

ERP IN SYRIA

A Propositions for ERP success

By
Eng. Hasan
Shammout

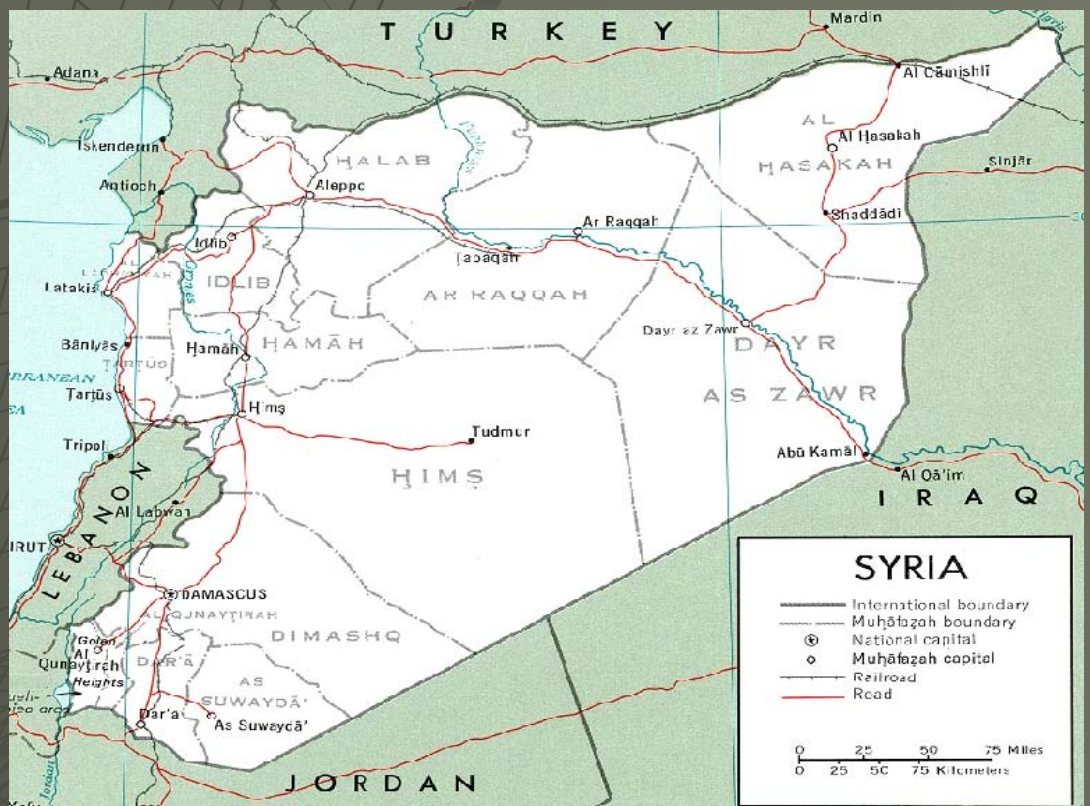


Table of contents:

	Pg
Abstract	5
1. Chapter 1 Introduction	6
1.1. ERP definition	6
1.2. ERP benefits	7
Common benefits	7
a. Inventory loss reduction	7
b. Materials cost reduction	7
c. Labor reduction	7
d. Improve customer satisfaction and sales	8
e. Improve accounting control	8
1.3. ERP failure	8
1.4. Research Problem and Objective	10
1.5. Research Importance	10
1.6. Research Methodology	10
2. Chapter 2 ERP Overview in Syria	12
2.1. Organizations types in Syria	12
2.2. Software vendors & Software types	12
2.3. Common Characteristics of Syrian environment	13
3. Chapter 3 ERP Problems	14
3.1. Implementation problems	14
Radical Change	14
Customization	14
3.2. Problems related to the software vendors	15
Opportunism by the software vendors	15
Adverse selection	15
Moral hazard	15

3.3. Problems related to culture issues	15
4. Chapter 4 ERP problems in Syria	16
4.1. Computing in Syria	16
Introduction	16
Status of IT in Syria	16
4.2. The major problems of ERP projects in Syria	17
4.2.1. Implementation problems	17
Resisting the change	17
Customization	17
Data Inconsistency	17
4.2.2. Problems related to the software vendors	18
Opportunism by the software vendors	18
4.2.3. Problems related to culture issues	19
Lack of dynamicity in government paper work	19
Employees fear of accepting the software	19
Low ERP projects budget	19
No classification for the software vendors	20
No consulting firms	20
The lack of computer companies	20
5. Chapter 5 A propositions for ERP success in Syria	22
5.1. Implementation problems	22
Resisting the change	22
Customization	22
Data Inconsistency	22
5.2. Problems related to the software vendors	23
Opportunism by the software vendors	23
5.3. Problems related to culture issues	24
Lack of dynamicity in government paper work	24
Employees fear of accepting the software	24
Low ERP projects budget	25
No classification for the software vendors	25
No consulting firms	26
5.4. Conclusion	26
References	27

Special thanks for:

- ☐ Dr. Assem Al-Shiekh Arab Academy for banking and financial science Department of Computer information System
- ☐ Mr. Mazen Al-Jurf the head chief of the Software Industrial Forum
- ☐ IT department in the Public Syrian Company for communications
- ☐ IT department in the Syrian centralized bank
- ☐ IT department The Public economy for tobacco

ERP in Syria: Propositions for ERP success

E. Hasan M. Shammout
Computer Information System department
Arab Academy for banking and financial science Syria-Damascus
hasan@intelecomit.com

Abstract

The adaptation of enterprise resource planning ERP solutions appeared in Syria approximately in 2000 when large scales organizations in both public and private sector start to adapt the ERP solution and the request for proposals RFP start to request ERP systems

ERP promises many benefits and opportunities and enhancement for the organizations including enhancing the integration among the different organization's subsystems and also the streamline processes [1] within the organization and as a result enhancing the productivity and the financial state [7]

The transition to ERP systems is always combined with business process reengineering (BPR)[1] the BP is embedded in the ERP system and usually ERP implementation is also combined with radical changes in the workflow [1]

Some organizations chose to purchase its ERP system from the global market as customized software and others chose to purchase from western vendors which also required a lot of customization to fit the Syrian environment

Unfortunately many of these experiments didn't operate well according to the Syrian Software Industrial Forum SIF Many of these organizations didn't achieve the desired opportunities they were promised to get

There were significant costs unsuccessfully implementing ERP systems

These organizations have paid more for the implementation than they would pay to improve the system

Different organizations invested in ERP projects without gaining the benefits they expected because the ERP system contracts were particularly implemented

This was caused due to some factors that took place

This research will perform a survey about the ERP failure factors in Syria related to the following components

- Software
- Organizations
- Software vendors
- External environment
- Culture issues

In addition this research will suggest several propositions to help in making ERP projects success in the Syrian environment.

