

**STRUCTURAL RELATIONSHIP BETWEEN OCCUPATIONAL SAFETY AND
HEALTH ADMINISTRATION PRACTICES, OHSAS 18001
EFFORTS AND PERFORMANCE**

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ABSTRACT

The aim of this study is to develop a model that incorporates Occupational Safety and Health Administration Practices (OSHAP), OHSAS 18001 efforts and Occupational Safety and Health Administration Performance (OSHAPM) in Malaysian automotive suppliers. Every company in manufacturing industry is compulsory to have a certification of safety to reduce accident or incident caused. However, before they have the certification they should implement OSHAP to decrease the management cost. A survey through questionnaire was conducted to determine the level of OSHAP implementation, OHSAS 18001 Efforts as well as OSHAPM measurement. 278 sets of questionnaire were successfully collected that brought to 69.50% response rate. Structural equation modelling technique was utilized to perform the required statistical analysis of the data survey. In order to test the reliability and validity of the instruments, reliability analysis, exploratory factor analysis and confirmatory factor analysis were carried out. The results are shown that OHSAS 18001 Efforts did assist directly in improving OSHAPM when implemented with OSHAP. This research also provides a fundamental and direction for researchers in further research and practitioners to constantly improve OSHAPM through the implementation of OSHAP and OHSAS 18001 Efforts.

**HUBUNGAN BERSTRUKTUR ANTARA AMALAN PENTADBIRAN
KESIHATAN DAN KESELAMATAN PEKERJAAN,
USAHA 18001 OHSAS DAN PRESTASI**

ABSTRAK

Tujuan kajian ini adalah untuk mengenalpasti hubungan antara OSHAP, usaha OHSAS 18001 dan OSHAPM, dan membangunkan model yang menggabungkan elemen-elemen ini untuk pembekal automotif Malaysia. Setiap syarikat dalam industri perkilangan wajib mempunyai sijil keselamatan untuk mengurangkan berlakunya kemalangan. Walau bagaimanapun, mereka perlu melaksanakan OSHAP bagi mengurangkan kos pengurusan. Satu tinjauan melalui soal selidik telah dijalankan untuk menentukan tahap pelaksanaan OSHAP, usaha OHSAS 18001 serta pengukuran OSHAPM. 278 set soal selidik telah berjaya dikumpulkan dengan kadar tindak balas, 69.50%. Teknik struktur persamaan model telah digunakan untuk menguji analisis statistik yang diperlukan dalam data kajian. Dalam usaha untuk menguji kebolehpercayaan dan kesahan instrumen, analisis kebolehpercayaan, analisis faktor penerokaan dan analisis faktor pengesahan telah dijalankan. Keputusan menunjukkan bahawa usaha OHSAS 18001 tidak membantu secara terus dalam meningkatkan OSHAPM tetapi ianya dapat membantu apabila dilaksanakan dengan OSHAP. Kajian ini juga menyediakan asas dan hala tuju bagi penyelidik dalam penyelidikan lanjut dan pengamal untuk sentiasa memperbaiki OSHAPM melalui pelaksanaan OSHAP dan usaha OHSAS 18001.

TABLE OF CONTENTS

	PAGE
DECLARATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
ABSTRAK	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xiii
LIST OF FIGURES	xvi
LIST OF ABBREVIATIONS	xvii
LIST OF APPENDICES	xix
CHAPTER 1 INTRODUCTION	
1.1 Background of the Study	1
1.2 Problem Statement	6
1.3 Research Questions	8
1.4 Research Objectives	8
1.5 Significance of the Study	9
1.6 Scope and Limitation of the Study	11
1.7 Research Framework	12
1.8 Hypothesis	15

1.9	Research Design	15
1.10	Operational Definition	16
1.10.1	Occupational Safety and Health Administration Practices	17
1.10.2	OHSAS 18001 Efforts	17
1.10.3	Occupational Safety and Health Administration Performance	18
1.11	Summary	18

