SAFETY CULTURE OF PETRONAS ICT EMPLOYEES IN MENARA EXXONMOBIL

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RESEARCH REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE MASTER OF SAFETY, HEALTH AND ENVIRONMENTAL ENGINEERING

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ABSTRACT

The oil & gas sector has been well documented as one of the riskiest careers to have as well as the main contributors to man-made disasters. Major accident hazards in the industry worldwide i.e. Explosion, Fire have prompt a more proactive measures from all parties since casualties are not just limited to people but the environment, asset and reputation. A study of culture maturity in PETRONAS-ICT was conducted with the main objectives of this study were to identify the level of safety culture for PETRONAS-ICT employees in Menara Exxonmobil, to determine the possible factors that can affect the employees maturity level on safety culture, and to propose measures to achieve a generative safety culture amongst staff. A total of fifty five (55) employees took part in this study. A questionnaire was used to analyse the level of safety culture understanding based on employees' personal experience within the organisation. Likert scale was utilized as part of the questionnaire and to determine the effectiveness of the eight (8) HSEMS elements and their key areas. Interview sessions were also conducted to further gage on why several respondents believe that the level of safety culture is still at the Pathological and Reactive level.The significant findings from the study indicated that majority of PETRONAS-ICT staff are already at the Proactive level. Nevertheless, PETRONAS-ICT aspires their employees to reach the next level and achieve the Generative safety culture. Therefore, it is proposed that the organization to continuously improve HSE performances across the group as to provide a world class HSE experiences among the employees thus elevating the safety culture maturity level, beliefs and improve the productivity and actions of the employees. Ultimately, this will reduce the number of workplace accidents.

ABSTRAK

Sektor minyak & gas telah didokumentasikan dengan baik sebagai salah satu kerjaya yang paling berisiko serta penyumbang utama kepada bencana buatan manusia. Bahaya kemalangan utama dalam industri di seluruh dunia iaitu letupan, kebakaran memerlukan langkah yang lebih proaktif dari semua pihak kerana kecederaan tidak hanya terhad kepada orang tetapi persekitaran, aset dan reputasi. Kajian kematangan budaya di PETRONAS-ICT telah dijalankan dengan tujuan utama kajian ini adalah untuk mengenal pasti tahap budaya keselamatan untuk pekerja PETRONAS-ICT di Menara Exxonmobil, untuk menentukan faktor-faktor yang mungkin mempengaruhi tahap kematangan pekerja terhadap budaya keselamatan dan mencadangkan langkah-langkah untuk mencapai budaya keselamatan generatif di kalangan kakitangan. Sejumlah lima puluh lima (55) pekerja mengambil bahagian dalam kajian ini. Soal selidik digunakan untuk menganalisis tahap pemahaman budaya keselamatan berdasarkan pengalaman peribadi pekerja dalam organisasi. Skala Likert digunakan sebagai sebahagian daripada soal selidik dan untuk menentukan keberkesanan unsur-unsur lapan (8) HSEMS dan bidang utama mereka. Sesi wawancara juga dijalankan untuk menggalakkan lagi mengapa beberapa responden percaya bahawa tahap budaya keselamatan masih berada di tahap Patologi dan Reaktif. Penemuan penting dari kajian ini menunjukkan bahawa majoriti kakitangan PETRONAS-ICT sudah berada di tahap Proaktif. Walau bagaimanapun, PETRONAS-ICT bercita-cita untuk mencapai tahap seterusnya dan mencapai budaya keselamatan generatif. Oleh itu, adalah dicadangkan bahawa organisasi untuk terus meningkatkan prestasi HSE di seluruh kumpulan untuk menyediakan pengalaman HSE kelas dunia di kalangan pekerja dengan itu meningkatkan tahap kematangan budaya, kepercayaan dan

meningkatkan produktiviti dan tindakan pekerja. Pada akhirnya, ini akan mengurangkan bilangan kemalangan tempat kerja.

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LIST OF SYMBOLS AND ABBREVIATIONS

FSMs	:	Floor Safety Managers
AFSMs		Assistant Floor Safety Managers
SOSCO	:	Social Security Organization
DOSH	:	Department of Safety and Health
FMA	:	Factory and Machine Act
OSHA	:	Occupational Safety and Health Act
NIOSH	:	National Institute of Occupational Safety and Health
OSHMP	:	Occupational Safety & Health Master Plan
HSE	:	Health, Safety & Environment
JSA	:	Job Safety Analysis
SWM	:	Safe Work Method
HEMP	:	Hazard & Effect Management Process
ALARP	:	As Low As Reasonably Practicable
PCB	:	PETRONAS Cultural Belief
MEM	:	Menara ExxonMobil
HSEMS	:	Health Safety & Environment Management System

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1 Background of Study

(HSC) (1993) defined the organisation safety culture as the integration of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the obligation to, and the style and proficiency of, an organisation's health and safety management. Since the 1980s, safety beliefs has been utilized and shortcomings from it were accredited to a chain of major tragedies (Høivik, Moen, Mearns, & Haukelid, 2009).

