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The Impact of Occupational Safety and Health Administration Practices (OSHAP) and OHSAS 18001 efforts in Malaysian Automotive Industry

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ABSTRACT

Occupational Safety and Health Administration Practice (OSHAP) and Occupational Health and Safety Assessment Series (OHSAS) 18001 standards become important to the Automotive Industry in Malaysia. The purposes of this paper are to identify the OSHAP and OHSAS 18001 and develop research model of the OSHAP and OHSAS 18001 efforts for Malaysian Automotive Industry. OSHA management practices can creates a decrease or an increase in certain measurement variables in organization. This paper is reviewed what OSHAP and OHSAS 18001 efforts and proposed structural relationship models using Structural Equation Modeling (SEM) as recommended. Since this is a concept paper, most of the literature from the previous survey taken as a basic guide for this study as well as the construction of models of the relationship between the OSHAP and OHSAS 18001 Efforts is made. Next, the hypotheses can be generated based on the model of the proposed research and literature review. It has been shown that the OHSAS 18001 Efforts which acts as an intermediary for the Malaysian automotive industry can continue to perform to make the transformation OSHAP management system in the Malaysian automotive industry more efficiently and effectively in line with the industry to be the best among the competitors in other countries. Based on the proposed conceptual model and reviewed, research hypotheses are being developed. The research concludes with suggest future research work.

Keywords: OSHA Practices; OHSAS 18001; occupational injuries; unsafe workplace; continuous improvement; Structural Equation Model.

INTRODUCTION

Malaysia have their own advantages because it centrally located in the ASEAN region with a population of more than 500 million people and offers large opportunities for global automotive and component manufacturers to establish manufacturing and distribution operations in the country (MIDA, 2010; Fuzi et al., 2012). Furthermore, automobile industry in Malaysia was showed growth year by year through joint venture with others countries to produce better products by using technology advancement. In addition, economic growth was increased spending by the population

towards this industry to make the economic in Malaysia encounters the growth in market (Nezakati et al., 2011). Since the last two decades, Malaysia was moving to build a real image as the national car manufacturer within the global automotive industry (Talib et al., 2012; Fuzi et al., 2012). According to Wad and Govindaraju (2011), National Automotive Policy (NAP) had launch in 2006 and in 2009 followed by review of NAP. Based on the NAP, the Malaysian government further confirmed the policy for the development of national automotive industry of OEMs, suppliers and related industries in the early 1980s.

Willems (2007) mentioned that the management of Occupational Safety and Health Administration (OSHA) is important. Every organisation has different methods to manage their OSHA. Organisations need to comply with OSHA legislation to reduce the associated costs of accidents and illnesses and to create a safer and healthier workplace in their organisation. OSHA establishment of guidelines on occupational safety and health and clarifying where the responsibility lies is to maintain and promote the safety and health of workers for preventing industrial accidents and creating comfortable working environment (Occupational Safety & Health Act, 2012; Lee et al., 2012). Willems (2007) also mentioned about monetary costs and productivity for OSHA measures. OSHA can be measured by the economic, productivity, accidents, illnesses, time lost, absenteeism, turnover, compensation claims, performance, motivation, well being and job satisfaction indicators. In relation, OSHA management practices can creates a decrease or an increase in certain measurement variables in organisation.

OSHAP also a key Human Resource Management (HRM) issue for organisations. OSHAP continues to be one of the most critical but highly criticized issues within the discipline of human resource management (Willems, 2007; Makori et al., 2012). However, De Cieri and Kramar (2003) argue that the main rationale is to comply with laws and to ensure a safer and healthier workplace. This is because OSHA compulsory to exist in every organisation not only for purpose of to comply with legislation and ensure workplace in safe and healthier condition. Thus, organisations that focus strongly on OSHA can perform better than organisation without OSHA management practices (Willems, 2007). Furthermore, it becomes more important caused by the increasing pressure in globalisation demands.