CHAPTER 2 LITERATURE REVIEW

2.1	Introduction	20
2.2	Overview on Malaysian Automotive Industry	21
2.3	Occupational Safety and Health Administration Practices (OSHAP)	25
2.3.1	Overview OSHAP	25
2.3.2	Definition of OSHAP	27
2.3.3	Benefits of OSHAP Implementation	28
2.3.4	The Implementation of OSHAP in Automotive Suppliers	29
2.3.5	OSHAP Constructs	30
2.3.5.1	Safety Culture (SC)	31
2.3.5.2	Employee Attitude (EA)	32
2.3.5.3	Employee Involvement (EI)	32
2.3.5.4	Leadership Style (LD)	33
2.3.5.5	Effective Communication (EC)	34

	2.3.5.6 Safety and Health Training (TR)	35
2.4	OHSAS 18001 Efforts (OHSAS 18001)	36
	2.4.1 Overview OHSAS 18001	36
	2.4.2 Definition OHSAS 18001	40
	2.4.3 The Benefit of OHSAS 18001 Implementation	41
	2.4.4 The Implementation of OHSAS 18001 Efforts in Automotive Suppliers	43
	2.4.5 OHSAS 18001 Constructs	45
	2.4.5.1 OHS Policy (PC)	47
	2.4.5.2 Planning (PL)	47
	2.4.5.3 Implementation and Operation (IO)	47
	2.4.5.4 Checking and Correction Action (CC)	48
	2.4.5.5 Management Review (MR)	48
	2.4.5.6 Continuoul Improvement (CI)	49
2.5	Performance Measurement System (PMS)	49
2.6	OSHA Performance (OSHAPM)	52
	2.6.1 OSHAPM Overview	52
	2.6.2 OSHAPM Measurement	54
	2.6.2.1 Safety Performance	55
	2.6.2.2 Financial Performance	56
2.7	The Relationship between OSHAP and OSHAPM	57

2.8	The Relationship between OSHAP and OHSAS 18001 Efforts	59
2.9	The Relationship between OHSAS 18001 Efforts and OSHAPM	60
2.10	The Relationship between OSHAP, OHSAS18001 Efforts and OSHAPM	61
2.11	The Generic Framework of Theory Management Accounting	63
	2.11.1 Contingency Theory Research	63
	2.11.2 Institutional Theory Research	67
2.12	OSHAP and OHSAS 18001 Efforts OHSAS in Management Accounting Perspective	68
2.13	Summary	71

CHAPTER 3 METHODOLOGY

3.1	Introduction	72
3.2	Research Design	73
3.3	Overall Structure of Research Methodology	74
3.4	Survey Methodology	76
	3.4.1 Questionnaire Development	76
	3.4.2 Expert Validation	78
	3.4.2.1 Selection of Expert Panel (Participant)	79
	3.4.3 Pilot Study	80
	3.4.4 Population and Sampling of a Study	83
	3.4.5 Data Collection	86

3.4.6	Reliability	87
3.4.7	Validity	88
3.4.8	Statistical Analysis	91
3.5	A Review on Structural Equation Modelling	93
3.6	Research Model	99
3.6.1	A Proposed Research Model	99
3.7	Summary	100

CHAPTER 4 SURVEY ANALYSIS

4.1	Introduction	102
4.2	Demographic Profile of Respondents	103
4.3	Exploratory Factor Analysis (EFA)	106
4.3.1	EFA on OSHAP Constructs	106
4.3.1.1	Initial Solution Results	107
4.3.1.2	Rotated Component Matrix Results	108
4.3.2	EFA on OHSAS 18001 Efforts Construct	109
4.3.2.1	Initial Solution Results	110
4.3.2.2	Rotated Component Matrix Results	111
4.3.3	EFA on OSHAPM	111
4.3.3.1	Initial Solution Results	112
4.3.3.2	Rotated Component Matrix Results	113

