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IMPLEMENTATION FRAMEWORK OF ENTERPRISE RESOURCE PLANNING FOR SMALL AND MEDIUM ENTERPRISES IN NORTHERN STATES OF MALAYSIA



DOCTOR OF PHILOSOPHY UNIVERSITI UTARA MALAYSIA

IMPLEMENTATION FRAMEWORK OF ENTERPRISE RESOURCE PLANNING FOR SMALL AND MEDIUM ENTERPRISES IN NORTHERN STATES OF MALAYSIA



Thesis Submitted to
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Kolej Perniagaan

(College of Business) Universiti Utara Malaysia

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ABSTRACT

ERP entails the managing and planning of company's resources in the most productive, effectiveness and profitable manner. It allows companies to integrate their information and business processes in a predetermined manner to ensure profitability and efficiency. Although, successful ERP implementation comes with various business competitive advantages however; Small and Medium Enterprises (SMEs) are facing great difficulties and challenges in achieving successful ERP implementation compared with Large Enterprises (LEs). Thus, this thesis proposed ERP implementation framework for SMEs which can reduce high degree of complex organization changes and enhance successful ERP implementation. This study makes used qualitative one-on-one in-depth interview research design. There are sixty respondents for this study from five different positions such as I.T personnel, ERP constants/Project Manager, ERP users, top management and customers. Those sixty respondents are from twelve different companies within northern region of Malaysia. The gender disparity of 60% to 40% ratio of male to female respondents was observed. This depicts that most SMEs assigned key personnel positions to males compared with females on ERP administration. In addition, most of the respondents are first degree (BSc) holders making 90% while the other 10% are second degree (Masters) holders. The findings of this study identified eight CSFs and seven CFFs that influence successful implementation of ERP in SMEs. The study has been able to propose an ERP implementation framework specifically targeted at the SMEs. The framework strengthens the position of existing ERP implementation framework through explication of the importance of ERP implementation in SMEs. This study specifically argues that factors such as funding, time and customization are very imperative for the successful implementation of ERP in SMEs which are missing in many past studies.

Keywords: ERP, Large Enterprises, SME, Implementation framework, Success factor, Failure factor, Business process

ABSTRAK

ERP memerlukan pengurusan dan perancangan sumber syarikat dalam cara yang paling produktif, berkesan dan menguntungkan. Ia membolehkan syarikat untuk mengintegrasikan maklumat dan proses perniagaan mereka dengan cara yang telah ditetapkan untuk memastikan keuntungan dan kecekapan. Meskipun, pelaksanaan ERP yang berjaya datang dengan pelbagai kelebihan daya saing perniagaan; Perusahaan Kecil Menengah (PKS) menghadapi kesukaran dan cabaran besar dalam mencapai pelaksanaan ERP Berjaya berbanding dengan Perusahaan Besar (LEs).Oleh itu, tesis ini meneroka rangka kerja pelaksanaan ERP untuk PKS manakala rangka kerja mengurangkan tahap organisasi yang kompleks dan meningkatkan pelaksanaan ERP yang berjaya. Kajian ini menggunakan reka bentuk penyelidikan temu bual secara kualitatif satu-satu-dalam. Terdapat enam puluh responden untuk kajian ini dari lima posisi yang berbeda seperti personil I.T, pemalar ERP / Pengurus Projek, pengguna ERP, manajemen puncak dan pelanggan. Sebanyak enam puluh responden terdiri daripada dua belas syarikat yang berlainan di rantau utara Malaysia. Jurang perbezaan jantina sebanyak 60% hingga 40% responden lelaki dan perempuan diperhatikan.Ini menggambarkan bahawa kebanyakan PKS menugaskan jawatan penting kepada lelaki berbanding dengan wanita dalam pentadbiran ERP. Di samping itu, kebanyakan responden adalah pemegang ijazah pertama (BSc) yang membuat 90% manakala 10% lagi adalah pemegang ijazah kedua (Masters). Penemuan kajian ini menunjukkan lapan CSF dan tujuh CFFsthat mempengaruhi kejayaan pelaksanaan ERP dalam PKS.Kajian ini telah mencadangkan rangka kerja pelaksanaan ERP yang khusus disasarkan kepada PKS. Rangka kerja ini memperkukuhkan kedudukan rangka kerja pelaksanaan ERP yang sedia ada melalui indikasi pentingnya pelaksanaan ERP dalam PKS dan menggambarkan faktor seperti pembiayaan, masa dan penyesuaian adalah sangat penting untuk kejayaan pelaksanaan ERP dalam PKS.