According to the implementation of OSHA and the OHSAS 18001, some previous study found that the OSHA performances status is not enough if the organization only based on data of recorded accidents over the past three years. The standard on OHSAS 18001:1999 (Zeng et al., 2008) and revised on 2007 offers a good framework to employees and employers for safety condition in workplace. The OHSAS 18001 specifies requirements for an organization to control its OSHA risks (Pun et al., 2003; Zeng et al., 2008). According to Jorgensen et al., (2006), OHSAS 18001 was formulated by international recognised bodies with the basis in BS 8800 and was first published in 1999. It can be described as a de facto (in fact) standard and is used as the basis for certification of occupational health and safety management systems. In addition, OHSAS 18001 was developed to be in accordance with ISO 9001:1994 and ISO 14001:1996 in order to help OSHA management systems, if organisations wish to do so. With the new quality and environmental management standards, OHSAS 18001 should be revised, in order to maintain compatibility (Jorgensen et al., 2006).

The purpose of this paper (i) to identify the occupational safety and health administration practices (OSHAP) and OHSAS 18001 efforts measures for Malaysian Automotive industry and (ii) to develop a research model of occupational safety and health administration practices (OSHAP)

and OHSAS 18001 efforts for Malaysian Automotive industry. In this research, there are six OSHA practices that are considered such us (a) Safety Culture [SC], (b) Employee Attitude [AT], (c) Employee Involvement [EI], (d) Leadership Style [LD], (e) Safety and Health Training [TR] and also (f) Effective Communication [EC]. This practices drive to achieve the OHSAS 18001 certification. Furthermore, there are six important items in OHSAS 18001 efforts. The items are (i) Occupational Safety and Health (OS&H) Policy [PC], (ii) Planning [PL], (iii) Implementation and Operation [IO], (iv) Checking and Correction Action [CC], (v) Management review [MR] and (vi) Continuous Improvement [CI].

These papers briefly explain introduction of OSHAP and OHSAS 18001 efforts standards. Next, this paper reviews the literature on OSHAP and OHSAS 18001 efforts, also the research hypotheses. Then this researcher's paper continues with a proposed research model, research methodology and conclusion with future research.

MATERIALS AND METHODS

Every country around the world remains in improving safety because safety is one of the main contributor to the high rates of serious and fatal occupational injuries (Bhattacharjee and Gosh, 2011; Zin and Ismail, 2012). Automotive industry is one of the industries that involve more to unsafe workplace compare to other industries. Based on the status of unsafe condition in automotive industry, every organization should shaping employee's behaviours, attitudes and beliefs which lead to safety behaviour and ultimately safety compliance are needs to adapt more holistic tactics and approaches by employer and employer not only focus on improving physical working environment (Zin and Ismail, 2012).

Generally, the employers are aware that they have a role to comply with safety programmed and play safe behaviour. An approach providing legislative framework to enforce human behaviour towards safety compliance by practicing high standards of safety and health at work to eliminate workplace accidents is the occupational safety and health (OSH) Act, 1994. However, the rise of issue on behavioural safety noncompliance because of the safety neglect attitude by the employers and employees (Jamal Khan, 2006). One important task to every employer in an organization should have put an effort to fight an issue on occupational accidents where there is a good understanding of the stage and pattern of accidents. The knowledge can give a good OHSA performance to organization.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION PRACTICES (OSHAP) IN MALAYSIAN AUTOMOTIVE INDUSTRY

According to Zin and Ismail (2012), behaviour that support safety practices and activities such as providing safety training and safety compliance explains the core activities that need to be carried by employees. Employer as guide to employees in ensure the implementation OHSA practices is working with smooth without any problems. This is important focus of safety behaviour according to occupational, safety and health requirements to prevent workplace accidents (Mahmood, 2010). Safety behaviour is the key decreasing the injuries at the workplace and not directly influencing the result of the event before the accidents occurred (Johnson, 2003). Organization should control the injuries from become more serius and the rate of injuries getting higher every year by practicing the OHSAP and comply with OHSAS 18001 efforts.

