

"I / We * hereby declare that I have read
this thesis and in my / our * opinion this project
is sufficient in terms of scope and quality for the award
Bachelor of Technology (Technological Innovation)

Signature :
Supervisor Name :
Date :

Signature :
Panel Name :
Date :

A STUDY OF FACTORS INFLUENCING SUCCESSFUL NEW PRODUCT
DEVELOPMENT: A CASE STUDY AT FLEXTRONICS SDN. BHD MALAYSIA

NURUL HIDAYAH BINTI ABD RAHIM

Report Submitted In Fulfillment of
The Requirements for The
Bachelor Degree of Technology Management
(Technology Innovation)

Faculty of Technology Management and Technopreneurship
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

JUNE 2015

"I admit that this report is the result of my own work except summaries and excerpts
that each of them I have explained the source"

Signature :

Name :

Date :

DEDICATION

This Final Year Project is dedicated to my parents for their love, endless support, encouragement, and prayers.

ACKNOWLEDGEMENT

Alhamdulillah. Thanks to Allah SWT, whom with His willing giving me the opportunity to complete this Final Year Project which is title a study of factors influencing successful New Product Development: A case study at Flextronics Sdn. Bhd Malaysia.

This final year project report was prepared for Fakulti Pengurusan Teknologi dan Teknousahawan, Universiti Teknikal Malaysia Melaka (UTeM), basically for student in final year to complete the undergraduate program that leads to the degree of Bachelor of Technology Management and Innovation. This report is based on the methods given by the university.

Firstly, I would like to express my deepest thanks to, Datin Suraya Binti Ahmad, a senior lecturer at Fakulti Pengurusan Teknologi dan Teknousahawan, UTeM as my supervisor who had guided be a lot of task during semester's session 2014/2015. I also want to thanks Dr.Chew Boon Cheong lecturer of Research Method subject for the cooperation during I complete the final year project that had given valuable information, suggestions and guidance in the compilation and preparation this final year project report.

Deepest thanks and appreciation to my parents, family, special mate of mine, and others for their cooperation, encouragement, constructive suggestion and full of support for the report completion, from the beginning till the end. Also thanks to all of my friends and everyone, those have been contributed by supporting my work and help myself during the final year project progress till it is fully completed.

ABSTRACT

Developing successful and effective factors of new product development is crucial for innovator to create the ecosystem of new products for surviving and growing the business performance in a globalized world. Capability to produce new products in order to compete in current and future market is competitive advantage of successful companies. In Malaysia, there are many firm coming from Electronic Manufacturing Service (EMS), which is providing design, builds and ships complete packaged products for its Original Equipment Manufacturing (OEM) customers in order to convince their client to collaborate with them. In case study, Flextronics Sdn. Bhd was selected among EMS industry to explore the factors influencing successful new product development process as well as can contribute to business performance. The research utilized 3 factors based on human factors contribution advocated by the number of times these factors mentioned by various authors. A questionnaire survey distributes to the sample from population at the organization, whereas the data were analyzed quantitatively. As a conclusion, Flextronics International Ltd. is a sustainable company with Global Fortune 500 companies based in the Silicon Valley (Filing in Singapore) and is the second largest global Electronics Manufacturing Services (EMS) provider in the world in terms of revenue, with an estimated fiscal by year 2001 revenue between \$10 and \$12 billion. Besides, Flextronics has manufacturing operations in over 30 countries, totalling approximately 27.2 million square feet and 200,000 employees.