Kata kunci: ERP, Perusahaan Besar, SME, rangka kerja Pelaksanaan, Faktor keberhasilan, Faktor kegagalan, Proses perniagaan

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GLOSSARY OF ABBREVIATION

ERP Enterprise Resource Planning

SME Small and Medium Enterprises

CSF Critical Success Factor

CFF Critical Failure Factor

IT Information Technology

MRP Manufacturing Requirement Planning

LE Large Enterprises

OS Open Source



CHAPTER ONE INTRODUCTION

1.1 Overview

Over the years, companies have continued increasingly to ensure productivity and profitability by the use of information technology (IT). This is as a result of competitive environment created by the increasing challenging global market. This is motivating companies to be in the quest of improvement by adoption of new technology to achieve their target objectives. Enterprise Resource Planning (ERP) systems have gained more attention as an IT tool that can transform a company to withstand the increasing global market challenges. ERP, which emerged from Manufacturing Requirement Planning (MRP), is IT integration systems that enhance business function and processes by managing the whole company's resources successfully and efficiently. Likewise, ERP entails the managing and planning of company's resources in the most productive, effectiveness and profitable manner (Nordin& Ojeniyi, 2015; Hong, 2009). It allows companies to integrate their information and business processes in a predetermined manner to ensure profitability and efficiency.

ERP is a configurable information system package that enhances integration of business processes and information across and within functional boundaries within a company(Jackson, 2010). It is a comprehensive integrated software solution which enables complete business functionality and processes, in order to operate a company-wide view business operation from a single IT layer architecture (Al-Rashid, Alshawi & Al-Mashari, 2012). The key benefits of ERP system is related to productivity and efficiency of the company business because it enhance quick, timely and accurate information to ensure company's profitability. It also reduces company data collection period and avoid data duplication for a productive operation. It aids company managers in decision making; with timely access to information, managers can now make speed and precise decision. It

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APPENDIX I

IMPLEMENTATION FRAMEWORK OF ENTERPRISE RESOURCE PLANNING FOR SMALL AND MEDIUM ENTERPRISES IN NORTHERN STATES OF MALAYSIA

Dear Respondent,

I am a Ph.D. candidate from Universiti Utara Malaysia, Malaysia. My research work is on Implementation framework of Enterprise Resource Planning (ERP) for Small Enterprises (SEs)in Malaysia. I am conducting a research on the appropriate framework for implementing ERP in Malaysia SEs. The goal of this research is to gain insight into the cultural perceptions to enhance success in the implementation of ERP in Asia countries as a whole and Malaysia in particular. The Malaysia's perceptions will go a long way in reshaping how ERP can be deployed and implemented effectively and appropriately to suit SEs profitability and productivity.

The interview will take about one hour and it will be noted and recorded. Information provided during the interview will be used solely for the research purpose, as part of the researcher's PhD thesis.If you have any questions regarding this research, please feel free to contact us at OYA graduate school of business, Universiti Utara Malaysia. You can send an email at: moonthiak@hotmail.com for any additional information may require.

We appreciate your participation in this research project.

Sincerely,

Ang Moon Thiak Doctoral Candidate

APPENDIX II

INTERVIEW GUIDE

PART A: ICEBREAKING QUESTIONS

What is your personal mission statement?
Tell me about an influential person in your career or education.
What is your greatest achievement outside of work?
Would you rather work with information or with people?
What motivates you?
How do you work under pressure?

PART B: DEMOGRAPHIC DETAILS

Name:

Job Designation:

Company Name:

Company Location:

Year of Experience:

Gender:

Educational Background:

Date:

Time:

Place:

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PART C: INTERVIEW I

- Q1 Can you please explain your role or position in this company?
- Q2 What kind of Enterprise Resource Planning (ERP) software do you use/supply the customers/are you using?
- Q3 How do you help your customers in ERP implementation? (ERP consultant/Project Manager)
- Q4 How do you/your customers' benefits from ERP implementation?
- Q5 Do you have any direct benefits from the ERP implementation? (Customers)
- Q6 What do you think are the critical success/failure factors in ERP implementation?
- Q7 Why do you think they are critical?

