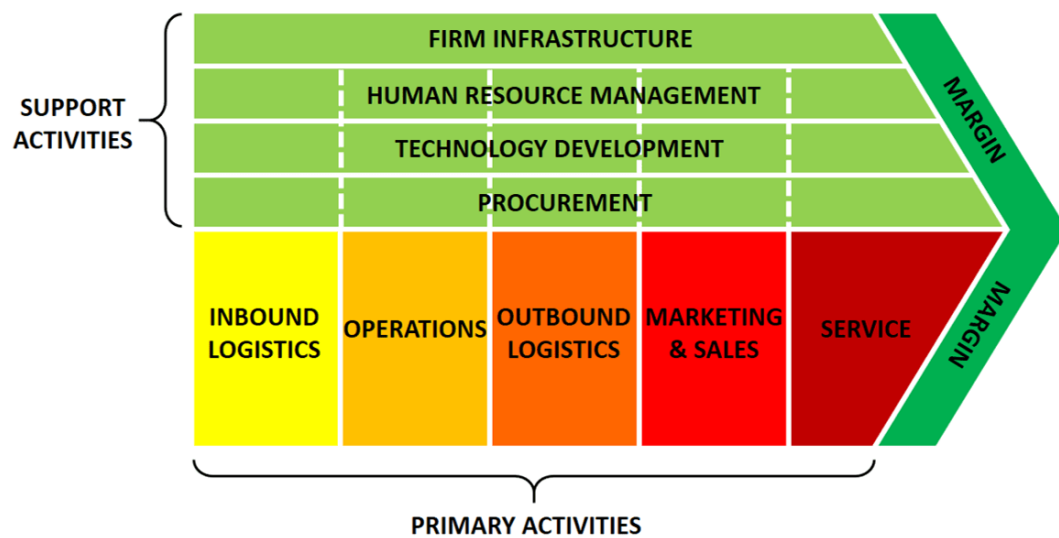


Figure 4.1. Functional organization of company A [78]

The figure 4.1. displays the organizational functions of the Company A. ERP's information is very visible and up to the second Examples: Inventory Management., Financial Status, Hiring, Training, Customer Credit.

4.2 Component of ERP System in Company A

Hardware, Servers, fax machines, printers, and communication networks, etc.

People who work in M/S, SCM, FI, and HR

Software (modules/programs/logic)

Business Functions

Business Processes

Centralized Databases

Types of reports:

No Routine reports/ “scanned”

Weekly sales, production, expenses reports

Regards:

Sales of product for X period of time versus the same X period of time last year

Exceptions

When certain conditions occur outside predetermined thresholds

Low -level executive summary

Drill-down detailed

Live ERP environment: data is not generated in real-time from the live environment data Warehouse

4.3 Customizing - Modeling the Business Company A

- Organizational Structures in each module
- Master Data - Customers, Materials, ...
- Rules - required entries, tolerances, ...

- In 3-tier architecture, an application is virtually split into three separate logical layers

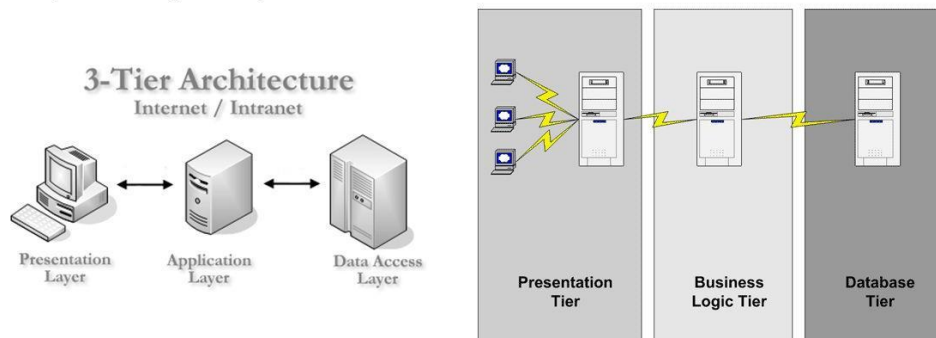


Figure 4.8. Architecture layer in company A [79]

Architecture:

As illustrated in figure 4.8. the company A is using a three-tier structure composed from;

The Client/Server Environment,

The Client – hardware/software environment that can make a request for services for a central repository of resources, and

The Server – hardware/software combination that can provide services to a group of clients in a controlled environment.