OSHAP CONSTRUCTS

The framework proposes that OSHAP will have an impact on OHSAS 18001efforts. Six dimensions for OSHAP are Safety Culture [SC], Employee Attitude [AT], Employee Involvement [EI], Leadership Style [LD], Safety and Health Training [TR] and also effective communication [EC] while six processes for OHSAS 18001 are Occupational Safety and Health (OS&H) Policy [PC], Planning [PL], Implementation and Operation [IO], Checking and Correction Action [CC], Management review [MR] and Continuous Improvement [CI]. Table 1 shows the construct of OSHAP by several authors.

Table 1: Construct of OSHAP

Constructs	Related Construct
Safety Culture	Safety culture (Flannery, 2001; Harvey et al., 2002; Alexander, 2004; Trujillo, 2011)
Employee Attitude	Employee attitudes (Yazdanifard et al., 2011; Shah and Irani, 2010; Guest and Conway, 2007; Guerrero, 2008; Mester et al., 2003), Safety attitude (Harvey et al,. 2002), Attitudes (Elgood et al. 2004)
Employee Involvement	Employee involvement (Lin, 2006; Cottini et al., 2011; Maurer et al., 2008; Fuzi et al,. 2012), Employee morale (Maksoud et al., 2010), Employee participation (Cabrera et al., 2003), Employee satisfaction (Chen et al., 2012), Participation (Flannery, 2001)
Leadership Style	Leadership styles (Mester et al., 2003; Yahaya et al., 2011; Obiwuru et al., 2011), Comitted leadership (Cua et al., 2001), Leadership (On, 2006)
Effective Communication	Effective communication (Di Stefano et al., 2004), CommunicationcChannel (Zohar, 2002)
Safety and Health Training	Safety training (McDonald, 2003; O'Toole, 2002), Effective safety training (Zin and Ismail, 2012)

SAFETY CULTURE

Generally, safety culture defined as involving perceptions and attitudes as well as the behaviour of individuals within an organization (Harvey, 2002). For example, a top performing 1,000-employee location industrial manufacturer with proud recordable rates of under 0.7 injuries per hundred employees per year, learned the hard way after 3 fatalities within six months (Trujillo, 2011). The organization get lessons from the incident occur to their employees. According to

Choudhey et al. (2007), an organization's ongoing Environmental Health and Safety performance is thought influence the employees' attitudes and behaviours in safety culture.

EMPLOYEE ATTITUDE

According to Shah and Irani (2010) organisational change reviews the abilities of managers, employees and work environment. It affects employee attitudes and behaviours because of moving from the familiar situation to the unfamiliar situation which can build up uncertainty, pressure and concerns among employees. Majority researchers focused on change that may have a serious negative impact on employee attitudes and productivity (Weber and Weber, 2001). Therefore, producing employee with positive attitudes and behaviours researchers advocated on employee preparedness as an important and major contributor factor for promoting effective and successful organisational change programmes.

EMPLOYEE INVOLVEMENT

Employee involvement mean the degree of commitment (Fuzi et al., 2012) worked in organizations (Ali et al., 2011) and related to commitment, focus effort and energy (Macey and Schneider, 2008). Employee involvement is one of the important factors to encourage the positive impact on quality improvement (Abdullah et al., 2008). Beside, Liou and Chuang (2004) pointed out that employee behaviour plays an important role on customer's perception of service quality. Furthermore, educate and empower staff is one of the process improvement by involving all employee in the process of organisation. Beside that, study by OHSA Guideline (2013), employee involvement should include several important items which are understanding and complying with the workplace violence prevention program and other safety and security measures, employee should participate in complaint and suggestion procedures covering safety and security concerns, incidents should report promptly and accurately, safety and health committees that receive reports of violent incidents participate by all employees, make facility inspections and respond with recommendations for corrective strategies and discusses appropriate responses.