4.4	Reliability Analysis	113
4.5	Confirmatory Factor Analysis (CFA)	115
4.5.1	OSHAP Constructs with Six Factors	116
4.5.2	OHSAS 18001 Efforts Construct with Six Factors	119
4.5.3	OSHAPM Measures with Two Factors	122
4.6	Test of Hypotheses	124
4.7	Mediating Effect of OHSAS 18001 Efforts in Malaysian Automotive Suppliers	125
4.8	Summary	129

CHAPTER 5 DISCUSSION AND CONCLUSION

5.1	Introduction	130
5.2	Discussions	131
5.2.1	Results of OSHAP, OHSAS 18001 Efforts, and OSHAPM Measurement Model	131
5.3	Research Contribution	135
5.3.1	Academic and Practical Contributions	135
5.3.2	Dissemination of Knowledge through Publications	136
5.4	Fulfillment of Research Objectives	137
5.5	Limitation of the Research	138
5.6	Recommendation for Future Research	139

REFERENCES

APPENDICES



LIST OF TABLES

No. of Table		Pages
1.1	Objectives of the National Automotive Policy	4
2.1	The Objectives of the NAP 2014	24
2.2	Construct of OSHAP	26
2.3	Benefits of Occupational Safety and Health Practice	28
2.4	Constructs Definition of OSHAP by Several Authors	31
2.5	Three Ways of Communication	35
2.6	The Purpose of Implementation OHSAS 18001 Efforts	39
2.7	Benefits of Implementation OHSAS 18001 Efforts	42
2.8	The Internal and External Benefits of OHSAS 18001	43
2.9	The Finding of Implementation OHSAS 18001 Efforts to OSHAPM	43
2.10	The Constructs of OHSAS 18001 Efforts	46
2.11	The Benefits Associated with the Introduction of an OSHAPM Measurements	53
2.12	Research on OSHAPM Measure	54
2.13	The Summary of Past-Related Research Based on Safety Performance	55
2.14	The Summary of Past-Related Several Researches Based on Financial Performance	57
3.1	Summary of survey Questionnaire Design	77
3.2	Feedback from Expert OSHAP and OHSAS 18001 Efforts	79

No. of Table		Pages
3.3	Position of the Panel of Experts (Feedback)	80
3.4	Summary of Comments and Suggestions from OSHAP and OHSAS 18001 Experts and Practitioners	80
3.5	The Profile of the Respondent (n=27)	81
3.6	Pilot Results of Internal Consistency Analysis for OSHAP Constructs, OHSAS 18001 Construct, and OSHAPM Measures	83
3.7	Summary of the Research Sampling	85
3.8	Cronbach's Alpha Rule of Thumb	88
3.9	The Measures of Model Suitability	95
4.1	The Profile of the Respondent (n=278)	105
4.2	KMO and Bartlett's Test for OSHAP Constructs	107
4.3	Results of Total Variance Explained for OSHAP Items	108
4.4	KMO and Bartlett's Test for OHSAS 18001 Efforts Constructs	110
4.5	Results of Total Variance Explained for OHSAS 18001 Efforts Item	110
4.6	KMO and Bartlett's Test for OSHAPM Measures	112
4.7	Results of Total Variance Explained for OSHAPM Items	113
4.8	Results of Internal Consistency Analysis for OSHAP Constructs, OHSAS 18001 Efforts, and OSHAPM Measures	114
4.9	Regression Weights of OSHAP Constructs	118
4.10	Regression Weights of OHSAS 18001 Efforts Construct	121
4.11	Regression Weights of OSHAPM Measures	124

No. of Table		Pages
4.12	Assessment of Multivariate Normality	125
4.13	Regression Weights of Path Model (OSHAP, OHSAS18001, and OSHAPM)	127
4.14	Direct (DE) and Indirect Effect (IE) Analysis in Malaysia Automotive Suppliers	128
5.1	Summary of EFA, Reliability, and CFA Results	131
5.2	Summarizes of Results CFA Multiple Factor for OSHAP, OHSAS 18001 Efforts, and OSHAPM	132
5.3	Summary of Results on Measurement Model of OSHAP, OHSAS 18001 Efforts, and OSHAPM	133