Three – Tier Structure in company A

GUI :designer focus on the interface of the screen should be related with each icon when the user needs to use the software direct they can make their task easily in same time the script hidden and control from user because it is hidden information from user however dimension really important between each triangle it should have a flexible features.

Graphical User Interface or Web Interface

Application Server

One or more, help distribute work load

Database Server

One single data repository

Core Application:

- **Accounting**

Financial Accounting

Controlling

Asset Management

Treasury

- **Logistics**

Sales & Distribution

Plant Maintenance

Materials Management

Production Planning

Quality Management

- **Human Resources**

Personnel Management

Benefits

Payroll

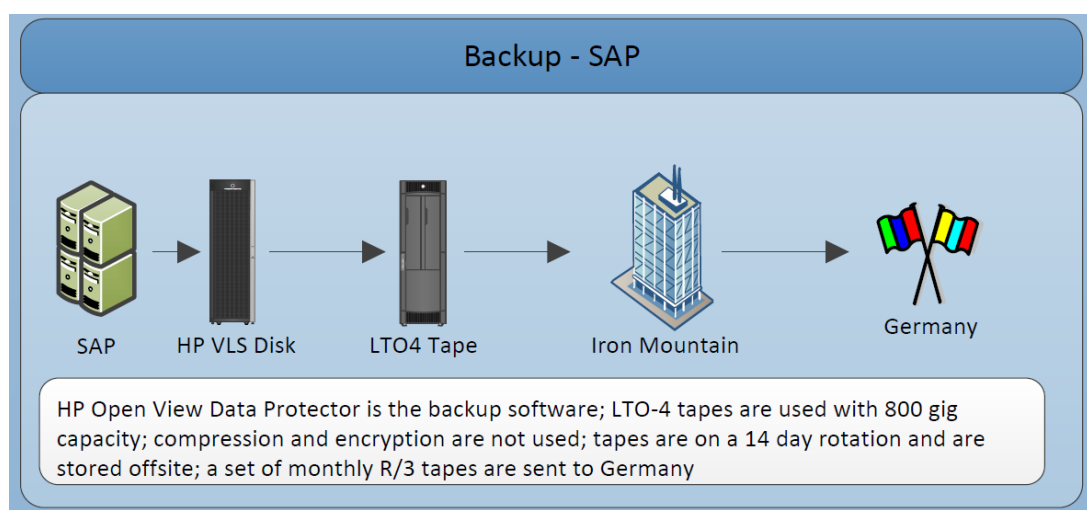


Figure 4.10. Backup policy for both company

Figure 4.10. illustrates the backup process adopted by companies A and B. Both

companies A and B are adopting the same backup policy by using an HP open View Data Protector as a backup software.

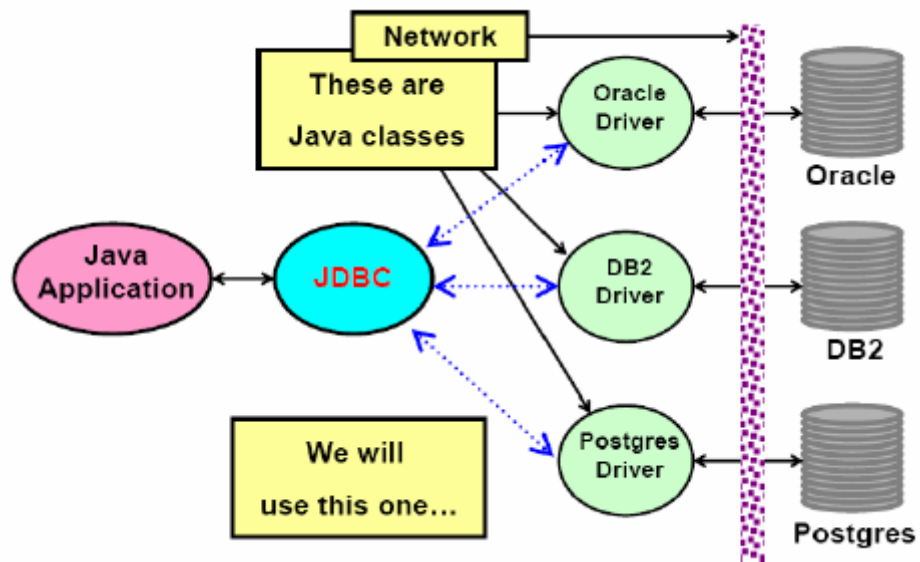


Figure 4.11. Database for both company [80]