1. Chapter 1: Introduction:

1.1. ERP definition:

ERP: Enterprise Resource Planning System

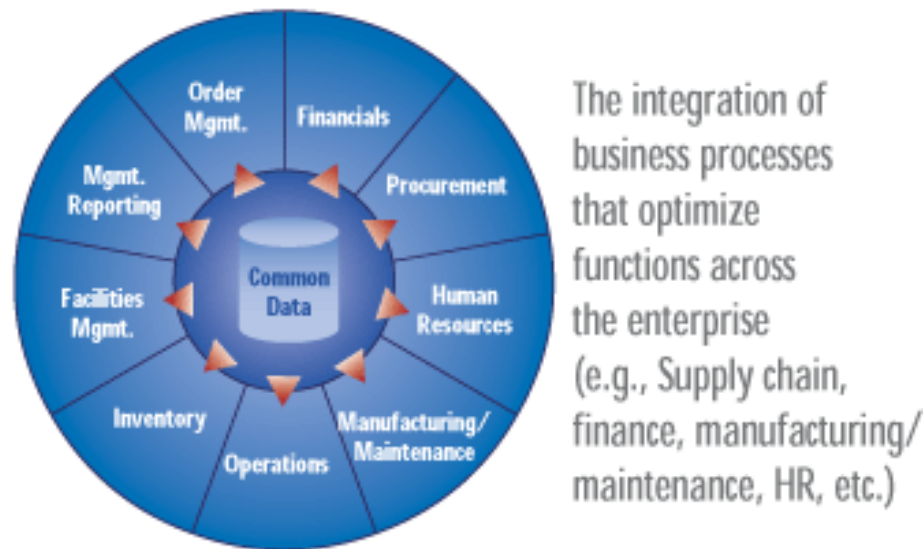


Figure [1]

ERP system as shown in figure [1] is a set of integrated sub-systems or packages each package or module presents a single complete function such as:

Purchase, sales, inventory management and control, finance, manufacturing, human resource management ...[1]

the idea was initiated when large scales organization which already had implement a set of a subsystems try to figure out some way to integrate these systems together in way that enhance integration among these systems and in order to create one central database for the whole organization.

SAP was one of the first ERP systems as a solution for such problem .ERP systems were usually refer to as of-the-shelf products [2] but still it needed some customizations during its implementation

The act of implementing ERP systems is similar to BPR because both transform the organization from being a function oriented to become process oriented [9]

And both recreate the processes within the organization but the ERP transition require hard radical changes as the one in the BPR

ERP systems can be applied incrementally in order to avoid big bang

However its always necessary before implementing an ERP system to predefine all business processes within an organization [1]

1.2. ERP benefits

If it's implemented successfully ERP system promises many benefit and gains for productivity and speed [1,7] and the process and data quality.

Because it enhances streamline processes and increase cost saving [10] and enhance the process quality because it's similar to BPR

On the other hand the success of ERP will produce better integration among business units [1] which lead to more consistent and accurate data

The top management also will have online access on the full information of the organization [1]

The ROI is very high usually Dr. Scott Hamilton had preformed a very long study on hundreds of organizations in order to justify investment on ERP and this research shows that successful implementation of ERP systems have a very powerful impact on financial situation of the organization including the balance sheet, income statement, key ratios, and stock price.[7]

For example in the inventory the study shows reductions of 20 percent or better

On the other hand ERP successful implementing lead to many intangible profits such as better integration and reduce data redundancy and better decision making

▣ Common benefits

a. Inventory loss reduction:

One of the most important ERP benefits as ERP system integrates the inventory system with other subsystems related such as maintenance and purchase and finance ...

In this way ERP organize and regulates the process of supplying and providing material from the stock [7]

Not mentioning that the ERP implementation reduce time reduction for the different assets in the stock (Assets depreciation)

In addition cost reduction can be provide by saving the carrying and shipping costs to the warehouse [7] because the stock system is linked to the procurement system

The monitoring that ERP provides on the inventory warehouse gives the organization the exact material amount needed and prevent overstock or materials vanishing [7]

b. Materials cost reduction:

By integrating the procurement system with the other subsystem in the ERP system this will leads to the best selection for the prices and better negotiations with the suppliers

The streamline process embedded in the ERP system provides better visibility for supply chain process and improve it.[7]

c. Labor reduction

The integration among the ERP subsystems reduce so much time of "donkey work" in data entries and most of the data entries are generated automatically from one sub-system to another [7]

For example the financial feeder (Journal Entries generator) in the ERP system automates all the financial effects for all the processes that have one

This guarantees more data accuracy in the general ledger and much more less labor for the accounting system employees

Not mentioning that this gives the top management more time for planning to develop and improve the financial state of the organization

d. Improve customer satisfaction and sales

As ERP system integrates the sales system with the production system this will help the production system to coordinate with the sales to improve the customer satisfaction by decreasing the order and shipping time

This will also help the organizations which work on the "Demand - pull" selling strategy By providing the ability of take action earlier such as order priority and also keeping the customer noted of delivery states or change

As a result ERP enhance customer satisfaction and eventually enhance the sales [7]

e. Improve accounting control

By integrating the general ledger system to the different sub-systems related ERP system organize and control the available cash in the organization as a result provide a better cash planning

An accurate supply and sales invoice can be created from the transactions

Integration also reduce the problems in the accounts as most of the financial effected and automated and generated by the ERP system [7]

1.3. ERP failure:

The success of ERP system like any other software is measured by the solid triangle of cost, time and customer satisfaction

Unfortunately some statistics shows that 40% of software vendors didn't achieve their original business goal 20% of project managers shut down their projects before completion[10]

But on the other hand it's very important to know that it's not a white or black area the degree of success varies.

The degree of ERP success from the organization's perspective measure the degree of how much the top management depends on the ERP system and to which degree the ERP covers the organization processes and data.

An interesting type of classification was proposed by Dr. Scott Hamilton[7] as shown in Table [1]

Class A users use the system in a very formal and effective way to run the whole tasks in the company

All the subsystems are integrated together and the whole business process is embedded in the system which provide a very realistic reports for the top management which are fully depending on the system with very small number of exceptions

Class B in this class the system is particularly effective but lack to company-wide agreement and completeness this make it some times difficult to relay on

The numbers of exceptions in the formality of the system make people question the effectiveness of the system

Class C this types is defined when the system is only implemented in part of the company in this case the ERP system losses the benefits of the integration and doesn't reflect a real picture of the current system

Class D the system is not used or run on any part on the company informal methods are used to manage the business

Table [1] describe the four categories of ERP success from the organization perspective

Class A	Management team uses ERP system to run the business Complete and accurate data 99% ++ one set of numbers Using latest versions of ERP software Company gains the full benefits of an ERP system
Class B	Management team not fully using the ERP system Mostly complete and accurate 90% to 95%) data Some informal or non-integrated systems Company gains partial benefits of an ERP system
Class C	Partial use of ERP system, such as sales orders and accounting Incomplete and inaccurate (<90%) data Many informal or non-integrated systems Not gaining the integrative benefits of an ERP system
Class D	System not used by anyone System only running on the computer

Table [1]

There are so many factors that must be considered when implementing an ERP system. The factors of ERP failure vary; some times these factors are related to the software company for example. Some times the software company takes advantage of the lack of knowledge in the organizations in two ways: one is by adverse selection [3] by pretending that the company have some certain abilities that they don't have and some times its hard for the organization to discover another way is by moral hazard [3] during the implating of ERP system as the ERP system is very complex some times the organization cant determine if the software vendor is working probably or not.