- Q8 According to our research from reference books and journals, we have identified some critical success/failure factors in ERP implementation, what do you think about these factors (listed below). Do you agree or not? Why?
- Q9 If the answers of Q6 are included in the above factors, we are going to leave them out, and then we will ask the respondents what they think of the remaining factors.
- Q10 How importance is each factor according to your opinion? Why?
- Q11 Can you please rank the CSFs/CFFs according to their importance in ERP implementation using 1 = strongly determine the success, 2 = determine the success, 3 = necessary for success?
- Q12 How can you describe your ERP implementation in term of the following:
- a) Information Quality: Up to date database, Easy to understand, Timely information, Suitable with users' requirement, Availability, Relevant, Useful
- b) System Quality: Flexibility, Easy to use, Reliable, Accurate, Efficiency, Open system, Customization, Feature
- c) Service Quality: Good service, Reliable, Hardware & Software up to date, Users' need, Good knowledge
- d) Satisfaction: Customer satisfaction, Time efficiency, Business process improvement, Decision support, Decision quality, Task performance, Problem identification, Accurate interpretation, Employee creativity
- e) Organization Impact: Create competitive advantage, Business innovation, Product differentiation, Business growth, Application portfolio, Change in organization process, Increased capacity, Cost reduction, Staff requirement, Overall productivity, Improved outcome/output
- Q13 How can you describe the impact of ERP implementation to your company productivity / job efficiency / customers' needs?

PART D: INTERVIEW II

- Q1 Based on literature review and first interview conducted previously, this proposed framework was developed (Present the proposed framework). As an expert, what is your view about the practicality of this proposed framework?
- Q2 What are possible weaknesses and limitations you foresee in the proposed framework?
- Q3 Can you please give further area of improvement on the proposed framework?

Q4 How best can your rates the proposed framework in term of simplicity, clarity, cost and time-saving?



APPENDIX III
SUMMARY OF PARTICIPENTS' BACKGROUND

ID	Position	Company	Company	Year of Experience	Gender	Educational
		Description	Location	_		Background
01	User	S & O Electronics	Kedah	10	Female	BSc
02	Top Management	S & O Electronics	Kedah	20	Male	BSc
03	IT Personnel	S & O Electronics	Kedah	8	Male	BSc
04	Project Consultant	S & O Electronics	Kedah	12	Male	MSc
05	Customer	S & O Electronics	Kedah	3	Female	Diploma
06	User	Jin Bin Sdn Bhd	Kedah	13	Female	BSc
07	Top Management	Jin Bin Sdn Bhd	Kedah	14	Male	BSc
08	IT Personnel	Jin Bin Sdn Bhd	Kedah	4	Male	BSc
09	Project Consultant	Jin Bin Sdn Bhd	Kedah	13	Male	BSc
10	Customer	Jin Bin Sdn Bhd	Kedah	6	Female	BSc
11	User	KS Northern	Kedah	16	Female	BSc
12	Top Management	KS Northern	Kedah	23	Male	BSc
13	IT Personnel	KS Northern	Kedah	13	Male	BSc
14	Project Consultant	KS Northern	Kedah	17	Male	MSc
15	Customer	KS Northern	Kedah	8	Female	Diploma
16	User	Worldline Sdn Bhd	Penang	10	Female	BSc
17	Top Management	Worldline Sdn Bhd	Penang	18	Male	BSc
18	IT Personnel	Worldline Sdn Bhd	Penang	13	Male	BSc
19	Project	Worldline Sdn Bhd	Penang	10	Male	MSc