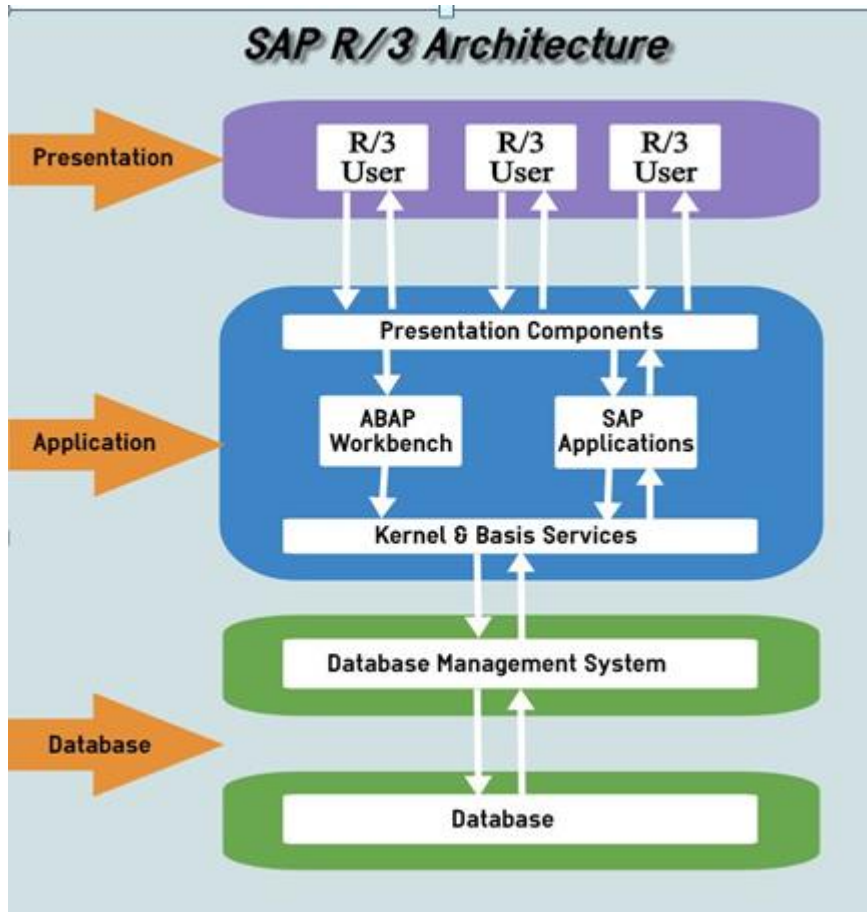


Figure 4.12. Database for company B [81]

Figure 4.16. Indicates that Company B is using an R/3 database system containing global settings, repository objects, and customizing objects.

Customize object: can save more data and recorded can store many data in link between each client and powerful data.

Repository object: user records a test in data and capture automatically and no rol back for script because it is act object.

Global Settings: means root of file client allow to access to serve data for specific

purpose.

Mapping

- Assignment of organizational structures to reflect the enterprise model
- Establishes integration among modules

4.4 Experiment and Result

ERP is helpful to companies, organizations or corporations in their activities with complete ease under one software without the need of multiple different software's from different companies that will produce different types of data and will create the need of data binding or data integrations. ERP helped in eliminating such complication by creating a single complete system that covers all different departments and activities in a company or Organization.