Organisations with a progressive safety culture are categorized by communications founded on mutual trust, by shared perceptions of the importance of safety and by assurance in the efficacy of preventive measures (Vecchio-Sadus, 2007). In recent memories, several major accidents have occurred in the Petroleum and Petrochemical industries. Suffice to say that safety is an area with lots of room for improvement. At PETRONAS ICT, the Health, Safety, and Environment (HSE) Department regularly implements several safety-related initiatives throughout the year. While it is the duty of the HSE Department to govern safety, every employee needs to own it and take personal responsibility for safety at work. The oil and gas sector has been widely known for its involvement in high-risk activities due to the scope of its business. Accidents often have devastating impacts on the people, environment, asset, and reputation.

To ensure that a Company exhibits a progressive safety culture, the employees should be involved in the decision-making process which has also been acknowledged as being fundamental to the successful application and sustainability of a HSE Management System (Australia, 2001).

Around 58 % of the world inhabitants, that is, 4 billion people, spend one-third of their adult lives at the workplace. According to the (WHO) (2014) around 120 million workplace accidents were reported every year and about 318,000 deaths were related to injuries at work. Moreover, nearly 2 million exposure to occupational hazards and unsafe workplace conditions. Furthermore, according to Mohammadfam et al. (2017), statistics show that workplace accidents and diseases result in approximately 2.3 million deaths every year resulting in cost incurred over 2.8 trillion dollars worldwide. From 2015 to 2018, based on accident cases reported to DOSH, Malaysia saw 157,731 accidents, of which 2,678 were fatal ((DOSH), 2018).

This study will help PETRONAS ICT predict or pre-determine the level of current Safety culture in the organization to gain understanding on how the HSE notion was planned and demarcated. This was also intended as a research to discover ideas among employees on their view of the major obstacles to HSE.

1.2 Problem Statement

The safety culture of an organization is a key area to determine the level of improvement in safety performance. A decline in safety culture could lead to an unwanted incident within the organization. Generative safety culture is the highest level of HSE culture maturity and the level of which every company aspires to be. At this level, employees and organization have strong HSE ownership that HSE is how we do business in PETRONAS ICT. Since 2016, PETRONAS-ICT has recorded several incidents that are avoidable if the employees were to be more proactive in their reporting of unsafe acts and unsafe conditions. Therefore, in ensuring a sound culture attitude and practices in the relevant field of work, a higher level of attention is needed to ensure absolute control (Patrick, 2013). Conferring to the Occupational Safety and Health Act 1994, Section 24, it shall be the duty of every employee while at work to take reasonable care for the safety

and health of himself and of other persons who may be affected by his acts or omissions at work. Meyer (2017) then added that employees need to comprehend their responsibilities to protect themselves, their work colleagues and their communities. This study will provide the organization with valuable insights into the current standard of HSE in practice. Depending on the outcome of the study, the recommendation should be provided for improvement purposes.

1.3 Objective of the Study

The objectives of the study are:

i. To identify the level of health, safety & environment culture for PETRONAS-ICT employees in Menara Exxonmobil.
ii. To determine the possible factors that can affect the employees maturity level on safety culture.
iii. To propose measures to achieve a generative safety culture amongst the employees.

1.4 Scope of Study

To achieve the objectives, the scope of the project is limited to:

i. The employees involved in this study are permanent PETRONAS-ICT employees at Menara ExxonMobil.
ii. All employees are working in a normal shift, 8 hours per shift, and working 5 days per week.
iii. The questionnaires that will be distributed are limited to all PETRONAS-ICT Floor Safety Managers (FSMs) and Assistant Floor Safety Managers (AFSMs) at Menara ExxonMobil.

1.5 Report Outline

This report consists of 5 chapters as follow:

Chapter 1 – Introduction of Culture as the background of this project. In this chapter, problem statements, research problems, objectives, and scope of research will be discussed.

Chapter 2 – Literature review based on the current findings related to safety culture in the workplace.

Chapter 3 – In this chapter, the project methodology used to complete this project will be discussed such as questionnaires, and interviews.