ABSTRAK

Membangunkan faktor kejayaan dan berkesan dalam pembangunan produk baru adalah penting untuk inovasi mewujudkan ekosistem pada produk baru bagi menggalakkan pembangunan dan pertumbuhan prestasi perniagaan dalam dunia globalisasi. Keupayaan untuk menghasilkan produk baru untuk bersaing dalam pasaran semasa dan masa akan depan adalah kelebihan daya saing pada syarikat-syarikat yang berjaya. Di Malaysia, terdapat banyak firma daripada Pembuatan Perkhidmatan Elektronik (EMS), yang menyediakan reka bentuk, membina dan menyiapkan kapal produk dibungkus untuk pelanggan Original Equipment Manufacturing (OEM) dalam usaha untuk meyakinkan pelanggan untuk bekerjasama dengan mereka. Dalam kajian kes, Flextronics Sdn. Bhd telah dipilih di kalangan industri EMS untuk meneroka faktor-faktor yang mempengaruhi kejayaan proses pembangunan produk baru dan juga boleh menyumbang kepada prestasi perniagaan. Kajian ini menggunakan 3 faktor berdasarkan sumbangan faktor manusia yang disokong oleh bilangan kekerapan faktor-faktor yang dinyatakan oleh pelbagai penulis. Satu kajian soal selidik diedarkan dalam bentuk populasi sampel pada organisasi, manakala data pula dianalisis secara kuantitatif. Kesimpulannya, Flextronics International Ltd adalah syarikat yang dapat bertahan dengan Global Fortune 500 syarikat yang berpangkalan di Lembah Silikon (Filing di Singapura) dan merupakan Elektronik global Perkhidmatan Pembuatan kedua terbesar (EMS) yang disediakan di dunia dari segi perolehan, dengan anggaran fiskal dengan tahun 2001 pendapatan antara \$ 10 dan \$ 12 bilion. Selain itu, Flextronics mempunyai operasi perkilangan di lebih 30 negara, berjumlah kira-kira 27.2 juta kaki persegi dan 200,000 pekerja.

TABLE OF CONTENTS

CHAPTER	CONTENTS	PAGE
	DECLARATION	i
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	x
	LIST OF FIGURES	xii
	LIST OF ACRONYMS	xiii
	LIST OF SYMBOLS	xiv
CHAPTER 1	INTRODUCTION	
	1.1 Background of study	1
	1.2 Problem statement	2
	1.3 Research Questions	3
	1.4 Research Objectives	3
	1.5 Scopes, Limitation and key assumption	4
	1.6 Significance of Study	5
	1.7 Summary	6
	1.8 Flowchart by chapter	7
CHAPTER 2	LITERATURE REVIEW	
	2.1 Introduction	8
	2.1.1 Definition new product Development	9
	2.1.2 New Product Development Process	9
	2.1.3 The importance of NPD	12
	2.1.4 The benefits of NPD	13
	2.1.4.1 Towards economy	13

2.1.4.2	Towards business organization	14
2.1.5	Factors influence NPD success	15
2.1.6	Theoretical framework	18
2.1.7	Hypothesis	21
2.2	Case study at Flextronics Sdn. Bhd	22
2.2.1	About Flextronics Ltd.	22
2.2.2	Nature of business	23
2.2.3	Type of NPD IN Flextronics organization	24
2.3	Summary	24

CHAPTER 3 RESEARCH METHOD

3.1	Introduction	25
3.2	Research design	25
3.3	Methodological choices	27
3.4	Primary data sources	27
3.5	Secondary data sources	28
3.6	Location of the research	28
3.7	Research strategy	28
3.7.1	Sampling method	29
3.7.2	Questionnaire structure	30
3.7.3	Pilot testing	30
3.8	Time horizon	31
3.9	Reliability Test	31
3.10	Validity Test	33
3.11	Pearson's Correlation Coefficient	35
3.12	Simple Linear Regression	35
3.13	Multiple Regressions	36
3.14	Summary	37