Company A and Company B both of the have same issue with is not covering and not implement ERP because company A just using customize ERP with missing rest of the module only they use 2 modules and they do not care about of the rest modeling and trying to implement SAP but missing expert team make them until now in testing stages with complex legacy system difficult to transfer all the system similarity for company B out of contract and new contract with new vender and try to transfer the old system to ERP system same issue in both company regards logistic and inventory system.

Issue in both company:

- Both companies are using old systems, there is no new information for payment or customers' demand. And the system does not allow seamless update of data and information sharing.
- Stored data not on share common database many databases supported with different information
- Types of organization structure make complex with customer of many department have many kinds of application
- Legacy system not provide to share information with different department with is means different department with different information and not even updated.
- Both companies are in testing stages only company A using customize ERP

but only for HR and Finance

Reasons both companies are not best:

Enterprise Resource Planning (ERP) systems are tightly integrated business functions as well as purchasing, production, inventory management, accounting, finance, quality management, human resources, sales, logistics and provides the flow of information to the whole business and to the relevant users. Furthermore, it requested data to be produced using traditional programs various casualties and delays and disruptions that may occur in production or supply. These problems will not occur in the use of the ERP systems. The benefits of ERP software can be determined by sector, company, usage and user.

As a result of comparison to most items in the company it has been determined that the use of ERP allow companies gaining a high rate of benefits. Evaluation of the application production management, inventory management, and distribution benefit from the implementation but not yet activities in the areas of planning provided. In addition, a number of activities that previously existed in the software.

CHAPTER 6

CONCLUSION

ERP systems increases productivity and provides ease of use to the company; having formalized and standardized communication processes at all times, eases the collaboration within the company, improves relations with suppliers and customers, and also increases efficiency and productivity. Furthermore, according to the findings of this study is that many factors such as customer diversity, raw material and number of suppliers must be taken into consideration. Sales, Production, Logistics, Purchasing, Accounting, and Human Resources share relevant information with each other as needed.

Main issue of company A and company B organization for ERP implementation. Both companies have similar issue; they do not have ERP system because company A is using a customized ERP developed in their own code by using Java script and they only adopt it for HR system. In the other department of purchase and inventory employees are using papers and account manually. The purchase department with inventory department are using excel sheet and calling each section ask about each paper process statues, they don't want to do new steps even the engineers they know about these integration but they said want approval form top management and need a big teams and a big task with expert people to handle and they are also saying that they need a lot time to collect to handle both these department with other section pretending it to be a big application and unnecessary since no one is complaining. So they don't plan to improve the system and adopt ERP except if top managers demand it.

On the other hand company B have a plan and strategy that guide them however they need to integrated to all system and all application old and new for ERP but they try with HR and Finance and take a time because of the old upgrade version for these system that may take long times more than 2 year then the contract finish for ERP system and looking for new tender and again try to implement again success for only 2 application HR and finance and struggles with Citricx system for plan and maintenance engine looking for Boining system and make contract with them to

integrated with ERP system and now also in testing stage struggles for one years .

In conclusion, both companies will be related issue to (1) requirement gathering or lack if this is done correctly then things will go smoothly other than this, the issue of (2) resistance to change. As some users will not be willing to convert, this is where the TOP management role has to come to provide incentive or force it on them. ERP will give both these company benefit for real time manage environment .Scalable and flexible, central data mange for all application with product life cycle management. It will help them to define and links thousands of tables of information with that employee can share Consistent and accurate data the real transaction function statues in the screen and the material product payment.

For future researches it is suggested to use your own host for the three tiers. Using data from the database server, several different application servers can operate at the same time. To ensure that the load on individual servers is as even as possible and to achieve optimal performance, you can use special application servers for individual application areas such as sales planning, distribution or financial accounting. Also, Web-enable the SAP Applications, a Web Server and an ITS (Internet Transaction Server) are needed. The web-service and the services for the ITS can run on one server or on two dedicated servers. The presentation in this configuration is provided by an Internet Browser. The new SAP Web platform is NetWeaver.

It is also suggested to integrate people, data and business processes within and between organizations and Collaboration, non-redundancy, consistency and internal process optimization. Also a SAP R/3 System can consist of one or more instances (e.g. a central instance or a distributed SAP R/3 System) Multiple instances are represented by the configuration of a database server and one or more application servers.