Other failure factors are related to the Organization the need to implements ERP system for example some organization resist the embedded new business process in ERP systems and some times some departments resist the integration with other department which raise the question about the benefits of the system?

Other factors are related to the culture or the external environment for example poor IT lows or no consulting firms. Some organizations don't get enough support from the government to implement ERP systems.

However the failure and success factors are going to be discussed in details later on in Chapter 3 and Chapter 4.

1.4. Research Problem and Objective:

This research will perform a scientific survey on some of the current ERP projects in Syria in order to find out the failure reasons attach to the way ERP projects are being implemented and related to the types on the business process in the public sector and the types of its data and employees and contractual issues

This research will also analyze the problems related to the software companies in Syria and the most critical problems they are facing

In addition the research will set light on the problems related to software industry external environment

This research will perform technical and social study of the ERP projects in Syria and compare it with other countries and Analyze ERP projects success/failure factors in the public sector in Syria to find out methods to improve the opportunities of ERP success in the public sector

1.5. Research Importance:

The importance of this research comes from the fact that successful ERP implementation has direct effect on inventory, material costs, and labor and overhead costs, as well as improvements in customer service and sales as it was earlier mentioned in this chapter.

This research will provide assistance for IT managers in order to help them in making the right decisions by showing how to take technical and management decision in the different public sector organization during project lifecycle:

- a) Identification
- b) Selection
- c) Implementation
- d) Maintenance

This research will provide a set of proposition to be considered related to the software companies and the ERP customers.

It will also provide a guide line on what steps should be taken before selecting and implementing an ERP project

It will also show a vision on the Common characteristics of ERP and wide enterprise software projects in Syria.

1.6. Research Methodology:

The research objective will be achieved by collecting data from analyzing similar studies in the same areas

Afterward ERP projects information will be collected from the software vendors by conducting Syrian software industrial forum which represent a nongovernmental union for the biggest software companies in Syrian

Also this research will perform a scientific survey on some of the the ERP projects by conducting ERP customers and analyzing these case studies

This study will describe the experiment of three organizations which have implemented ERP systems using Oracle financial and local ERP system made by a local software vendor

These organizations are listed in the table [2] as follow:

General Information			
Name of the organization	Public Syrian Company for communications	Syrian centralized bank	The Public economy for tobacco
Nature of business	telecommunication services	Banking services	Manufacturing
Estimated Number of Employees	3000	350	12000
ERP System Information			
Name	Oracle financial	Oracle financial	Local ERP
Cost	1000000\$	1000000\$	120000\$
Branches	12	1	9
Implementation Information			
Estimated time	3 years	2 years	14 months
Actual time	3,5 years	>3 years	>3 years
BPR	Non	Non	Non
Management usage of the system	Non	Non	Non

Table [2]

2. Chapter 2: ERP Overview in Syria

2.1. Organizations types in Syria

ERP is well known and established in the advanced countries such as the US, Germany, Scandinavia and the Netherlands.

The beginning of ERP in the developing countries such as India, Brazil, China has just recently started [5]

In Syria There are 284 medium and large scale public organizations in Damascus only Before the appearance of ERP in Syria the large scales organizations in Syria which are approximately about 400 organizations were using separated systems or packages for separated purposes specially for accounting systems and human resource management There was no integration among these subsystems along the organization departments or at the branches level

The benefits of these systems were limited on the employees which are using these systems mainly to reduce paper work labor

The ERP word appeared for the first time in Syria by the year 2003 in a RFP for the Department of Public Health – Tartous

But still according to Syrian software industrial forum there were some exceptions related to the military sector similar to ERP system as wide enterprise applications

Nowadays in Syria many organizations are spending considerable amount of money each year to purchase and maintain enterprise-wide software solutions, including ERP recently

Common characteristics of the Syrian organizational environment:

- 1- BPR is so limited as any change in the business process request a top management decision and high responsibility
- 2- Financial feeder (the integration with the general ledger) cant be automated because the financial effect for the same transactions can take many possible financial effect (journal entry)
- 3- All the tasks and job descriptions must be kept after implementing the ERP system as no cut out is allowed
- 4- lack of dynamicity in the different Governmental processes (paper work)
- 5- The lack of computer knowledge in the public sector

2.2. Software vendors & Software types:

The software industry in Syria is still in the beginning there are currently no official statistics about the exact number of the software vendors in Syria.

Software Industries forum <http://www.sif-syria.org/> is "a non profit organization that was established in 2003 to help and support the software industry in Syria and to effectively represent, promote, and advance the Syrian software and IT services industry in the global market."

This forum includes more than 50 software companies now most of them concentrate on producing accountancy and financial systems and recently some of them start to move to web applications the new technology

Only 3 companies specialized in building ERP systems

Intelcom, NSCC and Transtec are currently working in this field

The common characteristics of the software industry in Syria are:

- ❑ No formal standard classification for the software vendors
- ❑ There are only 3 ERP vendors in Syria
- ❑ Most of the software vendors are heading to implement accountancy systems (money is the king) and web applications recently (The new technology)
- ❑ High competition due to the lack of large size organizations projects
- ❑ The software vendors are not being supported by the government instead they are treated like the companies in the any other fields financially (taxes and financial issues)
- ❑ The Syrian copy rights laws protects the local software vendors

2.3. Common Characteristics of Syrian environment:

The most popular customer of ERP system in Syria is the public sector large scale organizations and the most popular official consulting agency for ERP projects is the Syrian universities

Although the number of the software companies in Syria has increased in the past few years

The software industry is still facing many problems such as any other industry in Syria

The Syrian laws doesn't support the software industry on any rate this industry is treated like any other industry in Syria

On the other hand the public Syrian company for telecommunication which is responsible of the internet and telecommunication services still blocks many important services such as ftp and CVS

Also the low salaries of programmers and different IT positions salaries specially in the public sector (The approximate salary for an engineer is about 150\$ per month) have caused them to seek jobs in other countries instead of working in Syria which lead to poor computer skills in the public sector and this caused some companies some times to take opportunism of them in two types [3]:

There are two main types of opportunism:

1- Adverse selection:

when the software company claims to have certain skills that they don't has (technically mostly and financially some times ..)

2- Moral Hazard:

when the software company doesn't act for the project and because the project is very complicated the organization cant determine what is he doing

The research will come on these problems in details in Chapter 3

3. Chapter 3: ERP Problems:

Before discussing the ERP problems in Syria and how these problems can be solved this chapter will discuss the common problems of ERP in general by analyzing similar researches in this area and then comparing them with the Syrian environment in the next chapter.