CHAPTER 4	RESULT AND DISCUSSION	
4.1	Introduction	38
4.2	Analysis of pilot test	38
	4.2.1 Reliability test	39
	4.2.1 Validity test	39
4.3	Description of respondent	41
	4.3.1 Demographic profile analysis	42
4.4	Analysis of questionnaires	46
	4.4.1 Frequencies analysis	46
	4.4.1.1 Independent Variable (IV)	47
	4.4.1.2 Dependent Variable (DV)	50
4.5	Descriptive statistic analysis	51
	4.5.1 Split table analysis	52
4.6	Correlation Coefficient test	56
4.7	Multiple Regressions analysis	56
	4.7.1 Hypothesis testing	59
4.8	Result discussion	61
4.9	Summary	61
CHAPTER 5	CONCLUSION AND RECOMMENDATION	
5.1	Introduction	62
5.2	Summary of findings	63
5.3	Answering the research question	65
5.4	Limitation	66
5.5	Contribution of the research	66
5.6	Suggestions	67
5.7	Recommendations	68
REFERENCES		69
APPENDIXCES		72

LIST OF TABLES

Table	Title	Page
3.1	Cronbach Alpha Coefficient Range	32
3.2	Rules of thumb correlation range	35
4.1	Cronbach Alpha for all factors	39
4.2	Validity test	40
4.3	Percentage of respondent rate	41
4.4	Demographic characteristics	42
4.5(a)	The description item of teamwork factor on influencing successful NPD process	47
4.5(b)	The description item of managerial factor on influencing successful NPD process	48
4.5(c)	The description item of individual factor on influencing successful NPD process	49
4.5(d)	The description item of human factor on business performance in organization	49
4.6	Sample size, mean score and standard deviation	51
4.7	Matrix table analysis by position	52
4.8	Summary result analysis	54
4.9	Result on significant sub factor	55
4.10	Correlation for Independent Variable (IV)	56
4.11	Model summary of teamwork factor	57
4.12	Coefficients of teamwork factor	57
4.13	Model summary of managerial factor	58
4.14	Coefficients of managerial factor	58
4.15	Model summary of individual factor	59
4.16	Coefficients of individual factor	59

4.17	Model Summary of Multiple Regressions Analysis	60
4.18	Coefficients	61
4.19	Repeat test variable of Multiple Regression Analysis	62
4.20	t and significant value	63
5.1	Analysis on forced-choice questionnaire (Section c)	66
5.2	Mean value on Dependent Variable (DV)	68

LIST OF FIGURES

Table	Title	Page
2.1	Generic product development process	10
2.2	Benefit NPD towards economy	14
2.3	Theoretical framework (Human factors contribution)	19
2.4	New Product development at Flextronics	24
3.1	Process of sampling method	29
4.1	Distribution of respondent by age	43
4.2	Distribution of respondent by position	44
4.3	Distribution of respondent by year of experience	45
4.4	Distribution of respondent by number of project involved	45
4.5	Matrix analysis chart by position	53
4.6	Rules for hypothesis testing	62
5.1	The most factor influence NPD process	67

LIST OF ACRONYMS

NPD	:	New Product Development
EMS	:	Electronics Manufacturing Services
OEM	:	Original Equipment Manufacturing

LIST OF SYMBOLS

N	:	Number of quantities
μ	:	Mean value
β	:	Beta values
%	:	Percentage

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

In this study, the researcher will discuss on the definition of the new product development and the factors that influencing successful new product development process to improve the business performance as well as can sustain the business performance in a globalized world. Nowadays, innovators need to create ecosystem development on new product development because it's crucial for growth and survival of companies in successful new product development. According to Ewah et al, (2008), it can be adduced that certain factors positively affect new product success. Capability in developing a new product and has ability to compete in current and future markets is the competitive advantage of successful companies.

According to Barclay et al., (2000) in order to consistently and to make successful development of new products, ability to produce a steady flow of successful new products has consistently been the key factor in corporate success. The key success of new product development includes propositions relating to product differentiation, pre-development filtering task, hearing the voice-of-the customer, sharply defining product features and benefits, identifying go or kill points, creating project teams, strength resourcing, international orientation, and the role of senior management stated by Cooper and Edgett, (2006).

In the previous studies, the purpose of the new product development process is to generate a stream of market led, technically and commercially viable new products to support the business plan as well as with the minimum risk support by Cooper, (2000) and Yip et al., (2006) stated that the products and processes are both safe and environmentally friendly to introduce into the market as well as increase the sales and give competitive strength for the firms. According to Griffin, (1993) stated that NPD has become a major concern in all companies and based on the previous study, most NPD managers must understand fully what actually occurs in specific NPD projects that lead to successful or failed performance outcomes.