Plan for future work for both company Cloud ERP it will be useful for:

Future up-gradation possible (Integration)

Fixed assets Management Module

Payroll Module

HR Leave & Indemnity Module

Purchases Management Module

Productions Management Module

Sales Modules

Inventory Module, which includes transfer with cost and other portable POS applications

- AP Enterprise Portal: helps create software that brings together all the data and software tools that a person needs to do her job in one consistent user interface
- SAP Mobile Infrastructure: universal translator for mobile devices
- SAP Business Intelligence: provides tool for information integration, so what your people see is consistent and accurate
- SAP Master Data Management: is a system for harmonizing information that is distributed across a wide variety of applications
- SAP Exchange Infrastructure: Integrates processes and help applications talk to one another.

Advantages of these system to integrate all data base to all campus and have share common data without losing any paper or not update it one.in same time to make all the environment for the defenses should be development in new technology and to be stable without side environment .in future their plain to bring special team for SAP from India specially to handle SAP and have a team to cover these area and system because as I know in the future all the system will be sing SAP only.

REFERENCES

- [1] J. V. D. Vorst, Effective food supply chain chains. generating, modelling and evaluating supply chain scenarios, Doctoral dissertation, Thesis Wageningen University, 2000.
- [2] C. Martin, Logistics & supply chain management, UK: Pearson.
- [3] H. Gary, "The future of management," Human Resource Management International Digest, vol. 16, no. 6, 2008.
- [4] J. M. Tarn, D. C. Yen and M. Beaumont, "Exploring the rationales for ERP and SCM integration," Industrial Management & Data Systems, vol. 102, no. 1, pp. 26-34, 2002.
- [5] R. R. Levary, "Better supply chains through information technology," Industrial Management, vol. 42, no. 3, p. 24, 2000.
- [6] M. Hillman and H. Keltz, "Managing risk in the supply chain: a quantitative study," AMR Research, no. January, pp. 1-24, 2007.
- [7] M. Christopher and H. Peck, "Building the resilient supply chain," The international journal of logistics management, vol. 15, no. 2, pp. 1-14, 2004.
- [8] J. H. Stroecken, "Information technology, innovation and supply chain structure," International Journal of Services Technology and Management, vol. 2, no. 3, pp. 269-288, 2001.
- [9] Y. Kank and S. B. Gershwin, "Information inaccuracy in inventory systems: stock loss and stockout," IIE transactions, vol. 37, no. 9, pp. 843-859, 2005.
- [10] D. S. Levi, P. Kamminsky and E. S. Levi, "Designing and managing the supply chain: Concepts, strategies", McGraw-Hill, 2003.
- [11] M. Attaran, "RFID: an enabler of supply chain operations," Supply Chain Management: An International Journal, vol. 12, no. 4, pp. 249-257, 2007.
- [12] E. C. Mondragon, A. C. Lyons, Z. Michaelides and D. F. Kehoe, "Automotive supply chain models and technologies: a review of some latest developments," Journal of enterprise information management, vol. 19, no. 5, pp. 551-562, 2006.
- [13] R. Jedermann, L. Ruiz- Garcia and W. Lang, "Spatial temperature profiling by semi-passive RFID loggers for perishable food transportation," computers