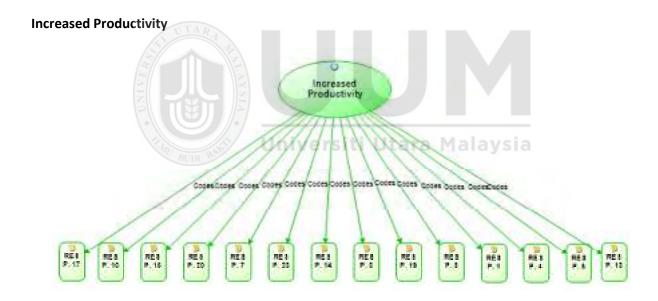
	Consultant					
20	Customer	Worldline Sdn Bhd	Penang	6	Female	Diploma
21	User	Adatech Sdn Bhd	Penang	15	Female	BSc
22	Top Management	Adatech Sdn Bhd	Penang	21	Male	BSc
23	IT Personnel	Adatech Sdn Bhd	Penang	4	Male	BSc
24	Project Consultant	Adatech Sdn Bhd	Penang	4	Male	MSc
25	Customer	Adatech Sdn Bhd	Penang	6	Female	Diploma
26	User	Chi-Tien Electronic	Penang	13	Female	Diploma
27	Top Management	Chi-Tien Electronic	Penang	16	Male	BSc
28	IT Personnel	Chi-Tien Electronic	Penang	7	Male	BSc
29	Project Consultant	Chi-Tien Electronic	Penang	9	Male	BSc
30	Customer	Chi-Tien Electronic	Penang	6	Female	Diploma
31	User	B.T Engineering	Perak	4	Female	BSc
32	Top Management	B.T Engineering	Perak	20	Male	BSc
33	IT Personnel	B.T Engineering	Perak	8	Male	BSc
34	Project Consultant	B.T Engineering	Perak	12	Male	BSc
35	Customer	B.T Engineering	Perak	3	Male	BSc
36	User	SOK KEN Plastic	Perak	3	Female	BSc
37	Top Management	SOK KEN Plastic	Perak	14	Male	BSc
38	IT Personnel	SOK KEN Plastic	Perak	5	Male	BSc
39	Project Consultant	SOK KEN Plastic	Perak	9	Male	BSc
40	Customer	SOK KEN Plastic	Perak	5	Female	BSc
41	User	Sin Yoon Loong	Perak	9	Female	BSc

42	Тор	Sin Yoon Loong	Perak	14	Male	BSc
	Management					
43	IT Personnel	Sin Yoon Loong	Perak	5	Male	BSc
44	Project Consultant	Sin Yoon Loong	Perak	5	Male	MSc
45	Customer	Sin Yoon Loong	Perak	3	Female	Diploma
46	User	Chong AIK	Perlis	9	Female	BSc
47	Top Management	Chong AIK	Perlis	13	Male	BSc
48	IT Personnel	Chong AIK	Perlis	8	Male	BSc
49	Project Consultant	Chong AIK	Perlis	6	Male	BSc
50	Customer	Chong AIK	Perlis	4	Female	BSc
51	User	Bintong Sdn Bhd	Perlis	6	Female	BSc
52	Top Management	Bintong Sdn Bhd	Perlis	12	Male	BSc
53	IT Personnel	Bintong Sdn Bhd	Perlis	6	Male	BSc
54	Project Consultant	Bintong Sdn Bhd	Perlis	4	Male	MSc
55	Customer	Bintong Sdn Bhd	Perlis	4 4 9 9 9	Male	Diploma
56	User	Min Honky Auto	Perlis	6	Female	BSc
57	Top Management	Min Honky Auto	Perlis	8	Male	BSc
58	IT Personnel	Min Honky Auto	Perlis	5	Male	BSc
59	Project Consultant	Min Honky Auto	Perlis	10	Male	MSc
60	Customer	Min Honky Auto	Perlis	2	Female	Diploma