In addition to common software problems ERP has other problems and risks due to the following reasons [5]:

- ❑ The high complexity of ERP systems
- ❑ The high cost of ERP systems
- ❑ The problems of implementations (BPR, integration among subsystems...)

3.1. Implementation problems:

❑ Radical Change:

As ERP implementation is always combined with BPR [1] and radical organizational changes these changes can sometimes be very risky because radical change is discontinuous [1] and revolutionary

Radical change is “so great that it must be considered a fresh start rather than an extension of what preceded it”[1]

This problem can be resolved by using incremental change or punctuated change (a mix between radical and incremental change) a form of patchwork rather than planned change[1]

By using incremental change instead of radical change the timeline of the implementation may be delayed but the risk of radical change will be decreased

❑ Customization:

Although ERP systems are supposed to be off-the-shelf products practically during ERP implementation some customizations are required to fit to the project requirements and sometimes the project manager starts to lose control especially in the following cases[2]:

- ❑ The degree of customization is very high
- ❑ No standard process to check the quality (poor documentation)
- ❑ poor database administration
- ❑ Poor management for the scope of the project

Therefore the following recipe is very important to follow [2]:

- ❑ limit customization as much as possible
- ❑ Documentation should be very important
- ❑ The involvement of the implementing team (executive support) are very important
- ❑ The scope of the project should be precisely determined
- ❑ The fixed fee does not mean that the implementer will do anything for a fixed cost
- ❑ the consultant must stick to the project to the end

3.2. Problems related to the software vendors:

☐ Opportunism by the software vendors:

The ERP projects are classified as large scale projects

In such projects some times the software vendors may take the opportunity [3] of the lack of knowledge of the customer in such projects mainly in two ways:

☐ Adverse selection:

When the agent claim to have certain skills that he doesn't has (technical, financial...) [3]

The software vendor skills can't be completely verified by the customer because of the lack of the customer knowledge of ERP systems this will some times lead the software company take advantage of the customer in such way and eventually will lead to ERP failure

Therefore the prequalification efforts are very important before the initiation of ERP system

There are certain ways for prequalification [3] such as :

Requesting the software vendor to present a financial statement to determine the real financial size of the software vendor

Investigating previous projects state for the selected software vendor

Investigating the number of the project team and the technical support employees

The second way that opportunism may occurs is moral hazarded[3].

☐ Moral hazard:

Occurs when the software vendor claim to be working for the project while they are not by taking advantage of the lack of technical knowledge of the customer in the software field

Some times its difficult to monitor the work of the software vendor therefore its very important to determine a clear milestones by consulting agency and usually relate the projects payments to these milestones

3.3. Problems related to culture issues:

ERP problems and risks are highly effected by the culture of the country in which it is been implemented

This comes from the fact that overall goal of implementing an ERP system will verify from one country to another and the government lows will verify from one country to another

In China [6] for example most ERP projects are not delivered on time but nearly all of them doesn't pass their budgets the budget in this case the most important factor unlike some other countries where the budget can be much more flexible and the time will become the critical factor

Also in China ERP systems are not concern with enhancing the processes cycle or customer satisfaction as other socialist countries instead the main concern is to reduce the cost and obtain control on the inventory system

This problem has no appearance in the Syrian environment because all business processes and functions stay the same after implementing ERP systems and no changes are allowed afterward

ERP systems are not concern with enhancing the processes cycle or customer satisfaction instead the main concern is to reduce the cost and obtain control on the inventory system and reduce labor work

As a result researches [6] show that **“AN AWARENESS OF CULTURAL DIFFERENCES IS CRITICAL TO ERP SUCCESS.”**

4. Chapter 4: ERP problems in Syria:

4.1. Computing in Syria

▣ Introduction

The important role of IT in Syria was largely ignored or misunderstood before the year 1999 [8] with very small exceptions in the military field.

This was due to the special circumstances of this country related to the economic situation mostly and some social problems and conflicts on many levels in the whole region (e.g., Arab/Israel, Iran/Iraq, Iraq/U.S.A, Lebanon, Somalia ...)

Syria had no international email links and limited international phone services

The importation of fax machine or wireless phones was illegal [8]

There was no mobile service company and only two ISP (both in the public sector)

Not all the IT problems were due to local reasons some came from the outside

The unilateral U.S.A export controls on items that considered as high technology stuff related to IT such as personal computers and microprocessors and microcomputers

The American companies has been operating this low since 1952 [8]

Syria as all the Arab countries in the Middle East have no computer hardware industry therefore these Items are usually imported from Far East. [8]

Although Syria had a very good universities and send large number aboard for technical and managements training, but the Syrian universities had no computer since department only one faculty in Aleppo University had a computer engineering branch.

However by the end of the 90's dozen's of computer since private institutes which provided hundreds of computer specialist and computer trainers

As a result the computer specialist were either studied over seas or trained in a computer institute

Unfortunately many of these skills are not working in Syria due to high income differences.

▣ Status of IT in Syria

The role of IT has expanded after the year 2000 many private and public company are using different computer information systems.

The government reduced tariffs on computer importation by 1/7/ 2006 from 14-1 %

These efforts were made to increases in the use of IT

The existent of PCs became very common in the different government organizations.

Two mobile companies invested in the Syrian market by the year 2000 and the number of ISP private companies is increasing daily still some services that are used in the software industry are still forbidden such as FTP and CSV and POP mail

People became more and more familiar with the computer work.

In spite of that the computer specialists salaries has increased, however Syria still suffer from the phenomenon of brains bleeding many engineers and computer expert

chose to work outside Syria because of the low income (approximately 160\$ per month for engineer)

The most important software consumer in Syria is the public organizations
As there were no government firm that represent the software companies in Syria, by the year 2003 a group of software companies owners in Syria established a nongovernmental forum called Software Industrial Forum SIF in order to help and support the software industry in Syria and to effectively represent, promote, and advance the Syrian software and IT services industry in the global market.
This forum also aimed to set standards for software industry as there were no standards to organize the craft of the software industry
By the year 1999 Damascus University opened a computer engineering branch and by the year 2003 the first batch of graduators was ready to work in the software field

4.2. The major problems of ERP projects in Syria

The purpose of this study is to develop a better understanding of the major failure factors associated with implementing ERP systems in the Syrian environment
These case studies will examine the major failure factors mentioned earlier in Chapter 3 against 3 wide Syrian companies (mentioned in Chapter1) experiments
Each case study was developed by using in depth interviews with the senior manager responsible of planning and implementing the ERP system

4.2.1. Implementation problems:

☐ Resisting the change

No BPR was performed or even required in all these case studies there were no improvement in the business process lifecycle
Which raises the question of the value of ERP implementation with no business process enhancement?
This final goal of ERP implementation was more flexibility and efficiency in each unit individually

☐ Customization

This problem appeared mostly in the case study of the Syrian centralized bank
The large size or customization required was due to the poor description of the requirements in the identification and selection stage and in some cases the requirements specifications were changed during the implementation
This problem also appeared in the Public Syrian Company for communications
Its was so obvious that the complexity of ERP systems from one hand and the lack of skills due to low salaries and the lack of computer experts on the other hand made the mission of identifying the requirements more difficult than it should be

☐ Data Inconsistency:

One of the most common problems that occurred during the implementation was the inconsistency of the organization's data.
In the case study of the Public economy for tobacco in the inventory system this organization approximately 500 stores contained more than 100000 different products
Each store had different name and part number for most of the products.
Which raised questions about how these huge inventory data can be organized in a way that can be transformed to ERP system?