LEADERSHIP STYLE

The implementation of safety practices is not possible success without support of all management in organization. According to Rexhepi and Shrestha (2011), top management is the most important of the Critical Success Factor (CSFs) in implementing the OHSAP. Therefore, leadership style is recognized as critical aspects and other quality systems (Najem et al. 2012). A good leadership in an organization result higher quality management to organization. Referred to the previous studies, organization cannot succeed unless it has safety and healthy culture, skilled workers, the buy-in from the top management and strong leadership (Najem et al. 2012). Achievements of the other safety management objectives are largely dependent on the quality and consistency of leadership demonstrates by management and is a role model for safety exercise (Ismail, 2007). Shazali, et al. (2013) in a study found that the level of continuous leadership commitment is a factor that considerably affected the outcome. External users can judge the organization by the outcome from the organization. They also can make decision whether should cooperate with them or not.

Primary role in shaping management behaviours that in turn influenced employee behaviour was under control of senior management leadership and they need to show to management level

(Cooper, 2010). Warmick (2006), mention that leadership is the quality that transforms good intentions into positive action, in change a group of individuals into a team. Leadership enables the employer to guide the employee to take OSHA to the next level. For example, Michael et al. (2006) found that between blue collar employees in wood product manufacturing facilities found that positive leadership affect safety behaviour of the employees.

EFFECTIVE COMMUNICATION

Many accidents are found mainly caused by symptoms of safety non-compliance to safety requirements. Effective communications is an essential consideration to safe and efficient workplace. Leaders convey vision and values through interaction and communication (Ismail, 2007). This is because effective communication leads to commonly understood goals and means to achieve them at all level. Other study stated that working between lower line workers and supervisors in maintenance of heavy duty equipment results the increasing communication channel and can cause to reduce in micro accidents and rise in using Personal Protective Equipment (PPE) (Zohar, 2002). In addition, Zin and Ismail (2012) in a study stated that communication can be achieved in three ways. Table 2 present the three ways of communication.

Table 2: Three Ways of Communication

Three Ways of Communication
• Through visible behaviour, employer can communicate the importance of safety and health. However, through negative behaviour employer can undermines the safety and health culture of the organization.
• Health and safety policy statements reminds to employee and employer with written communication, statements concerning roles and responsibilities, performance standards and findings from risk assessments.
• Make discussions between employer and employee face to face. It will make employee feel they are important to involve in the management.

SAFETY AND HEALTH TRAINING

Effective safety training is important to teach workers on potential of accidents, avoid accidents and potential hazards engaged in their jobs. Therefore, training and education programs play a significant role in improving of safety performance in organization and also important to enhance safety awareness among the employees and change behaviour of employees (Wong et al., 2000). Safety training is carried out without systematic schedule which primarily to “cover themselves” and protect company is important, if something goes wrong with little expectation that it would influence the knowledge and behaviour of employees in action (McDonald, 2003).

Thus, it seems clear that more than half of employees have to obtain knowledge about risks management through their experience of work itself. Lacks of safety training among employees are general root result of accidents because they did not have the knowledge, education and skills to recognized potential hazards at site (O’Toole, 2002). In addition, Zin and Ismail (2012) in a study found that safety training have strong linkage to employees’ safety behaviour improvement. Beside that, trainings aimed at workers and operator would not only decrease accidents, but it can also decrease costs and save lives. Table 3 shows the advantages of implementation OSHAP in organisation.