APPENDIX IV THEME AND SUBTHEME RESPONDENTS MAPPING

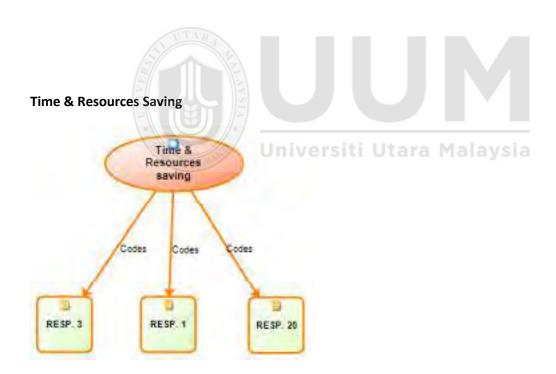
Costing -effective



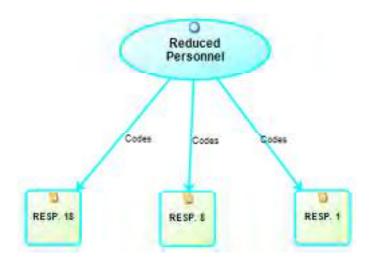


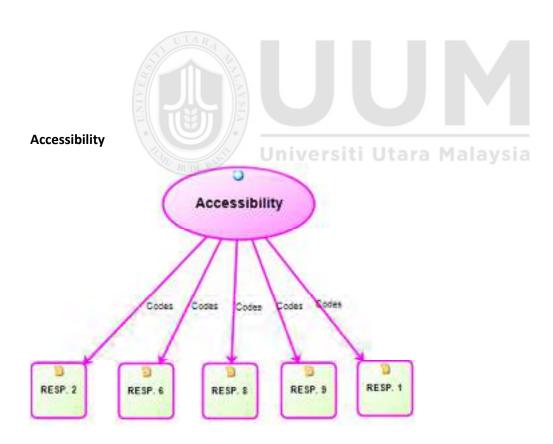
More Customers



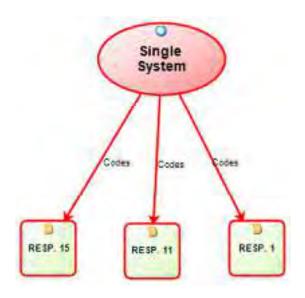


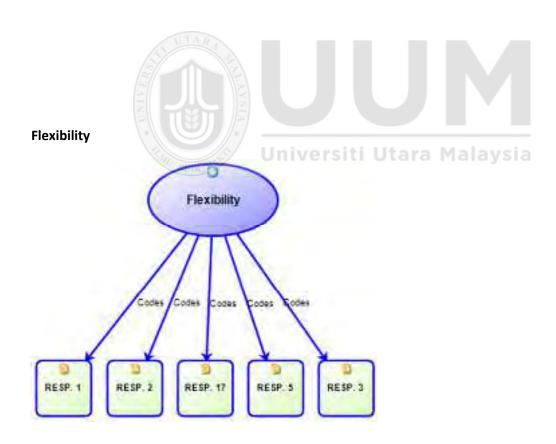
Reduced Personnel



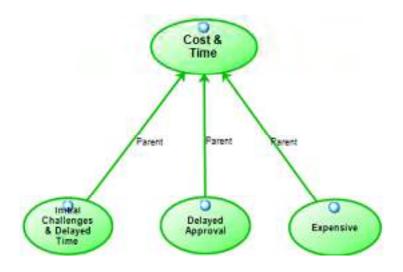


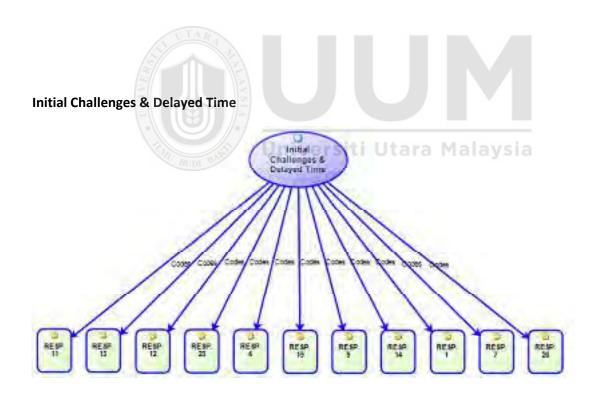
Single System





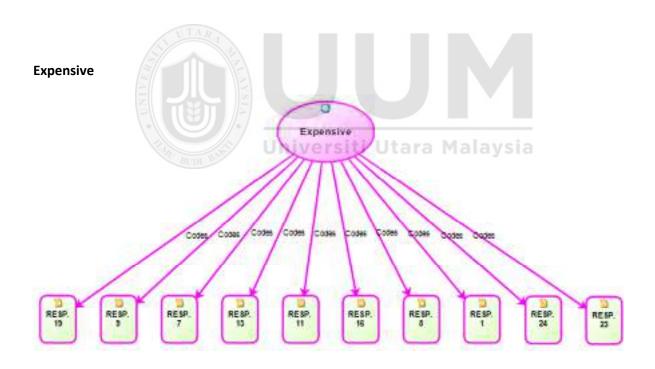