The case study is on Flextronics organization around Malaysia. Flextronics is organization of Electronic Manufacturing Service (EMS) which is providing design, builds and ships complete packaged products for its Original Equipment Manufacturing (OEM) customers, provides aftermarket and field services to support customer end-to-end supply chain requirements. OEM means that the organization supplied equipment to other companies to resell or incorporate into another product using the reseller's brand name. The researcher focus on how company Flextronics build new products and investigate on the factors that influences successful of NPD as well as to identify which most influences factor contribute to the success of the NPD process. So that the, Flextronics company can focus on the prominent factor for future build as well as can contribute business performance.

1.2 PROBLEM STATEMENT

Based on the case study at Flextronics Shah Alam Sdn. Bhd, the researcher has identified the problem through observation. During industrial training, the researcher as a one of the team members that contribute in the project developing new product, and the problem statement as follows: Generally relationship between new product development with business performance is the output that has been produced. But, through the observation the researcher identified that Flextronics have a lower productivity and the process of new product development is not efficient.

The process of new product development is disruptions over the unplanned downtime and delay to launch the new product to the customer as well as its can contribute to the worse business performance when the customer is refusing to collaborate again with Flextronics in future. Supported by Schmitt and Stiller, (2013) stated that delay can cause massive instabilities in the product development system due to the increasing amount of rework and failures.

1.3 RESEARCH QUESTIONS

Based on the research objectives that have been developed earlier, three research questions are constructed to meet the objectives. In this study, the researcher has identified three questions to be answered. Some question has to take concern to achieve better explanation of this research:

- i. How importance of new product development (NPD) process for the firm?
- ii. What are the factors that have influencing successful the new product development (NPD) in business performance?
- iii. Which factor most influencing on successful new product development (NPD) process?

1.4 RESEARCH OBJECTIVES

The main objective of this study is to determine the factor and conditions that are important for influences business performance at Flextronics company. To be more specific, there are three research objectives that will be highlighted in this study. These objectives are as follows:

- i. To investigate the importance of new product development (NPD) as well as it can contribute to business performance.

- ii. To explore the factors influencing successful new product development (NPD) process.
- iii. To describe which is the dominant factor influencing successful new product development (NPD) process.

1.5 SCOPE AND LIMITATION OF STUDY AND KEY ASSUMPTIONS.

The scope research study narrows down into smaller topic, a scope case study from multinational company Flextronics. Generally multinational organization is a worldwide, for the purpose of research study the topic will discover Flextronics branch in Malaysia. In this research is focuses on the main factor influences new product development success to improve business performance in Flextronics.

This research focus on Flextronics organization, in which the organization involved in the contract manufacturing industries which is sub assemble electronic and electrical located at several places in Malaysia and other country. The target respondent for this research is 100 respondent come from manager level, engineer level, research and development level, on the purchasing, manufacturing production, marketing and engineering department. But, some constraint may happen like difficult for the researcher throughout the study, the researcher has highlighted several limitations. Time constraints are the first limitation. This study is one research that required a longer time to enable the researcher gets the essence and quality data for effective research. But since it is a project research of final student which takes only four months that is a semester work as required by the school, the researcher is less valid information to use. The researcher also needs to find the suitable time for collecting enough data in the organization. The second limitation that financial constraints where the researcher has two faces throughout this study. The researcher used a lot of money to print out good journal to make it as references. The key assumption, firstly when deal with company at another branch in Malaysia and maybe lack of cooperation between that respondent. Second is assumed on the attitude of the respondents during fill the questionnaire, the researcher doesn't know whether the respondents answering questionnaire honestly or not and the information on the questionnaire also cannot be guaranteed as a good quality.