- and Electronics in Agriculture, vol. 65, no. 2, pp. 145-154, 2009.
- [14] R. D. Boyle, "Achieving your Supply Chain Goals: Conquering the 'First Mile,'" *Hurdle of Data Capture*'APICS-The Performance Advantage, vol. 7, no. July/August, p. 14, 2004.
 - [15] Y. Moon, "Enterprise Resource Planning (ERP): a review of the literature," *Mechanical and Aerospace Engineering*, vol. 4, pp. 235-264, 2007.
 - [16] T. H. Davenport and J. D. Brooks, "Enterprise systems and the supply chain," *Journal of Enterprise Information Management*, vol. 17, no. 1, pp. 8-19, 2004.
 - [17] I. J. Chen and A. Paulraj, "Understanding supply chain management: critical research and a theoretical framework," *International Journal of production research*, vol. 42, no. 1, pp. 131-163, 2004.
 - [18] R. S. Gaonkar and N. Viswanadham, "Analytical framework for the management of risk in supply chains," *IEEE Transactions on automation science and engineering*, vol. 4, no. 2, pp. 265-273, 2007.
 - [19] S. Fatimee, M. U. Shah and S. Hussain, "Impact of enterprise resource planning implementation on supply chain efficiencies: a case of telecom sector," *J. Basic Appl. Sci. Res*, vol. 4, pp. 20-30, 2014.
 - [20] ZheZhang, M. K.O.Lee, PeiHuang, LiangZhang and XiaoyuanHuang, "A framework of ERP systems implementation success in China: An empirical study," *International Journal of Production Economics*, vol. 98, no. 1, pp. 56-80, 2005.
 - [21] M. Themistocleous, Z. Irani, R. M. O'Keefe and R. Paul, "ERP Problems and Application Integration Issues: An Empirical Survey," in *34th Hawaii International Conference on System Sciences*, Hawaii, 2001.
 - [22] H. BARKI and A. PINSONNEAULT, "Explaining ERP implementation effort and benefits with organizational integration," *Cahier du GReSI* no, vol. 2, no. 1, pp. 3-27, 2002.
 - [23] [Online]. Available:
https://www.google.com/imgres?imgurl=https%3A%2F%2Fwww.gscg.org%2Fimages%2Fgscg%2Fsupplychain_complex.gif&imgrefurl=https%3A%2F%2Fwww.gscg.org%2Findex.php%2Fbackground&tbid=ngTl5Eu3RWl0PM&vet=12ahUKEwjni_nIuo3mAhVDuxoKHTP3D0QQMygBegUIARC_AQ..i&do
 - [24] HAMMER, nabling successful supply chain management: coordination,

collaboration, and integration for competitive advantage, Mannheim: Mannheim University Press, 2006.

- [25] R. R. Chen, R. O. Roundy, R. Q. Zhang and G. Janakiraman, "Efficient Auction Mechanisms for Supply Chain Procurement," *Management Science*, vol. 51, no. 3, pp. 467-482, 2005.
- [26] S. H. Rahim and M. I. Malik, "Emotional intelligence & organizational performance:(A case study of banking sector in Pakistan)," *International Journal of Business and Management*, vol. 5, no. 10, p. 191, 2010.
- [27] B. H. Wixom and H. J. Watson, "An empirical investigation of the factors affecting data warehousing success," *MIS quarterly*, vol. 25, no. 1, pp. 17-41, 2001.
- [28] S. N. A. Kazmi, "Competitive constructs of ERP implementation public sector in Pakistan," *International Conference on Business and Management*, pp. 1-11, 2008.
- [29] B. Wieder, P. Booth, Z. P. Matolcsy and M. Ossimitz, "The impact of ERP systems on firm and business process performance," *Journal of Enterprise Information Management*, vol. 19, no. 1, pp. 13-29, 2006.
- [30] C. Chandra and S. Kumar, "Supply chain management in theory and practice: a passing fad or a fundamental change?," *Industrial Management & Data Systems*, vol. 100, no. 3, pp. 100-114, 2000.
- [31] R. Sharma and P. Yetton, "The contingent effects of management support and task interdependence on successful information systems implementation," *MIS quarterly*, vol. 27, no. 4, pp. 533-556, 2003.
- [32] J. Chen, A. S. Sohal and D. I. Prajogo, "Supply chain operational risk mitigation: a collaborative approach," *International Journal of Production Research*, vol. 51, no. 7, pp. 2186-2199, 2013.
- [33] P. Zhou-Sivunen, "Organizational culture impact on ERP implementation in China," *Swedish School of Economics and Business Administration*, 2005.
- [34] K. Sundtoft Hald and J. Mouritsen, "Enterprise resource planning, operations and management: Enabling and constraining ERP and the role of the production and operations manager," *International Journal of Operations & Production Management*, vol. 33, no. 8, pp. 1075-1104, 2013.
- [35] C. Lin, C. Kuei and K. Chai, "identifying critical enablers and pathways to