Cost & Time





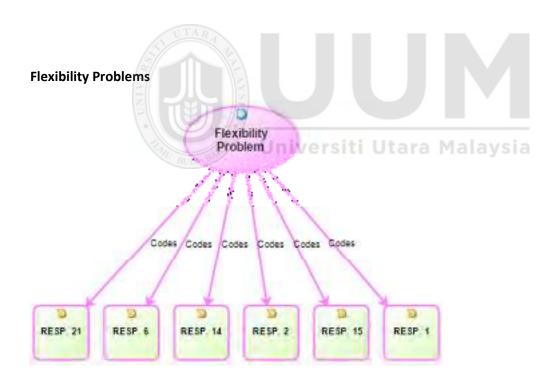
Delayed Approval



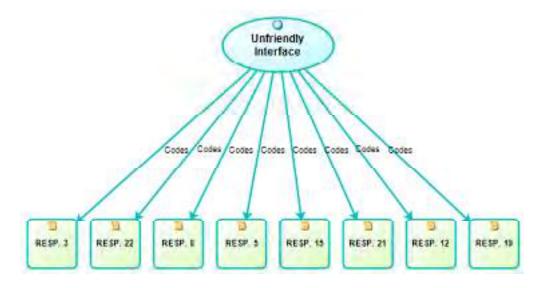


Upgrading Challenges

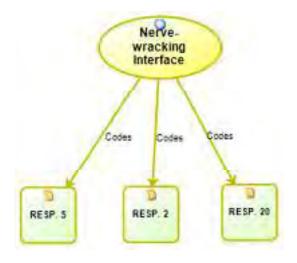




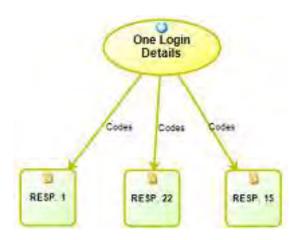
Unfriendly Interface

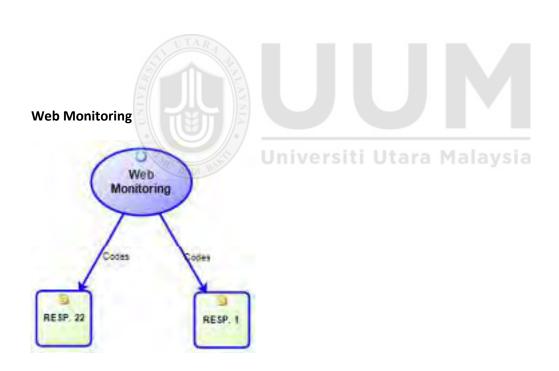




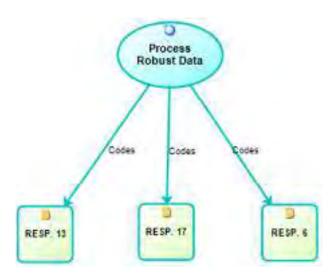


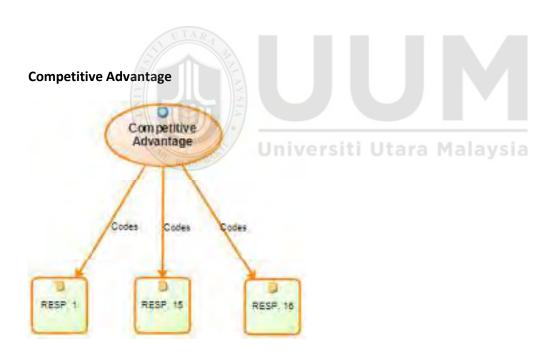
One Login Details



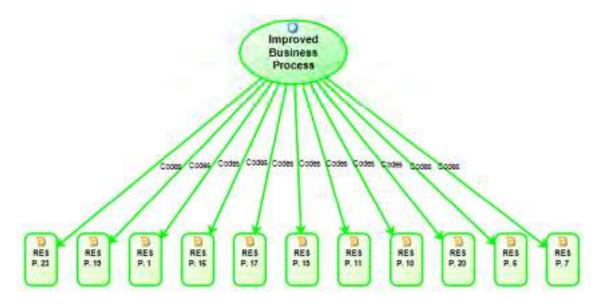


