



UNIVERSITI PUTRA MALAYSIA

***CRITICAL SUCCESS FACTORS OF TOTAL PRODUCTIVE
MAINTENANCE IMPLEMENTATION IN
MALAYSIAN AUTOMOTIVE SMEs***

BADLI SHAH BIN MOHD YUSOFF

FK 2010 47

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By

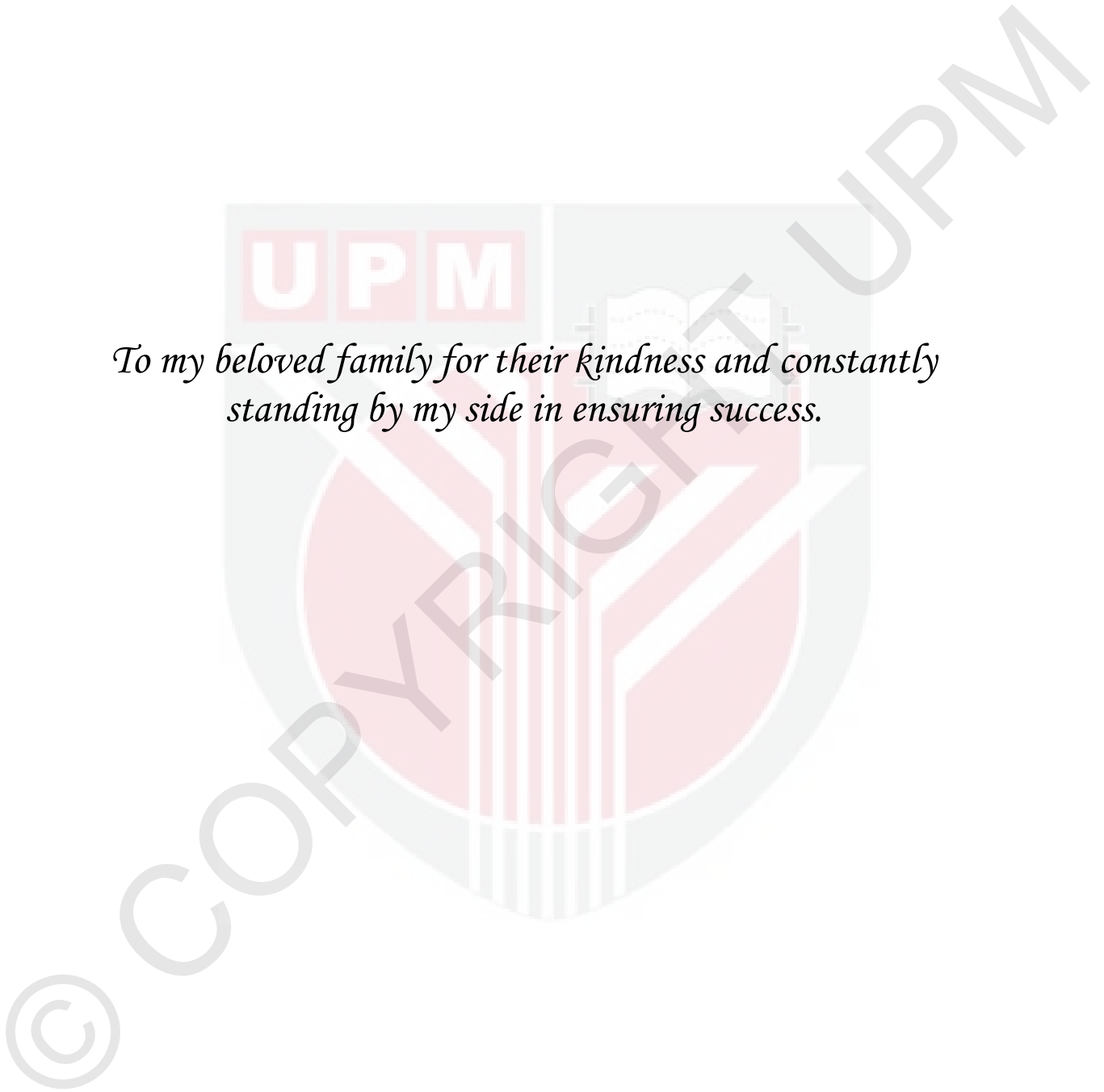
BADLI SHAH BIN MOHD YUSOFF

**This thesis submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the Degree of Master of
Science**

November 2010

DEDICATION

To my beloved family for their kindness and constantly standing by my side in ensuring success.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia
in fulfilment of the requirement for the degree of Master of Science