Chapter 4 – All the results obtained from the questionnaire and analysis will be discussed.

Chapter 5 – Conclusion from the data analyzed and project objective with the recommendation for future work was summarized.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Today, it is believed that a high number of the accidents occurred are because of the incompetence and errors made by workers rather than mistakes from equipment and machineries. A study conducted by Poursoleiman, Moghadam, and Derakhshanjazari (2015) on data from the American association of safety mentioned that there were about 2200 deaths and 220,000 disabling injuries as a result of occupational accidents, yearly, which can incur a high amount of costs on the impacted company. In Japan, the Ministry of Economy, Trade, and Industry has surveyed direct causes for industrial accidents that have occurred since 2002 (Shi & Shiichiro, 2012). The results were a cause of concern as more than 70% of the reported accidents were due to human factors including poor judgment, lack of safe operating procedures and deliberate errors. Therefore, it seems that inculcating suitable safety culture would be a move in the right direction towards decreasing workplace accidents.

In Malaysia, the increasing number of industries due to job demands and growing populations have increased workplace accidents (Arokiasamy & Krishnan, 1994). Furthermore, many initiatives in developing and implementing numerous safety policies, procedures and guidelines by relevant stakeholders have been in vain as the number of workplace accidents are still on the rise (Nur Azlina, Ahmad Rasdan, & Muhamad Arifpin, 2014). In 2015, the (SOCSO) (2014) announced that the number of reported workplace accidents were as many as 34,258 which was only a slight decrease of 1,036 cases or 2.94 percent in comparison to 35,294 in 2014. Moreover, it was also alarming to know that in every 10,000 workers, 99 workers were involved in workplace accidents. The total benefit payment in 2015 has seen a surplus by RM197.09 million or close to 8 percent to RM2, 665.16 million as compared to RM2, 468.07 million in 2014. Fast forward to 2018, as per Figure 2.1, the accident statistics conveyed by the Department of

Safety and Health (DOSH) showed that there were 35,460 accident occurred throughout the year with 97 accidents reported per day. Out of those numbers, 611 resulted in fatalities with 2 deaths per day. To add to that, there were 7,258 occupational disease & poisoning cases reported with the rate of 20 cases per day.

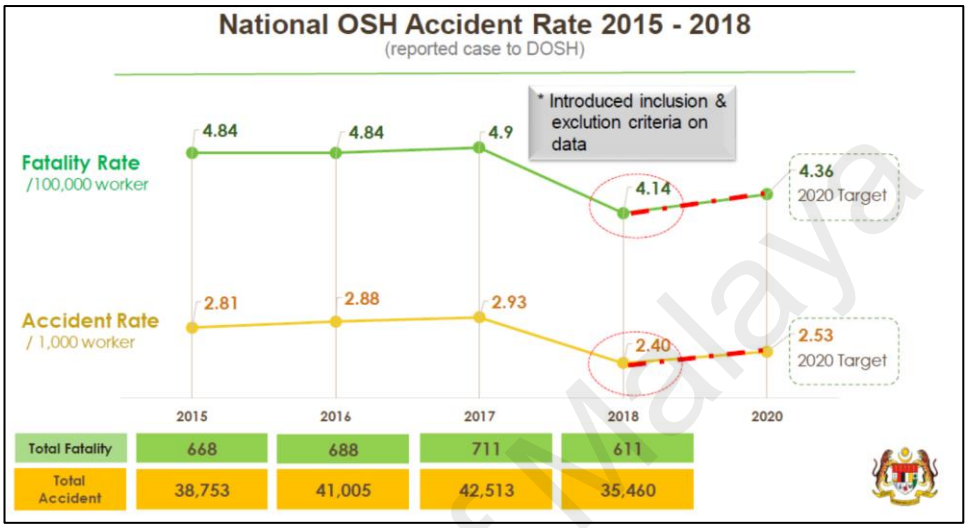


Figure 2.1 National OSH Accident Rate by DOSH

Concerning the local insurance compensation, SOCSO statistics in 2017 stated a compensation of RM3.27 billion. Jabatan Tenaga Kerja (JTK, 2017) also reported a total insurance compensation of RM7.5 million to foreign workers. This supports the Accident Cost Iceberg research Bird and Germain (1985) that indirect costs of an accident are worth more than direct costs to prevent them. Therefore, from the results and statistics provided, it indicates that it is paramount to create a positive safety culture in an organization Wang, Tian, Wang, Zhao, and al. (2012) to combat the number of workplace accidents. Figure 2.2 below shows the Occupational accident rate by DOSH in 2018.