This problem is very common as many of the organizations that had the well to transform to ERP systems doesn't have a pre-computer based system to transform data from there fore an addition the data preparation (Specially in the inventory system) may be a problem

4.2.2. Problems related to the software vendors:

☐ **Opportunism by the software vendors:**

The lack of computer knowledge in some organizations which had heard about the benefits of implementing ERP systems and wanted to implement one seduced some software companies to take advantage of these organizations .

In the case of the Syrian centralized bank the software company tried to convince the centralized bank to purchase the GL model only to solve their problems

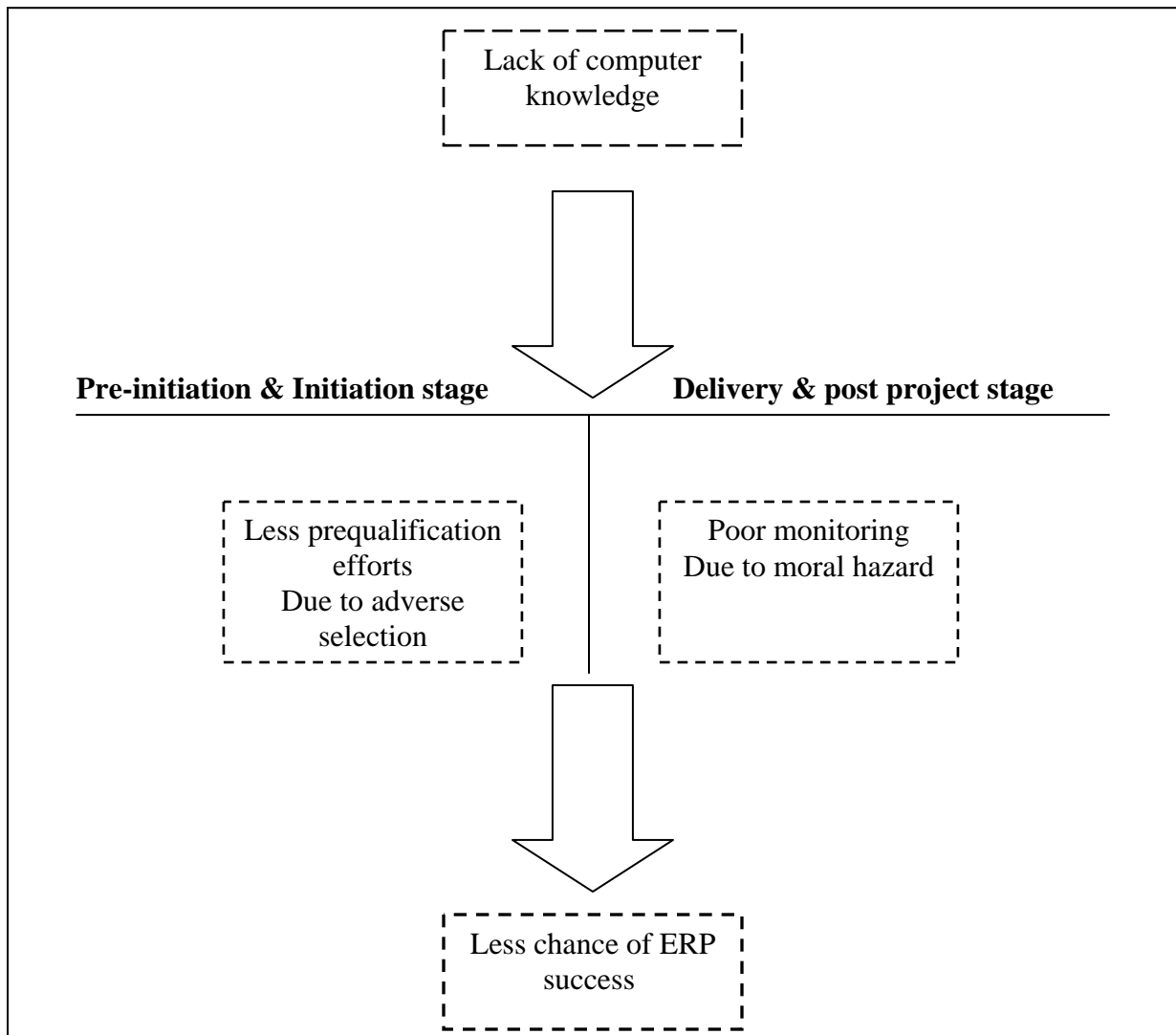


Figure [2]

Figure [2] shows the impact of the lack of computer knowledge on the success of ERP project

In the pre-initiation and initiation stage the impact of the lack of knowledge enabled the software company to hide information about itself or the software or the project by eliminating important parts of the system

In the delivery and the post project stage the impact is poor monitoring

Monitoring is referred to as "the application of a feedback system to provide information to the principal regarding the actions of the agent" [3]

As a result to poor monitoring and poor prequalification effort the chance of ERP success becomes less

4.2.3. Problems related to culture issues:

As mentioned earlier in this chapter poor of knowledge in the software field and lack of skills is the mother of many many problems that occurs and causes to ERP failure in addition to some others special governance and social characteristics

In this research these problems are related to the current Syrian environment

The culture problems related to environment issues will answer the question why the same software success in some countries and fail in another

❑ Lack of dynamicity in government paper work

A problem that occurred in the three cases the study included is the lack of dynamicity in the different governmental paper work

for example in the case of the Syrian centralized bank the project was delayed many times because the complex procedures of ordering new computer devices took so much more time than it suppose to take.