LIST OF FIGURES

No. of Figure		Pages
1.1	Conceptual Model between OSHAP, OHSAS 18001 Efforts, and OSHAPM	14
2.1	The Flow Model of OHSAS 18001 Effort	39
2.2	Moderation Form of Fit Model	66
2.3	Mediation Form of Fit Model	67
3.1	Overview of Overall Structural of Research Methodology	75
3.2	The Outline the Research Analysis Steps	92
3.3	A Framework for Linking Quality Practices to Performance	96
3.4	Theoretical Model of Safety Climate	97
3.5	Conceptual Model Used SEM Method	98
3.6	The Proposed Mediating Research Model	100
4.1	The Path Diagram for OSHAP Model	117
4.2	The Path Diagram for OHSAS 18001 Efforts Model	120
4.3	The Path Diagram for OSHAPM Model	123
4.4	Inner and Outer Regression Weights for the Structure Relationship between OSHAP and OSHAPM with a Mediation of OHSAS 18001 Efforts for Malaysian Automotive Suppliers	126

LIST OF ABBREVIATIONS

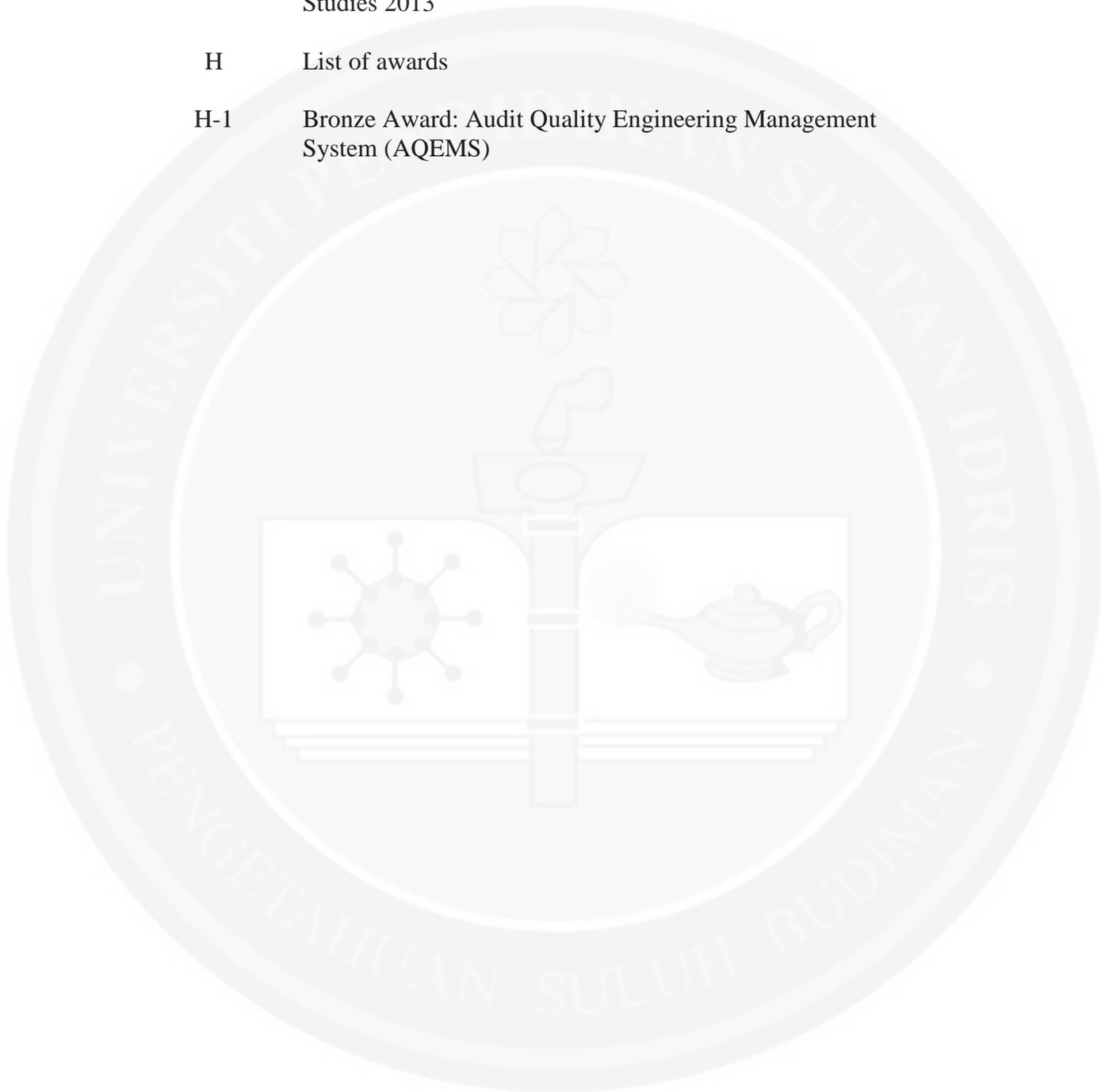
AFTA	ASEAN Free Trade Area
AGFI	Adjusted Good Fit
AIMS	Automotive Institute of Malaysia
AMOS	Analysis of Moment Structures
AT	Employee Attitude
CBU	Complete built-up
CC	Checking and Correction Action
CEPT	Common Effective Preferential agreements Tariffs
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Continual Improvement
CSF	Critical Success Factors
CSR	Corporate Social Responsibility
DOE	Department of Environment
DOSH	Department of Occupational Safety and Health
EC	Effective Communication
EEV	Energy Efficient Vehicles
EFA	Exploratory Factor Analysis
EI	Employee Involvement
FP	Financial Performance
GFI	Goodness Fit Index
HRM	Human Resource Management
IO	Implementation and Operation
KMO	Keiser Meyer Olkin
KVP	Kelab Vendor Perodua
LD	Leadership Style
MAI	Malaysian Automotive Institutes
MITI	Ministry International Trade and Industry
MOT	Ministry of Transport
MPC	Malaysia Productivity Corporation

