# UNIVERSITI TEKNOLOGI MARA

## VEHICLE SAFETY FEATURES CAPABILITIES TO INFLUENCE POTENTIAL CUSTOMERS IN MALAYSIA.

### **RUDY EMRAN BIN JAAFAR**

The industrial research report submitted in partial fulfillment of the requirements for the **Master of Engineering Management** 

Faculty of Mechanical Engineering

July 2015

### **AUTHOR'S DECLARATION**

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Rudy Emran Bin Jaafar
Student I.D. No.	:	2013244776
Programme	:	Master of Engineering Management
Faculty	:	Faculty of Mechanical Engineering
Dissertation Title	:	Vehicle Safety Features Capabilities To Influence
Signature of Student	:	Potential Customer In Malaysia
Date	:	27 <sup>th</sup> July 2015

#### ABSTRACT

A research is being conducted to study the capabilities of vehicle safety features to influence potential customers in Malaysia. Automotive vehicle manufacturers in Malaysia are seriously looking into possibility of capitalizing vehicle safety features as selling points to attract potential customers. Other research activities have minimum effort to consolidate both element of vehicle safety features comparison between all vehicle makers and perform survey on customer vehicle safety features needs. The research has identified vehicle safety features offered to customers in Malaysia and compare their specification with other vehicle makers in order to see possibilities to utilize additional vehicle safety features specification as selling points to attract potential customers. A comprehensive customer survey activity to understand customers' demographic information and customers vehicle safety feature needs as well as to observe the vehicle safety features influence to attract potential customers in Malaysia has been conducted. One hundred random automotive customers were selected to participate on questionnaire that is designed to answer research objectives as stated above. The conclusion provide an added advantages to any vehicle manufacturers who implemented the proposed strategies towards better management of product planning and manufacturing cost as to simultaneously reduce product initial investment cost for future model lines to come. Vehicle manufacturers also be able to supply product according to customers' needs and at the same time maintaining their competitive advantages in Malaysia market. By doing so, vehicle manufacturers able to eliminate unnecessary expenditure such as unnecessary vehicle storage cost, unnecessary CKD pack storage cost and unnecessary aftersales replacement part storage cost. Proper product planning strategy will ensure product livelihood and sustainability in Malaysia automotive market.

#### ACKNOWLEDGEMENT

First of all, Alhamdulillah Syukur and thanks to Allah S.W.T for His grace that finally I am able to complete my industrial project dissertation and to finally complete my Masters program.

I would like to take this opportunity to thank my industrial project supervisor, **Professor Ir. Dr. Hj. Abdul Rahman Omar** for his guidance and sharing of knowledge throughout the whole two semesters in completing my industrial project report.

Thanks to my organization, UMW Toyota Motors Sdn Bhd and my industry supervisor, **Mr** Alan Phoon Kok Loong, Senior Manager, Safety Kaizen Department for UMW Toyota Motor Sdn Bhd.

Not forgetting, to our Program Coordinator, **Dr. Bulan Abdullah**, for her endless support to ensure the completion of this industrial project report.

Last but not least, to my supportive wife, **Ms. Beverley Anak Winston Bale** and my children **Adam Melana**, **Freddy Fadil**, **Ayden Zikri** and also to my five months baby. Thanks for relieving my duty as their head of family during weekends throughout this two year program.

Thanks to both of my parents Jaafar Bin Uda and Mastura Bte Abdul Hamid for their understanding of my busy and tight schedule throughout this two year program especially when I am unable to attend some of our important family event.

For the challenging times, thanks to my classmates and lecturers of EM704 – Master of Engineering Management who have provided me with the knowledge and assistance throughout this two year program.

Finally, to my colleagues and to those who directly or indirectly involved in the research activities, your supports throughout this research are much appreciated.

## **TABLE OF CONTENTS**

	Page
CONFIRMATION BY PANEL OF EXAMINER	iv
AUTHOR'S DECLARATION	y
ABSTRACT	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xiii
LIST OF FIGURES	xv
LIST OF ABBREVIATOPMS/NOMENCLATURE	xxii

СНА	CHAPTER ONE : INTRODUCTION		
1.1	Research Background	1	
1.2	Research Question	2	
1.3	Research Objective	2	
1.4	Scope of Study	3	
1.5	Significant of Study	3	
<b>CHAPTER TWO : LITERATURE INTRODUCTION</b>			
2.1	Vehicle Safety Features	4	
2.2	Active Safety Features	4	
2.3	Passive Safety Features	6	
2.4	Vehicle Safety Features as Selling Points	9	
2.5	Vehicle Safety Features Regulatory in Malaysia	10	
2.6	Public and Consumers Awareness About Vehicle Safety Features	11	
2.7	Vehicle Product Planning Process	11	
2.8	Manufacturing and Assembly Vehicle Safety Features	12	
2.9	Vehicle Storage Cost	12	

2.10CKD Pack Storage Cost132.11Replacement Part Storage Cost132.12Vehicle Manufacturer Decision Making Process13