The lack of dynamicity in the different governmental processes makes it almost impossible to stick to the time schedule of the project and eventually affect the success of the whole project

There was no case in this study in which the product was delivered on time

❑ Employees fear of accepting the software

The public sector employees are usually afraid to sign the acceptance papers for the software contracts and even some times for the hardware contract due to the huge lack of knowledge in this field (mentioned earlier in this chapter)

It's hard to take responsibility of contracts with high amount of money and accepting the software and especially for ERP system when there are no standard ways for testing and when the software is too complex and needs many tests to pass

The hardware some times face such problems but no as much as the software as it remains the intangible product

❑ Low ERP projects budget

The Syrian organizations expects high quality ERP product for a very low price specially when they deals with local software company in the case of the Public economy for tobacco the total contract amount was 120'000 \$ including a year of free technical support for the project and customizations and free updates

Comparing to the case of the Syrian centralized bank with an amount of 1000000 \$ for oracle financial with no customization and no support

The local companies' contracts are like crumbs comparing with the western ERP contracts

Surprisingly the employees in the Syrian centralized bank said that they wish they had deal with a local company because they are more aware of the Syrian lows and the Syrian environment

However the low budget software project will eventually affect in a way or another the work of the software company and the quality of the product and will effect the success or failure of the ERP system success

Some times the software company accepts such contracts due to miscalculating the implementation costs and so during the implementation after the project costs reach a certain limits they try to limits the technical support and customization and different implementation activities to keep the project in success from the perspective of the software company but these kinds of projects cant count as success

❑ **No classification for the software vendors**

Due to the lack of knowledge in the computer field in the government's organizations the only current rule to determine the best proposal to implement an ERP is from the price of the contracts

Usually the lower price takes the contract in the case of the Public economy for tobacco the IT department sign the contract with the lowest proposal

This came from the fact that Syria has no official classification or standard to classify the software companies

❑ **No consulting firms**

There are no consulting firms in Syria. The only reference available that the organizations can't rely on during the different stages of their project and trust is the universities as in this research case study the case of the Public economy for tobacco This chapter mentioned earlier the current situation of the Syrian universities. This raised questions about the ability of these universities to fully consult wide enterprise applications such as ERP project technically and business issues consulting due to lack of experiences in this area

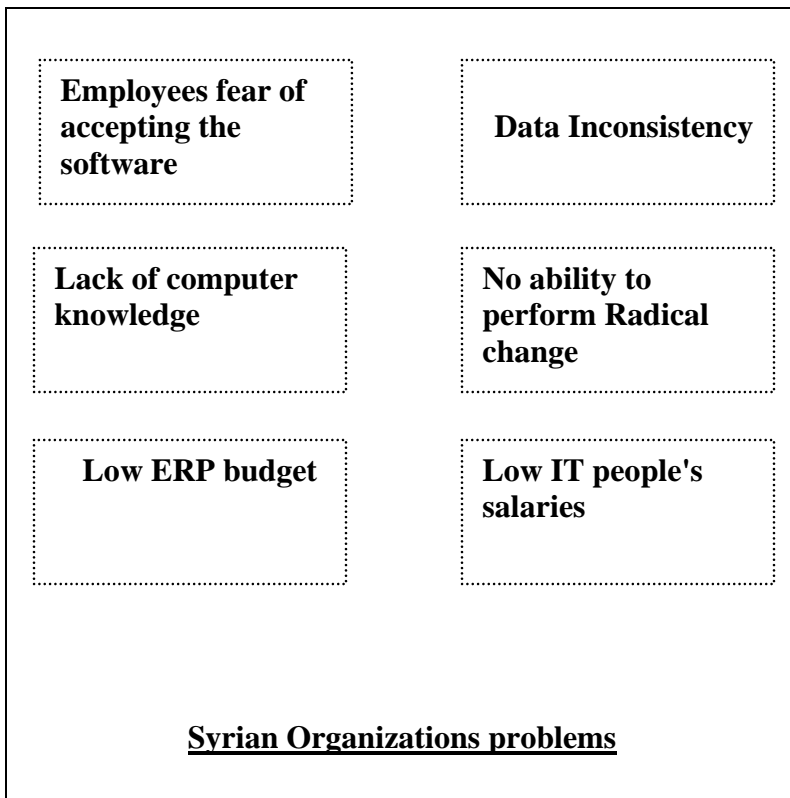
❑ **The lack of computer companies**

In spite of that the number of the software companies has increased in the past few years according to the SIF

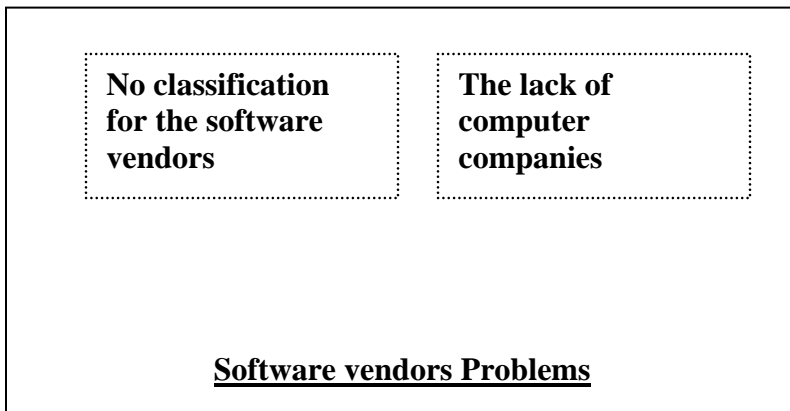
Mr. M.Al-Jurf the chief of the SIF sees that there are only two software companies in the software market that produce what can considered as ERP systems

However this phenomenon leave limit options for the organizations which don't have enough budgets to implement a western ERP system and chose to implement a local ERP system

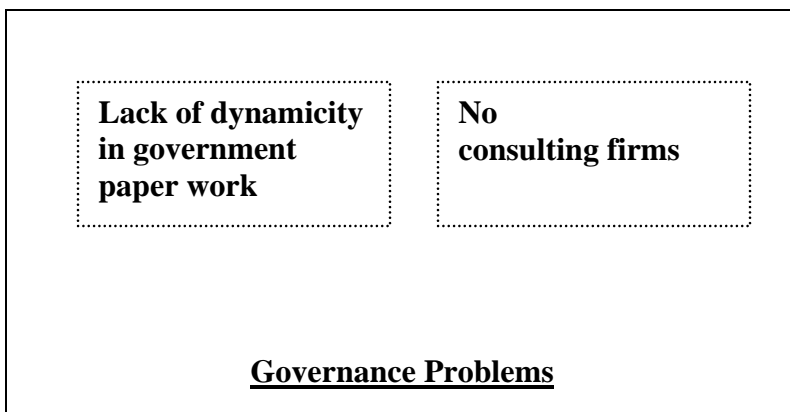
Figure [3] describe the cultural problems related to the Syrian environment which was analyzed depending on the case studies of the three Syrian organizations and how each of these problems affected the success of the ERP project



- ❑ Delaying the project schedule
- ❑ Less prequalification efforts
- ❑ Poor monitoring
- ❑ Less benefits of ERP features
- ❑ Difficulty in transforming the organization's data to the ERP system
- ❑ Low implementation service quality
- ❑ Lack of professional computer skills



- ❑ Less choices for ERP local resources
- ❑ The organizations chose the software company depending on the product price



- ❑ Greater chance for moral hazard and adverse selection
- ❑ Delaying the project time line

5. Chapter 5: A propositions for ERP success in Syria:

After describing the different cultural problems related to ERP projects in Syria in Chapter 4 This chapter develops a set of propositions for applying in the Syrian environment related according to similar researches in the same field