MR	Management Review
NAP	National Automotive Policy
OEMs	Original Equipment Manufacturers
OHSAS	Occupational Safety and Health Administration Systems
OSH	Occupational Safety and Health
OSHA Act	Occupational Safety and Health Act
OSHA	Occupational Safety and Health Administration
OSHAP	Occupational Safety and Health Administration Practices
OSHAPM	Occupational Safety and Health Administration Performance
PC	OHS Policy
PCA	Principal Component Analysis
PDCA	Plan-Do-Check-Act
PL	Planning
PMS	Performance Measurement System
PVA	Proton Vendor Association
QA	Quality Assurance
QC	Quality Manager
QM	Quality Management
R&D	Research and Development
RMSEA	Root Mean Square Error Approximation
ROA	Return on Assets
RTD	Road Transport Department
SC	Safety Culture
SEM	Structural Equation Model
SHE	Safety, Health and Environment
SIRIM	Standards and Industrial Research Institute of Malaysia
SP	Safety Performance
SPSS	Statistical Package for Social Sciences
TLI	Tucker Lewis Index
TQM	Total Quality Management
TR	Safety and Health Training
VTA	Vehicle Type Approval
WCM	World Class Manufacturing

LIST OF APPENDICES

- A1 The questionnaire instrument
- B1 An example letter to quality expert
- B2 An example cover letter for pilot study
- B3 An example cover letter for final survey
- B4 An example follow-up letter for final survey
- C1 Result of reliability analysis for OSHAP constructs
- C2 Result of reliability analysis for OHSAS 18001 Efforts Constructs
- C3 Result of reliability analysis for OSHAP measures
- D1 Result of total variance explained for OSHAP items
- D2 Result of total variance explained for OHSAS 18001 Efforts items
- D3 Result of total variance explained for OSHAPM items
- E1 Summary results of rotated factor matrix –Varimax with Kaiser Normalization (OSHAP)
- E2 Summary results of rotated factor matrix –Varimax with Kaiser Normalization (OHSAS 18001 Efforts)
- E3 Summary results of rotated factor matrix –Varimax with Kaiser Normalization (OSHAPM)
- F List of publications
- F-1 First page: Journal of Environmental Science, Computer Science and Engineering Technology
- F-2 First page: Journal of Studies in Social Sciences