1.6 THE SIGNIFICANCE OF RESEARCH

This research is important for better understanding of new product development because product development and innovation are closely with the central of business prosperity. The organization setting of the new product development activities has become increasingly important to both academics and managers. Clearly, more knowledge of these issues is needed. Hence, this research intends to contribute the study of new product development performance by selecting the most influential factors of new product development success and adding variable from various factors that influence new product development success.

The findings from this research is hoped can contribute to the building of new knowledge in terms of theory and practice in new product development and thus the organization with the best practice of factor that contributed the success of the new product introduction process.

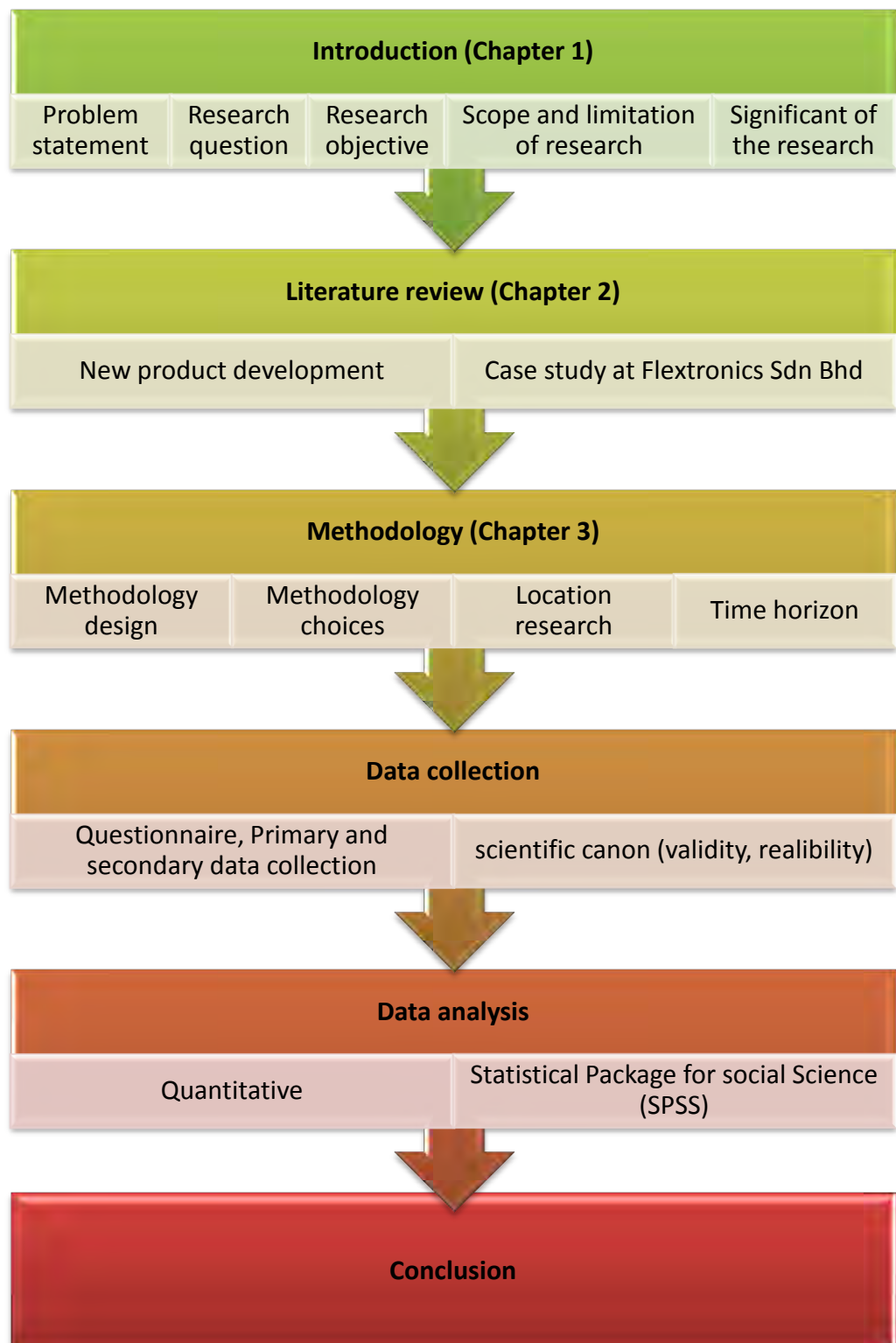
This study also gives benefit from finding which concluded the study of new product development process, and it can give impact on business performance at Flextronics organization. For instance, according to Ewah (2008) high quality offerings are more likely to succeed than low quality product. The product that better meets customer's need and offer benefits not found in competitive product stand a better chance of succeeding.