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Faculty : Engineering

Total Productive Maintenance (TPM) has been recognized widely and accepted by many organizations as a management philosophy. Currently, the implementation level of TPM mainly concentrated within the large industries with few Small and Medium Enterprises (SMEs) adopting the TPM. Thus, this research aims to determine the level of TPM implementation in automotive SMEs. This research examines the Critical Success Factors (CSFs) level of importance and practices, and the barriers associated in implementing TPM. Eventually, the identified CSFs are to assist the SMEs in implementing TPM to further enhance their production equipment maintenance activities. A survey methodology was employed in this study adopting various stages involving review of literature, design and development of survey questionnaire, data collection, data analysis and discussions. The study showed 87% of responses have implemented TPM more than 3 years and also they are having good knowledge of TPM philosophy, aims and goals. However, success

implementation was found not very encouraging. With only 10.64% strongly agree that they have implemented TPM successfully. Analysis of the TPM CSFs revealed that all factors of CSFs, *Training and Education*, *Top Management Commitment*, *Performance Management System*, *Resource Management*, *Continuous Improvement System*, and *Work Culture and Involvement* are important in ensuring successful implementation. Majority of the respondents also agree that these factors are the key success factors for successful TPM implementation. However, the *Training and Education* and *Top Management Commitment* are the two highest factors that are not widely being practiced within automotive SMEs. Responses from the respondents revealed that among the highest barriers in the TPM implementation was *Lack of long term vision and strategic planning*, followed by *Lack of management support* and *Lack of understanding*. These barriers are the constraints needed to be addressed through the CSFs if the success of TPM is required. Finally, the analysis of the significant relationship between TPM CSFs and *TPM Outcomes* shows the TPM CSFs significantly influenced the *TPM Outcomes*. It can be seen that there are variations of 93.7%, 55.4% and 39.6% towards the three measured variables of *Overall Equipment Effectiveness*, *Autonomous Maintenance* and *Planned Maintenance* respectively. These results show that if the TPM CSFs which were considered important are able to be translated into practice; most probably the success of TPM will be observed.

Abstrak tesis ini dipersembahkan kepada Senat Universiti Putra Malaysia bagi memenuhi keperluan untuk memperolehi ijazah Master Sains

**FAKTOR-FAKTOR KRITIKAL KEJAYAAN DALAM PELAKSANAAN
“TOTAL PRODUCTIVE MAINTENANCE” DI PERUSAHAAN KECIL
SEDERHANA OTOMOTIF MALAYSIA**

Oleh

BADLI SHAH BIN MOHD YUSOFF

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“Total Productive Maintenance” (TPM) telah diakui secara meluas dan diterima oleh banyak organisasi sebagai satu falsafah pengurusan. Pada masa ini tahap pelaksanaan TPM lebih tertumpu dalam industri besar dengan hanya segelintir Perusahaan Kecil Sederhana (PKS) mengadaptasi TPM. Oleh itu, penyelidikan ini bertujuan untuk menentukan tahap pelaksanaan TPM dalam PKS otomotif. Penyelidikan ini juga akan mengenalpasti tahap kepentingan dan amalan faktor-faktor kritikal kejayaan, dan rintangan dalam melaksanakan TPM. Faktor-faktor yang dikenal pasti adalah untuk membantu PKS dalam melaksanakan TPM bagi mempertingkatkan lagi kegiatan penyelenggaraan peralatan pengeluaran mereka.

Metodologi kaji selidik telah digunakan dalam kajian ini yang melibatkan berbagai peringkat merangkumi kajian ilmiah, rekabentuk dan pembangunan soalan kaji selidik, pengumpulan data, analisis data dan perbincangan. Hasil kajian menunjukkan 87% dari maklumbals telah melaksanakan TPM lebih dari 3 tahun dan juga mempunyai pengetahuan yang baik tentang falsafah, matlamat