- high performance supply chain quality management," *International Journal of Operations & Production Management*, vol. 33, no. 3, pp. 347-370, 2013.
- [36] M. Margeret Weber, "Measuring supply chain agility in the virtual organization," *International Journal of Physical Distribution & Logistics Management*, vol. 32, no. 7, pp. 577-590, 2002.
- [37] J. J. Coyle, R. A. Novack, B. Gibson and E. J. Bardi, *Transportation: a supply chain perspective*, South-Western: Cengage Learning, 2010.
- [38] H. Pfohl, *Factors influencing psychological help seeking attitudes and behavior in counseling trainees*, PhD Thesis. The Ohio State University, 2010.
- [39] M. Ciesielski, *Instrumenty zarządzania łańcuchami dostaw*, Polskie Wydawnictwo Ekonomiczne, 2009.
- [40] P. Kelle and A. Akbulut, "The role of ERP tools in supply chain information sharing, cooperation, and cost optimization," *International Journal of Production Economics*, vol. 93, pp. 41-52, 2005.
- [41] M. AL-Mashari, A. AL-Mudimigh and M. Zairi, "Enterprise resource planning: A taxonomy of critical factors," *European journal of operational research*, vol. 146, no. 2, pp. 352-364, 2003.
- [42] W. F. C. Ted, "ERP II: The extended enterprise system," *Business Horizons*, vol. 46, no. 6, p. 49, 2003.
- [43] P.-L. Liu, "Empirical study on influence of critical success factors on ERP knowledge management on management performance in high-tech industries in Taiwan," *Expert Systems with Applications*, vol. 38, no. 8, pp. 10696-10704, 2011.
- [44] K. Park and A. Kuisak, "Enterprise resource planning (ERP) operations support system for maintaining process integration," *International Journal of Production Research*, vol. 43, no. 19, pp. 3959-3982, 2005.
- [45] A. Guneskaran and E. W. Ngai, "Information systems in supply chain integration and management," *European journal of operational research*, vol. 159, no. 2, pp. 269-295, 2004.
- [46] K.-K. Hong and Y.-G. Kim, "The critical success factors for ERP implementation: an organizational fit perspective," *Information & management*, vol. 40, no. 1, pp. 25-40, 2002.

- [47] V. A. Mabert, A. Soni and M. A. Venkataramanan, "Enterprise resource planning: common myths versus evolving reality," *Business Horizons*, vol. 44, no. 3, p. 96, 2001.
- [48] S. Shang and P. B. Seddon, "A comprehensive framework for classifying the benefits of ERP systems," *AMCIS 2000 proceedings*, p. 39, 2000.
- [49] K. E. Murphy and S. J. Simon, "Intangible benefits valuation in ERP projects," *Information Systems Journal*, vol. 12, no. 4, pp. 301-320, 2002.
- [50] I. O. P. Aakkermans, P. Bogerd, E. Yücesan and L. N. Wassenhove, "The impact of ERP on supply chain management: Exploratory findings from a European Delphi study," *European Journal of Operational Research*, vol. 146, no. 2, pp. 284-301, 2003.
- [51] Januszewski, *Funkcjonalność informatycznych systemów zarządzania: Systemy Business Intelligence*, Wydawnictwo Naukowe PWN, 2008.
- [52] J. Heizer, B. Render and C. Munson, *Principles of Operations Management*, New Jersey: Pearson Prentice-Hall Upper Saddle River, 2008.
- [53] J. K. Liker, *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*, McGraw-Hill Education, 2004.
- [54] P. Keskinocak and S. Tayur, "Quantitative analysis for Internet-enabled supply chains," *Interfaces*, vol. 32, no. 2, pp. 70-89, 2001.
- [55] L. S. Cook, D. R. Heiser and K. Sengupta, "The moderating effect of supply chain role on the relationship between supply chain practices and performance: An empirical analysis," *International Journal of Physical Distribution & Logistics Management*, vol. 41, no. 2, pp. 104-134, 2011.
- [56] V. Jain and L. Benyoucef, "New approaches for modeling and evaluating agility in integrated supply chains," in *Supply Chain the Way to Flat Organisation*, IntechOpen, 2009.
- [57] M. Janvier- James, "A new introduction to supply chains and supply chain management: Definitions and theories perspective," *International Business Research*, vol. 5, no. 1, pp. 194-207, 2012.
- [58] X. Zhang, D. Pieter Van Donk and T. Van Der Vaart, "oes ICT influence supply chain management and performance? A review of survey-based research," *International Journal of Operations & Production Management*, vol. 31, no. 11, pp. 1215-1247, 2011.