In addition, these findings can help the company continue to learn (research) and to make a difference in its industry (pioneer). A business, whether it sells waste management or interstellar communications, janitorial services for gene splicing, lives through new growth (not through clones of the past). Lastly, academically the findings from the study add new understanding of knowledge and literature, particularly in the area of new product development.

1.7 SUMMARY

This chapter explained the research direction. The introduction briefly explains the background of the study on new product introduction and the general factor that influences new product introduction process success as well as contribute to the business performance from the case study at Flextronics Sdn Bhd around Malaysia branch. This chapter also describes the problem statement, objective of research as well as the research question on study case. The scope and limitation of this research also provide narrow scope of research and provide direction for further process as well as the important of this research was explained in order to identify the main factor that are influences successful new product development in business performance on the organization.

1.8 FLOWCHART BY CHAPTER



CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In this paper, researcher is a study based on an extensive review of the NPD literature. Generally, factors influencing successful new product development have been stated by many authors. The researcher review these authors' statements and purpose on a new model that is suited to decision making regarding new product development, performance and specification.

The outline of this chapter is presented as follows. In section 2.1.1 the researcher describes the term new product development. 2.1.2, the researcher explore the NPD process, followed by section 2.1.3 the researcher the importance of NPD. Section 2.1.4, the researcher defines the benefits of successful NPD. Section 2.1.5 about discussion from the previous study about the factors drives the NPD process successfully. 2.1.6 Research framework is then described in detail and we conclude with a discussion of researcher work. Next, followed by section 2.2 which is exploring case studies at Flextronics Company. Section 2.2.1 the researcher describe about background Flextronics. Section 2.2.2 stated nature business of Flextronics, section 2.2.3 type of new product development at Flextronics Company. Last part 2.3 explores relationship NPD with business performance.

2.1.1 Definition New Product Development (NPD)

The new product development (NPD) according to Belliveau et al., (2002) is a disciplined and defined set of tasks and steps that describe the normal means by which a company repetitively converts embryonic ideas into saleable products or services. According to the previous study, Cooper, (2001); Ulrich & Eppinger, (2011) stated that NPD contribution to the growth of the companies, its influence on profit performance, and its role as key factors in business planning have been well documented. New products are responsible for employment, economic growth, technological progress, and high standards of living. Therefore, the study of NPD and the process through which they emerge is important.

In the last few decades, the number of new product introductions increased dramatically as the industry became more aware of the importance of new products to business. Correspondingly, managing the NPD process has become a challenge for firms as it requires extensive financial and human resources and is time sensitive. The harsh realities are that the majority of new products has never made it to market and those do face a failure rate somewhere in the order of 25 to 45 percent Crawford, (1987); Cooper, (2001). For every seven new product ideas, about four enter development, one and a half are launched, and only one succeeds Booz, Allen & Hamilton, (1982). Despite the extensive research on how to achieve success in NPD, firms continue to deliver products that fail and therefore NPD ranks among the riskiest and most confusing tasks for most companies.

2.1.2 New Product Development Process.

Product development is the process of creating a new product to be sold by the enterprise to its customers. This section to provide understanding of the new product development process in order to be an effective influence in the field, the manager's must understanding significantly wide scope in order to navigate the new product development process. The process of developing new product varies between companies, even between products within the same company. A development project for a market - pull product is generally organized along the lines as shown in figure 2.1 generic product development process.