Table 3: The Advantages of Implementation OSHAP in Organisation

Authors	Advantages OSHAP
International Shipping Federation, 2013	• Reduce in lost employee hours • Reduce in hospital costs • Decrease in sick leave • Reduce in pollution costs • Reduce in cargo damage • Decrease in insurance premiums
HSE,2006	• Most profitable. • Resources more effectively • Flexibility to manage risks • Adaptability • Continuity • Durability • Predictability
EA, 2007	• Brand value and goodwill • Winning and retaining business customers • Corporate social responsibility • Lower costs of accidents and illness • Productivity • Investor confidence • Employee motivation and commitment • Managed insurance costs

OCCUPATIONAL SAFETY AND HEALTH ASSESSMENT SYSTEMS (OHSAS) 18001

According to SIRIM (2012), OHSAS 18001 is the most widely used and recognized standard for Occupational Health and Safety Management Systems which enables an organisation to control its risks and improve its performance in this area. Study by Hasle (2012), the ISO 9000 was inspired standards, especially the OHSAS 18001 (1999, updated in 2007) standard caused of the development of OHSA system standards and the associated process of certification (Zwetsloot, 2000). The International Labour Organisation also published its OSHA System Guidelines in 2001 (ILO, 2001). An organization can grab opportunity from others if they have OHSAS 18001 certification in management. This is because a good performances resulted by the compliance to the standards.

The number of OHSAS certified companies in 116 countries more than doubled from 26,222 at the end of 2006 to 56,251 by the end of 2009. It was according to a survey done by the British Standards Institution. In year of 1999, OHSAS 18001 was designed to address the issue of plan-do-check-act at the functional management level to formulate a self-regulating OHSA environment (Pheng and Pong 2003; Ince, 2006). The objectives of OHSAS 18001 include creating and maintaining working environment in safe condition while protecting and maintaining workers with good health. Moreover, study by (Chen et al. 2009; Zutshi and Sohal, 2005), the implementation and certification of OHSAS 18001 systems have been an important undertaking for many organizations and have become a widespread phenomenon around the world. Table 4 present the

benefits of OHSAS 18001 by several study.

Table 4: Benefits of OHSAS 18001

Authors/Literature	Benefits of OHSAS 18001
Certification Europe, 2013	• Improved corporate image and credibility among stake holders, regulators, customers, prospective clients and the public • Adoption of international best practice in relation to risk management • Ensures health and well-being of employees, sub-contractors and the public • Minimisation of liability of employers • Ensures legislative awareness and compliance • Reduces accident and incident rates • Improves the incident investigation process • Increases employee motivation
OHSAS 18001(QMS), 2013	• Reduce accidents • Demonstrate your commitment to health and safety • Increase productivity • Minimise the risk of legal action • Enhance your reputation and brand
National Quality Assurance (NQA), 2013	• Customer satisfaction • Reduced operating costs • Improved stakeholder relationships • Legal compliance • Improved risk management • Proven business credentials • Ability to win more business

According to Yang (2012), a set of problem-solving activities at different levels of abstraction in all phases of the system's life cycle is Safety Management (SM). The SM system model OHSAS consists of several fundamental elements which are PC, PL, IO, CC, MR and CI (BSI, 2007). Figure 1 show the system model of OHSAS 18001. The main reason for not using external accident information in companies is the lack of any systematic practices for reading and applying that information because a SM system requires good accident information for continual improvement in organization (Lind and Kivisto-Rahnasto, 2008). In addition, KC (2011) stated that implementations of OHSAS 18001 return the internal and external benefits to the organisation. Table 5 shows the internal and external benefits of OHSAS 18001to organization.

Table 5: The Internal and External Benefits of OHSAS 18001

Internal Benefits	External Benefits
• Creates consistency throughout the organization built around "best practices". • Improves business performance. • Lessens dependency on key individuals.	• Satisfies the demands of current or prospective customers for registration. • Boost international acceptance and credibility. • Increase acceptance by regulators, the

• Provides blueprint for controlled, disciplined growth. • Strengthens regulatory compliance. • Ensures consistent training. • Improves management oversight. • Facilitates continual improvement.	general public, and other interested parties. • Elite category of businesses. • Prepared for external audits and inspections.