dan tujuan TPM. Namun, kejayaan pelaksanaannya tidak terlalu memberangsangkan, dengan hanya 10.64% sangat bersetuju bahawa mereka telah berjaya melaksanakan TPM. Analisis faktor-faktor kritikal kejayaan TPM mendedahkan bahawa semua faktor, *Latihan dan Pendidikan, Komitment Pengurusan Tertinggi, Sistem Pengurusan Prestasi, Pengurusan Sumber, Sistem Penambakan Berterusan dan Penglibatan dan Budaya Kerja* adalah sangat penting dalam memastikan kejayaan pelaksanaan TPM. Sebahagian besar responden juga bersetuju bahawa faktor-faktor ini merupakan kunci kejayaan untuk pelaksanaan TPM berjaya. Namun, *Latihan dan Pendidikan* dan *Komitment Pengurusan Tertinggi* adalah dua faktor tertinggi yang tidak diamalkan secara meluas dalam PKS otomotif. Tanggapan dari responden mendedahkan bahawa *Kurangnya Visi Jangka Panjang dan Perancangan Strategik* serta *Kurangnya Sokongan Pengurusan* dan *Kurangnya Pemahaman* adalah antara halangan yang tertinggi dalam pelaksanaan TPM. Halangan ini perlu ditangani melalui faktor-faktor penting kejayaan jika kejayaan TPM diperlukan. Akhirnya, analisis hubungan yang signifikan antara faktor-faktor penting kejayaan dan keputusan TPM menunjukkan ianya signifikan mempengaruhi keputusan TPM. Hal ini dapat dilihat bahawa terdapat variasi 93.7%, 55.4% dan 39.6% terhadap *Keberkesanan Peralatan Secara Keseluruhan, Penjagaan Autonomi* dan *Penjagaan Terancang* masing-masing. Keputusan ini menunjukkan bahawa jika faktor-faktor penting kejayaan TPM yang dianggap penting boleh diterjemahkan pada amalan, mungkin kejayaan TPM akan dapat diperhatikan.

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I certify that a Thesis Examination Committee has met on 23 November 2010 to conduct the final examination of Badli Shah bin Mohd Yusoff on his thesis entitled “Critical Success Factors of Total Productive Maintenance Implementation in Malaysian Automotive SMEs” in accordance with the Universities and University College Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the candidate be awarded the Master of Science.

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DECLARATION

I declare that the thesis is my original work except for the quotations and citations which have been duly acknowledge. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.



BADLI SHAH B. MOHD YUSOFF

Date: 23 November 2010



TABLE OF CONTENTS

	Page
DEDICATION	ii
ABSTRACT	iii
ABSTRAK	v
ACKNOWLEDGEMENTS	vii
APPROVAL	viii
DECLARATION	x
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
LIST OF ABBREVIATIONS	xv
CHAPTER	
1 INTRODUCTION	
1.1 Background	1
1.2 Problem Statement	6
1.3 Research Aims and Objectives	8
1.4 Benefits of the Research	10
1.5 Structure of the Thesis	10
2 LITERATURE REVIEW	
2.1 Introduction	12
2.2 Equipment and Plant Maintenance	12
2.3 Total Productive Maintenance	16
2.3.1 TPM – The Concept	16
2.3.2 TPM – The Aims and Structure	17
2.3.3 Advantages of TPM	26
2.3.4 Related Works on TPM	30
2.4 Critical Success Factors (CSFs) of TPM	37
2.5 Relationship between TPM and TQM	40
2.6 Related TPM Study Methodology	44
2.7 Malaysian Automotive Industry	48
2.7.1 History of Malaysian Automotive Industry	49
2.8 Small and Medium Enterprises (SMEs)	51
2.8.1 Definition of SMEs	53
2.8.2 Coverage of Definitions SMEs in Malaysia	53
2.8.3 Development of Malaysian SMEs	54
2.9 Summary	57

3	METHODOLOGY	
	3.1 Introduction	60
	3.2 Research Proses	60
	3.2.1 Stage 1: Problem Definition	60
	3.2.2 Stage 2: Data Collection	71
	3.2.3 Stage 3: Data Analysis	73
	3.2.4 Stage 4: Discussion and Conclusion	75
	3.3 Summary	75
4	RESULTS AND DISCUSSIONS	
	4.1 Introduction	76
	4.2 Demographic Findings of the Respondent Companies	76
	4.3 Reliability and Validity Test	81
	4.3.1 Reliability Test	81
	4.3.2 Validity Test	82
	4.4 General TPM Statistic Description	83
	4.4.1 TPM Opinion	84
	4.4.2 TPM CSFs Level of Importance and Practices	86
	4.4.3 TPM Outcomes	92
	4.4.4 TPM Barriers	97
	4.5 Hypotheses Analysis and Interpretation	100
	4.6 Correlation Analysis	107
	4.7 Regression Analysis	108
	4.8 Critical Success Factors of TPM	114
	4.9 Summary	118
5	CONCLUSIONS AND RECOMMENDATION	
	5.1 Introduction	120
	5.2 Summary of Research Findings	120
	5.3 Significance of Findings	123
	5.4 Recommendation for Future Research	123
	REFERENCES	125
	APPENDICES	134
	BIODATA OF STUDENT	152