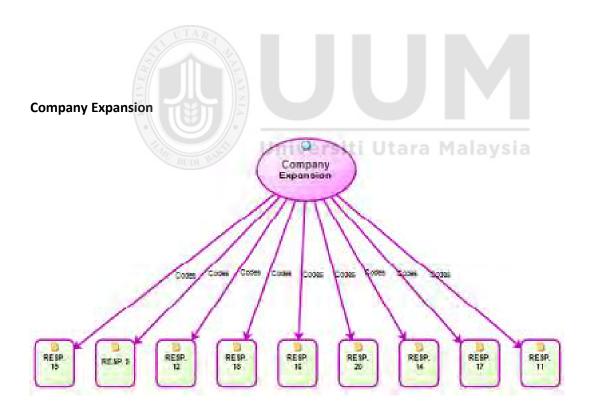
Process Robust Data



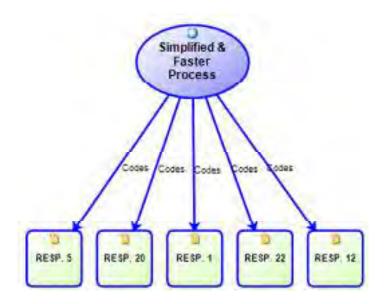


Improved Business Process





Simplified & Faster Process

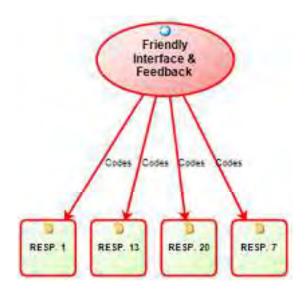


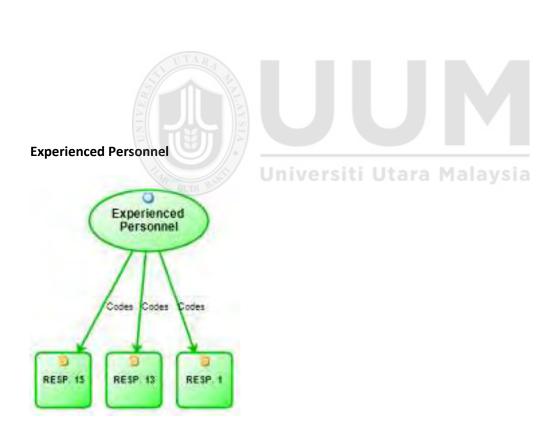


Proper Handling

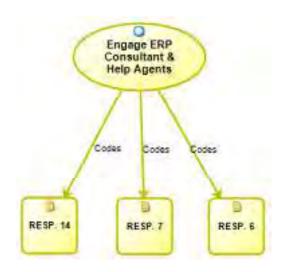


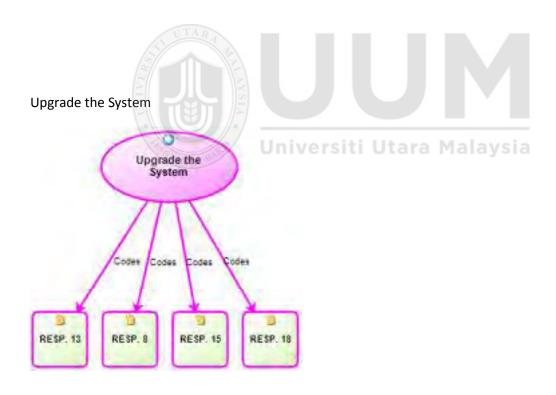
Friends Interface & Feedback





Engaged ERP Consultants & Help Agents





Formal Training