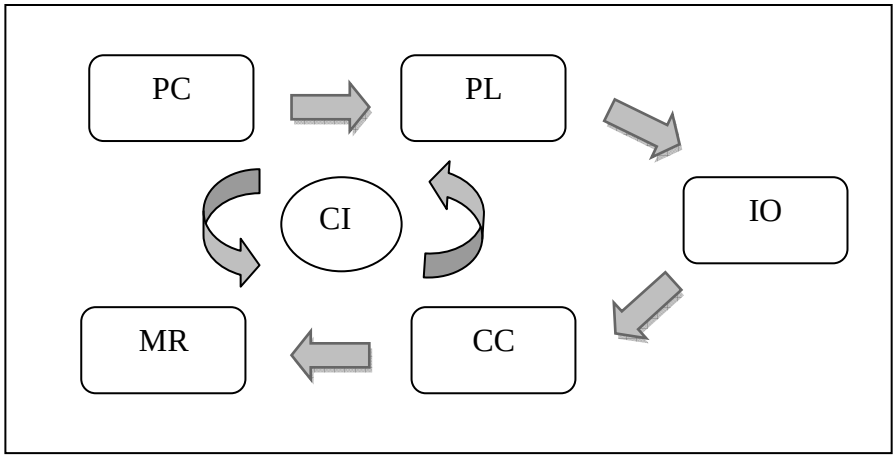

Figure 1: The System Model of OHSAS 18001 (Yang,2012)

To understand the relationship between OSHAP (SC, AT, IE, LD, EC and TR) and OHSAS 18001 performances efforts (PC, PL, IO, CC, MR and CI), the following hypotheses were develop to be tested. These hypotheses will be tested based on numbering system H1.This style of hypotheses statement is chosen due to the nature of answering hypotheses using Structural Equation Modelling (SEM) methods.

H_1: *There is a positive and direct significant relationship between OSHAP and OHSAS 18001 efforts in Malaysian automotive Industry*

RESULT

A PROPOSED RESEARCH MODEL

Based on the literature review, there are increase numbers of study to explore about OSHAP and OHSAS 18001 efforts. In relation to that, this paper aims at investigate the structural relationship between OSHAP and OHSAS 18001 efforts in Malaysian automotive industry. Figure 2 present a structural OSHAP and OHSAS 18001 efforts model.