- F-3 First page: Journal of Applied Science and Research
- G List of Participation
- G-1 Conference on Social, Development and Environmental Studies 2013
- H List of awards
- H-1 Bronze Award: Audit Quality Engineering Management System (AQEMS)



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The sector's that involve large contribution to the economy and closely related to manufacturing and services industries is automotive industry. It is an important industry to the Malaysian economy. Malaysian automotive industry began with the importation of vehicles which then progressed to assembly operations and the development of the automotive component industry. Malaysia is a country that putting importance to progress in the automotive sector for economic development to a higher level economy (Hashim, Habidin, Conding, Jaya, & Zubir, 2012). The history of the Malaysian automotive industry occurs when the Malaysian government developed a policy to promote an integrated automotive industry to strengthen its Malaysian

industrial development. The promotion have their own objective which are to establish the limitation of imports, the reduction of expenses in foreign exchange, the creation of employment and the development of the industrial sector (MGCC- Market Watch, 2011).

In the automobile industry, Malaysia has obtained much recognition regionally and internationally for its outstanding in achievements (Rosli, 2006). To ensure the product quality, durability and performance same as new components while maintaining sustainability of resources with automotive re-manufacturing practice of taking end-of-life parts to be modified and reconstructed, with warranty to make it match by Original Equipment Manufacturers (OEMs). Furthermore, Malaysia Automotive Institute (MAI) is also trying to set up the Automotive e-Community, a knowledge-based platform open to all the stakeholders right from industry, government and agencies, academia and also the public to share the information and latest updates domestically, regionally and as well as globally (MGCC- Market Watch, 2012; Han, 2013).

According to Mahidin and Kanageswary (2004), the automotive industry has succeeded in improving the country's economy at once fulfilling the government's industrialization efforts. Currently, Malaysia is trying to achieving Malaysia's Vision 2020. One of the key strategies in is the Malaysia Incorporated concept. Based on the concept, Malaysian companies need to assess the criteria of strategic goals, competitive marketing, quality products, competitive innovation, competitive human resource management, sense of national pride and professionalism. Our national carmakers work hard to achieve these criteria to enable them to have a field in the

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ASEAN and global market in future. Together enlarge the market with intense competition from Thailand and China's automobile industry. Since 2010, Malaysia is ASEAN's largest vehicle market with annual sales of more than 500, 000 vehicles and only 10% made and assembled overseas (MITI, 2010).

Generally, automotive industry is the most actively involved industry in the multiple practices such as quality effort, low production cost, continuous improvement activities, development of supply chains, and adaptability technology advanced. The practices involved because want to achieve World Class Manufacturing (WCM) which emphasize the systematic and effective practices in manufacturing process. Besides that, the organization's capabilities should provide worlds class performance element in their management process to achieve WCM such as reduce cost (Kennedy & Widener, 2008; Johansson & Siverbo, 2009), higher quality (Ittner & Larcker, 1995), higher motivation, and safety (Nachiappan, Anatharaman, & Muthukumar 2009).

In regards to that, WCM is a different set of concepts, principles, policies and techniques for managing and operating a manufacturing company. It is one of the broadest philosophies focusing primarily on production and includes more structural changes such as new production technology (Vokurka & Davis, 2004). Besides that, WCM is also a process-driven approach where implementations usually involve the following techniques such as high employee involvement, cross functional teams, multi-skilled employees, continuous improvement, and zero defects. Therefore, organization engaging in WCM strategies must focus on improving operations, strive to eliminate waste and create lean organizations.