- [59] K. Kumar and J. Van Hillegersberg, "ERP experiences and evolution," *Communications of the ACM*, vol. 43, no. 4, p. 22, 2000.
- [60] S. H. Rahim, "Emotional intelligence and stress: An analytical study of Pakistan banks," *International Journal of Trade, Economics and Finance*, vol. 2, no. 194-199, p. 1, 2010.
- [61] Z. Irani and P. E. Love, "The propagation of technology management taxonomies for evaluating investments in information systems," *Journal of Management Information Systems*, vol. 17, no. 3, pp. 161-177, 2000.
- [62] M. Attaran, "Critical success factors and challenges of implementing RFID in supply chain management," *Journal of Supply Chain and Operations Management*, vol. 10, no. 1, pp. 144-167, 2012.
- [63] D. Paqarizi and Y.-H. Hsu, "Conflicting Goal and its Impact on the Level of Supply Chain Integration between Supply Chain Partners in the Automotive Industry – From Manufacturing SME's Perspective, Master Thesis, 2013.
- [64] H. Barki and A. Pinsonneault, "A model of organizational integration, implementation effort, and performance," *Organization science*, vol. 16, no. 2, pp. 165-179, 2005.
- [65] V. Arli, S. Dylke, R. Burgess, R. Campus and E. Soldo, "Woolworths Australia and Walmart US: Best practices in supply chain collaboration," *Journal of Economics, Business & Accountancy Ventura (JEBAV)*, vol. 16, no. 1, pp. 27-46, 2013.
- [66] J. T. Mentzer, D. J. Flint and G. T. M. Hult, "Logistics service quality as a segment-customized process," *Journal of marketing*, vol. 65, no. 4, pp. 82-104, 2001.
- [67] C. Møller, "ERP II: a conceptual framework for next-generation enterprise systems?," *Journal of Enterprise Information Management*, vol. 18, no. 4, pp. 483-497, 2005.
- [68] Lockamy III and K. L. S. McCormack, "Planning practices to supply chain performance: An exploratory study," *International journal of operations & production management*, vol. 24, no. 12, pp. 1192-1218, 2004.
- [69] P. Helo and B. Szekely, "Logistics information systems: an analysis of software solutions for supply chain co-ordination," *Industrial Management & Data Systems*, vol. 105, no. 1, pp. 5-18, 2005.

- [70] [Online]. Available: <https://docplayer.net/23433355-Chapter-11-supply-chain-management.html>.
- [71] Sloan Management Review, vol. 50, no. 2, pp. 81-90, 2009.
- [72] J. Birkinshaw, Reinventing management: Smarter choices for getting work done, John Wiley & Sons, 2010.
- [73] C. Lin, C. Kuei and K. Chai, "Identifying critical enablers and pathways to high performance supply chain quality management," International Journal of Operations & Production Management, vol. 33, no. 3, pp. 347-370, 2012.
- [74] R. M. Fulmer, The new management, Macmillan College, 1988.
- [75] [Online]. Available: <https://toughnickel.com/business/ASAP-Methodology-SAP-Implementation-Phases>.
- [76] [Online]. Available: <http://www.r3now.com/literature/ASAPOverview.pdf>.
- [77] [Online]. Available: <http://www.r3now.com/literature/ASAPOverview.pdf>.
- [78] <https://www.business-to-you.com/value-chain/>
- [79] <https://apachebooster.com/blog/wp-content/uploads/2018/05/3-tier-client-server-architecture.jpg>
- [80] <https://www.wisdomjobs.com/tutorials/the-jdbc-architecture.png>
- [81] <https://www.pinterest.com/pin/403142604140238747/>
- [82] <https://themanufacturingconnection.com/2018/08/the-erp-buyers-profile-for-growing-companies/>