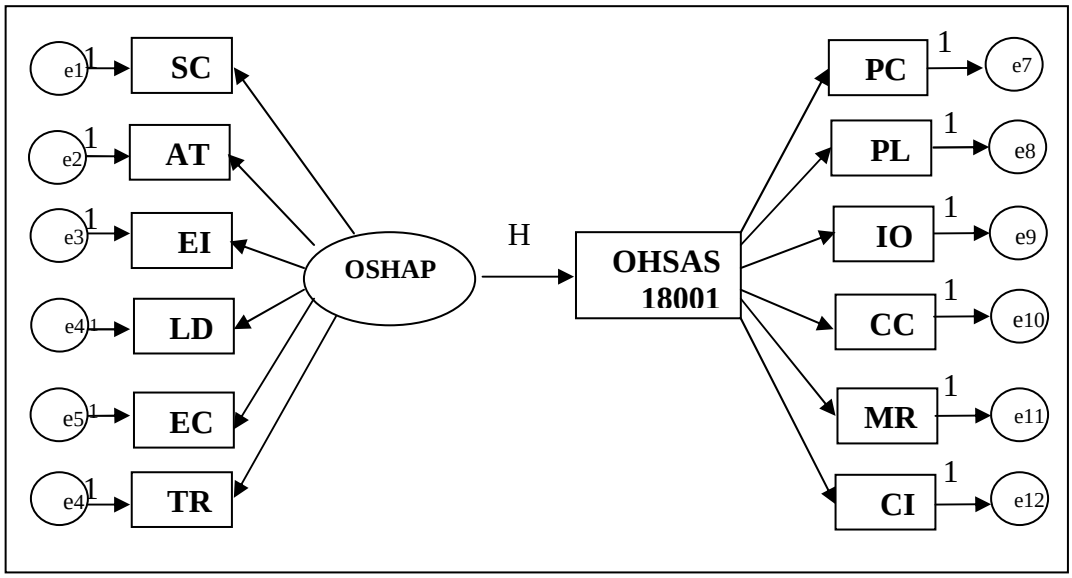

Figure 2: Proposed Model of the Study
*Note: OSHAP=Occupational Safety and Health Administration Practices, SC=Safety Culture, SC=Safety Culture, AT=Employee Attitude, EI=Employee Involvement, LD=Leadership Style, EC=Effective Communication, TR=Safety and Health Training, ISO 18001= Occupational Safety and Health Administration Systems (OHSAS) 18001, PC=OH&S Policy, PL=Planning, IO=Implementation and Operation, CC=Checking and Correction Action, MR=Management Review, CI=Continual Improvement

RESEARCH METHODOLOGY

Currently, the Malaysian automotive industry is facing greater challenges because of the general demand for high quality, the requirement and regulation of ASEAN Trade Area (AFTA). Moreover, competition between local and foreign car manufacturers is increasing (Habidin and Yusof, 2012). The implementation of quality initiative and performance measurement in manufacturing sector is very important especially in automotive industry (Gonzalez, 2008; Zakuan, 2009; Habidin, 2012; Conding et al., 2013a). This is because one of the most active industries involved in the quality efforts, low production cost, and continuous improvement activities is automotive industry Habidin (2012).

The population of this study comprised in Malaysian automotive industry. The sample should be a subset of the total population, which has the characteristics of the population (Jackson, 2011; Conding et al., 2013b). Sampling method by using structured questionnaire. The benefits using a survey typed questionnaire approach are fever cost of money, time saving and decrease of using energy (Habidin, 2012). The population of this study comprised in Malaysian automotive industry. The target of distribute of questionnaire are in PROTON and PERODUA company. Beside that, the questionnaire also distribute to small medium company that support Malaysian automotive industry. This is because a collection data need variety of opinion from variety of company. Questionnaires will distribute to respondents from the listing of automotive industry obtained from Malaysian Automotive Component Parts Association (MACPMA), Proton Vendors Association (PVA), and Kelab Vendor Perodua. To analyze the data, two statistical techniques were adopted. The statistical

techniques are Structural Equation Modeling (SEM) and the statistical Package for the Social Sciences (SPSS).

Firstly, SEM techniques was utilize to perform the require statistical analysis of the data from the survey. Factor analysis was conducted to meet the requirement of specifying the measurement model and identifying the indicator measuring each construct. The factor analysis was conducted to study whether the items released the anticipated factors and either the individual item loaded on their appropriate expected factor. There are two in factor analysis which are Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The purpose of using EFA, reliability analysis and CFA is to test for construct validity, reliability, and measurements loading were performed. The test on reliability of measurement is very important to determine the stability consistency (Sekaran, 2003; Habidin, 2012). Beside that, validity also important issue in collection data because if the data reliability and it also should be valid. Having analyzed the measurement model, the structural model was then tested and confirmed. Next, SEM using AMOS 6.0 will use to test the measurement model. This study is expected to arrive at the conclusion of important implication for OSHAS 18001 and OSHAPM in Malaysian automotive industry. As such, it is expected to benefit both researchers and practitioners.

CONCLUSION

This paper provides the research review of OHSAP and OHSAS 18001 efforts. The conclusion of this study, OSHAP has become most important for OHSAS 18001 certification in organisation. Previous studies have been performed to identify CSFs for successful implementation of OSHA practices. However, limited empirical study tried to investigate the relationship between OSHA practices and OHSAS 18001 especially in Malaysian Automotive industries. Future agenda to analysis the relationship between OSHA practices with OHSAS 18001 efforts in automotive industry. The next step of this study is to design a questionnaire, which will be used for pilot study data collection in Automotive Industries in Malaysia. In future research agenda, the findings study can be benefited, used and contribute to academic, practitioners, and industry, especially to the Malaysian Automotive industries.

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