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In relation to that, to achieve WCM, Malaysia has put the National Automotive Policy (NAP) as a basis and foundation of development and growth for the local automotive industry. The objective of NAP are to generate sustainable economic value that maximize the long term contribution of the automotive sector to the national economy and at the same time give the benefit for Malaysian consumer (MITI, 2010). Therefore, this industry still needs the support of government policies in order to become more competitive internationally.

The NAP aims to produce optimal transformation and integration of national industry into regional and global industry network. Expanding and competitive global environment requires urgent transformation. Consequently, the government has outlined the objectives of the national automotive sector as follows in Table 1.1 below.

Table 1.1

Objectives of the National Automotive Policy

-
- Ensure orderly development as well as long term competitiveness and capability of the domestic automotive industry as a result of market liberalization;
 - Create a conducive environment to attract new investment and expand existing opportunities;
 - Enhance the competitiveness of the national car manufacturer through strategic partnership;
 - Foster the development of the latest, more sophisticated technology in the domestic automotive industry;
 - Develop high value-added manufacturing activities in niche areas;
 - Enhance Bumiputera participation in the domestic automotive industry;
 - Improve safety standard for consumers and promote environment-friendly opportunities; and
 - Enhance the implementation of current NAP's policy instrument
-

Source: MITI (2010) and Habidin (2012)

Based on that, NAP describe the automotive organizations need to make any substantial changes in their management systems either in system maintenance, using the equipment, continuous improvement, investment in technology and innovation (Nachiappan, Anatharaman, & Muthukumar, 2009). Modern manufacturing requires that to be successful organizations must be supported by both effective and efficient maintenance. In relation to that, there is progress in the revision of the National Automotive Policy (NAP), which aims to enhance the competitiveness of the industry. Malaysia focuses on the automotive industry to become a regional hub for Energy Efficient Vehicles (EEV), which ensure the recruitment of high technology.

Three objectives in NAP 2012 are investment, technology and engineering as well as market expansion and outreach by providing a strategy for the development of the supply chain, ensure adequate manpower at all levels and also for safety and the environment. In review of NAP 2012, the Road Transport Department (RTD) was assigned to implement the Vehicle Type Approval (VTA) project in efforts to increase the safety. The Ministry of Transport (MOT) accords priority in the 10th Malaysia Plan for establishment of the VTA standards and testing facilities (MITI, 2012).

The global automotive industry should undergo a fundamental transformation due to increasing their performance through Occupational Safety and Health Administration (OSHA). One approach to improving the performance of maintenance activities is implementing and develops an Occupational Safety and Health Administration Practices (OSHAP). OSHA is practical information to assist automotive industry address employee protection and training as part of emergency planning for mass casualty incidents involving hazardous substances. OSHA considers

as planning the first line of defense in all types of emergencies. According to the Occupational Safety and Health Act of 1970, the definition of OSHA is authorized to conduct workplace inspections and investigations to determine whether employers are complying with standards issued by the agency for safe and healthful workplaces such as automotive industry. OSHA also enforces Section 5(a) (1) of the Act known as the “General Duty Clause,” which requires that every working people whether man and woman, they are must be provide with a safe and healthful workplace (OSHA Inspection, 2002).

1.2 Problem Statement

Every manufacturing industry is compulsory to have a certification of OHSAS 18001 to avoid from any incident or accident in emergencies caused. At DRB-HICOM, they committed to providing a safe and healthy working environment through periodic in-house safety checks in compliance with the nationally-recognized Health and Safety guidelines. The Group’s Safety, Health, and Environment (HSE) Committee as a leader and guided by the provisions of the Occupational Safety and Health Act (OSHA Act), they closely same with various organizations including the Fire Department, Department of Environment (DOE), and Department of Occupational Safety and Health (DOSH) is to create a safe and comfortable working environment for all staff at the workplace. Regular fire drills are conducted to better prepare their employees for speedy evacuation in cases of fire emergencies (DRB-HICOM, 2012).