5.1. Implementation problems

❑ Resisting the change

The IT department in the public sector organizations needs to make a fully description to each process and streamline process before implementing an ERP system process

The best and safer way of change [1] is the incremental form of change some researches refer to as evolutionary [1] change a form of patchwork instead of planned change each patchwork include a degree of change

This form takes a lot more time than the radical change but its much safer and much more suitable for the Syrian organizations

Also this approach gives the organizations employees a certain time to understand and adapt with the change

❑ Customization

One of the most important failure factors is the huge amount of customizations during ERP implementation

Documentation during the customization is very important for Software Company and the organization to control the product version

In addition the requirements in the analysis stage must be described very clearly and should be fully tested

❑ Data Inconsistency

As it was motioned the Chapter 4 this problem is very common in the large scales organizations especially in the inventory system

According to some researches "The most significant quantifiable benefits involve reductions in inventory, material costs, and labor and overhead costs, as well as improvements in customer service and sales"[7]

The saving cost can reach 10-30% only in the inventory systems

The state of the data cant be transformed to ERP system therefore a stream line committee which much included IT technical and expert in the business field in the organization must prepare the data before transforming it into the systems

Data cleaning is required for Correct and complete data by which means data with best possible quality

Problems can occur when dealing with data for single branch organization or multi branch at the department level or the whole organization level

When dealing with single branch organization data, problems can be at the organization level such as missing constraints for example uniqueness, domain ranges and invalid references

At the department level problems of data entry errors for example spelling mistakes, lexical errors

On the other hand when dealing with multi branch organization new type of data inconsistency can found

Issues due to conflict in data integration along the organization branches also conflicts in naming and structure among the organization branches can be found Therefore the implementation of ERP system can't be started unless this step is completed and approved

5.2. Problems related to the software vendors

▣ Opportunism by the software vendors

Chapter 4 mentioned two common types of opportunism that occurs during the initiation and implementation stage of ERP project which are moral hazard and adverse selection

These two types of opportunism affect the success of ERP project[3]

The main reason that opportunism occurs is that the goal of the project differed from the organization perspective and software company

The main concern of the software company is to take its payments and stick to the project time schedule

On the other hand the organization is concern with achieving maximum benefits of ERP system including inventory reduction, material cost reductions, labor cost reductions, sales increasing, improvements in customer service ...[7]

Vedabrata Basu and Albert L. Lederer [3] studied the impact on incentive alignment on the behavior of the software company

Incentive alignment refer to designing the software contract in a way that make the goals of bother the organization and the software company similar to each others

For example linking the project payments to the acceptance of the project deliverables

The result of the study shows that the greater the incentive alignment the less the moral hazard

The SIF suggested a full incentive alignment by making the payment for the software a percent of the cost reduction

For example the software company can implement an inventory system and take a percentage of the total inventory system reduction in the organization

In such way moral hazard will be totally eliminated

As for the adverse selection researches and observers [3] suggested a several ways to perform a fully prequalification tasks before selecting the software company that public sector organizations must require a certain proposal, and then carefully review each consulting firm's proposal [3].

Also the organization must investigate each software company based on its prior ERP implementation experience, its request financial position description, the vendor certification of its individual employees, and its implementation experience in the same field as that of the organization. They can also look into the reputation of the software company.

Finally, the organization can inquire about the software company expertise and commitment in terms of technical skills, business process knowledge, infrastructure, technical support services, sticking to the projects timeline, and different after sales service in prior implementations

The organization must visit other customers for the software company and ask for their opinion to avoid adverse selection as much as possible

5.3. Problems related to culture issues

☐ Lack of dynamicity in government paper work

The government must take some responsibility in facilitating the work of the software company if it really wanted to gain the benefits of the ERP projects that they purchase

The software company can't be blamed for the delaying in the project schedule that is related to the lack of dynamicity in the different paper work and government procedures

It's enough to know that Syria didn't witness any lows related to the software industry area until now.

The Syrian government must give IT field more priority

☐ Employees fear of accepting the software

This problem is related for two reasons

a. Lack of knowledge in the computing field

Training the employees is one of the most important propositions to make ERP a success and this training must include two phases

The organizations should first train their employees on computer basics including operating systems basic and computer usage afterward comes ERP training.

ERP Training must focus of three levels of knowledge [11]:

command-based, tool procedural, and business procedural.

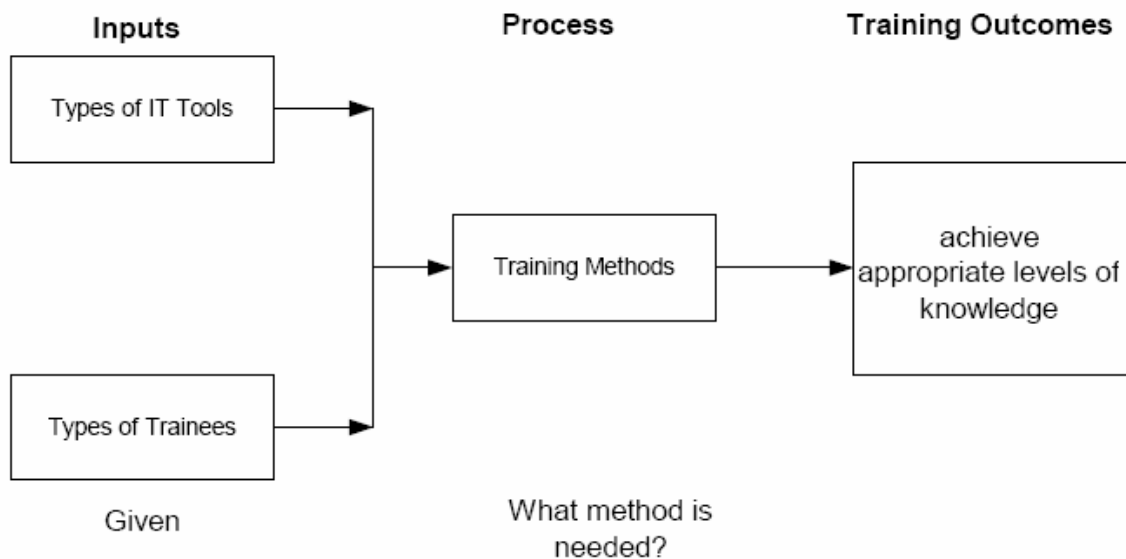


Figure [4]

Command-based level includes training on the commands in each task this training usually include the ERP end users

Tool procedural includes training on the tools used to build the ERP system (ex. Oracle, SQL server ...) these types of training is detected to the IT department employees.

Business procedural training includes the overall ERP functions and the integration among different departments this training includes the head chief of the organizations departments and the IT department employees

b. Contractual problems

This problem is related to the type of milestones in the contract

The mile stones should be specifically determined and the organization must develop a certain way to ensure that the milestone was fully tested and approved and determine the payment for each milestone in the project by consulting a professional external consulting firm

This chapter talked earlier about incentive alignment [3] it strongly recommended that the contract should specify incentives and penalties related to the software company

▣ **Low ERP projects budget**

Although the government started recently to support wide enterprise computing projects by increasing the budget amount for different computing projects Unfortunately most of this money is still spending on computer equipment and building informatics infrastructure (networks, computer devices ...)

The software should be given the same priority that is given to the hard because there is no benefit of the hardware without a successful software implementation

▣ **No classification for the software vendors**

Syria until now don't have any government union for the software industry craft SIF is the only non-government union that includes the software companies in Syria this forum is still in the beginning and still trying to organize this craft

This non-government firm should be supported by the government or the government itself should organize this craft

Taking Tunisia as an example

In Tunisian [8] the government had organized the software industry craft by officially making informatics a "privileged sector."

The government Informatics Plan was formulated by the Council for Computing and Telecommunications, which is chaired by the Prime Minister and whose membership consists of a small number of cabinet ministers and other "key players."

The National Informatics Center in Tunis has been Tunisia's lead IT organization since 1975.

The National Informatics Center tried with its 250 member staff to do everything from overseeing the implementation of the plan to playing a major role in the design and construction of a national data transmission network.

The Tunisia government also cut tariffs on computer imports from 50% to 10%. They provided many efforts in order to increase the use of IT.

As a result computers are heavily used in banks and public organizations, and during 1987- 91 Tunisia had a 31.5% average annual rate of increase in the value of its computer equipment stock, to a current value of over 200 million Dinars.

The classification is a very important step to help ERP success and to avoid adverse selection and to encourage the software companies to developed itself to get new contracts

▣ **No consulting firms**

Most projects are implemented without the required consulting and detailed studies which are a very important in succeeding these projects

This role is very important especially in the Syrian environment where insufficient internal expertise is very obvious

It is very important to obtain consultants who are specialists in every specific application modules [4]

The proposition here is to use external consultants and integrates their knowledge and technical expertise with existing organizations IT.

The lack of computer companies

Before implementing an ERP system the organization must identify and implement strategies to re-skill the existing IT work and acquire external expertise through vendors and consultants when needed.

Table [3] summarized the propositions mentioned in this chapter

Propositions
Apply incremental form of change during ERP implementation
Focus on documentation during customization in order to keep the project under control
Use consulting agency to define the requirements and ERP exact scope
Perform data cleaning & organizing to ensure best data quality at the organization level
Include incentive alignment in the ERP contract
Inquire about the software company expertise and commitment in previous projects
Insure that ERP users training must focus of three mentioned levels of knowledge
The government must support ERP project financially
Organized the software industry craft by making informatics a "privileged sector."
Use external consultants and integrates their knowledge with existing organizations IT
Come out with new lows to support the software industry

Table [3]

5.4. Conclusion

This research had tried to set some light on the state of computing and wide enterprise applications specially ERP systems in Syria.

This state is still very far from the different western company's state

The software industry in Syria is still in the beginnings and needs to be developed and organized and supported by the government.

Syria has many software companies unfortunately most of them lack to the software engineering standard

These companies should keep cooperating with each others to survive

The software Industrial Forum was a very important step but it need to be supported and nursed by the government and have some privileges to suggest new laws in the software industry area to help and support the software industry in Syria and to effectively represent, promote, and advance the Syrian software and IT services industry in the global market.

The Syrian organizations are the most important software consumer in Syria but most of the times these organizations frustrate the software projects by always blaming the software company for the different projects failure

These organizations should take some responsibility and get the required consultant and training and start to spare some efforts to solve their problems that are usually under their control

The bright side which wasn't mentioned is the openness of the different IT departments included in this study and the eager to discuss the different types of problems that occurs and finding solutions for them

References

[1] Marie-Claude Boudreau, Daniel Robey "Organizational transition to enterprise resource planning systems" theoretical choices for process research, proceeding of the 20th international conference on Information Systems Charlotte, North Carolina, United State ,Pg: 291 - 299 Year 1999

[2] Wayne Brown "Enterprise resource planning (ERP) implementation planning and structure: a recipe for ERP success" User Services Conference, proceedings of the 32nd annual ACM SIGUCCS conference on User services Baltimore, MD, USA ,Pg: 82 – 86 Year 2004

[3] Vedabrata Basu, Albert L. Lederer "An agency theory model of ERP implementation" Special Interest Group on Computer Personnel Research Annual Conference Proceedings of the 2004 conference on Computer personnel research: Careers, culture, and ethics in a networked environment SESSION: User involvement in system implementation Tucson, AZ, USA ,Pg: 8 – 13 Year 2004

[4] Mary Sumner, Southern Illinois "Risk factors in enterprise wide information management systems projects" Special Interest Group on Computer Personnel Research Annual Conference Proceedings of the 2000 conference on Computer personnel research Chicago, Illinois, United States, Pages: 180 - 187 Year 2000

[5] Kuldeep Kumar, Jos van Hillegersberg "Enterprise resource planning: introduction" Communications of the ACM Archive Volume 43 , Issue 4 (April 2000) Pg 22 – 26 Year 2000

[6] Maris G. Martinsons "ERP in China: one package, two profiles" Communications of the ACM archive Volume 47 , Issue 7 (July 2004) Has the Internet become indispensable? Pg 65 - 68 Year 2004

[7] Scott Hamilton "Justification of ERP Investments" Maximizing Your ERP System http://www.vendor-showcase.com/Research/ResearchHighlights/Erp/2004/02/research_notes/TU_ER_X_SH_02_10_04_1.asp Date \ Time:18/01/07 04:30:00 PM Pg: 1 - 90 Year 2004

[8] S. E. Goodman, J. D. Green "Computing in the Middle East" Communications of the ACM Archive Volume 35 , Issue 8 (August 1992) Pg: 21 - 24 Year 1992

[9] Walter Skok, Michael Legge "Evaluating enterprise resource planning (ERP) systems using an interpretive approach" Special Interest Group on Computer Personnel Research Annual Conference Proceedings of the 2001 ACM conference on Computer personnel research San Diego, California, United States Pg: 189 - 197 Year 2001

[10] Robert C. Beatty, Craig D. Williams "ERP II: best practices for successfully implementing an ERP upgrade" Communications of the ACM archive Volume 49 , Issue 3 (March 2006) Self managed systems Pg: 05 - 109 Year 2006

[11] Tony Coulson, Lorne Olfman, C. E. Tapie Rohm "ERP training strategies: conceptual training and the formation of accurate mental models" Special Interest Group on Computer Personnel Research Annual Conference proceedings of the 2003 conference on Computer personnel research: Freedom in Philadelphia--leveraging differences and diversity in the IT workforce Philadelphia, Pennsylvania ,IT skills and training Pg: 87 - 97 Year 2003

Acknowledgment

I want to close with an acknowledgment to my dearest wife. Souha, her love, support, and endurance have contributed immeasurably to my life and inspired me to go on with my studies.