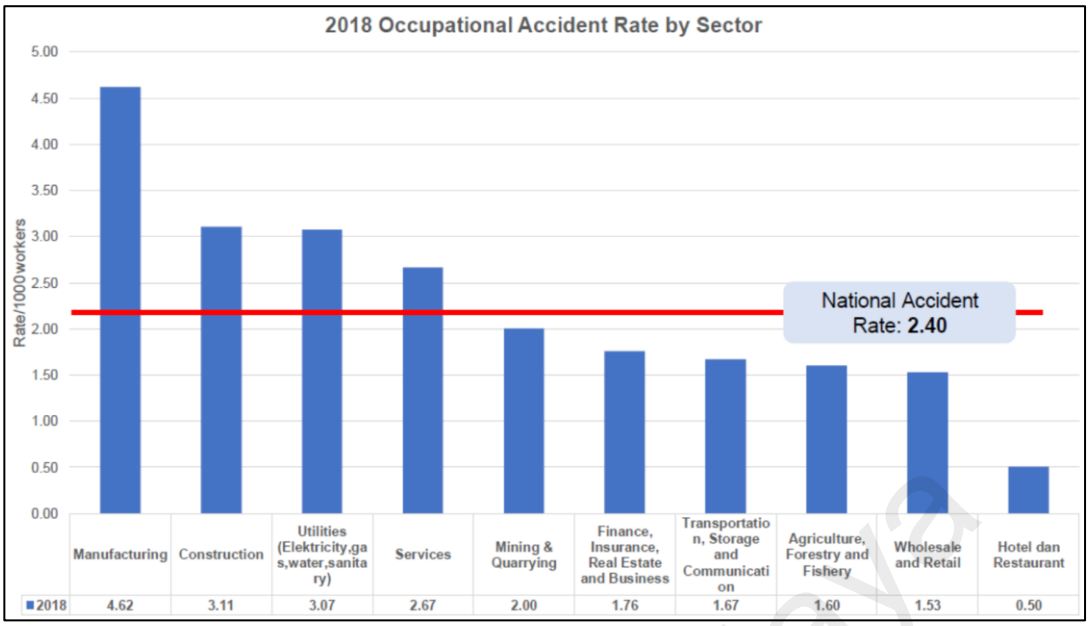
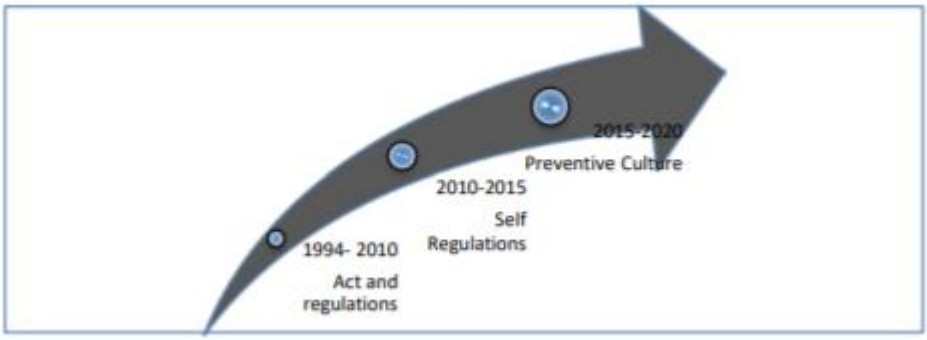


Figure 2.2 2018 Occupational Accident Rate by DOSH

2.2 Legislation Related to Safety Culture in Malaysia

In Malaysia, the Occupational Safety and Health 1994 (OSHA 1994) and the Factory Machinery Act 1967 (FMA 1967) are the two (2) main acts existed to secure the safety, health ,and welfare of persons at work against risks to safety or health arising out of the activities of persons at work. OSHA 1994 imposed strict penalties to employers who do not comply and to those that provide unsafe working conditions that is non-compliance to the acts and regulations (Soehod, 2007). The Malaysian government under the Department of Occupational Safety and Health (DOSH) is determined to instill the culture of safety by targeting organizations and corporations nationwide and launch the Occupational Safety and Health Master Plan 2020 (OSH MP 2020) (DOSH, 2015).The OSH MP 2020 roadmap was kick-started back in 2016 and is targeting to be completely deployed by 2020.

Figure 2.3 below shows the projection of DOSH determination in instilling and promoting safety culture.



(Source: DOSH (2015))
Figure 2.3 OSH MP 2020 Roadmap

As gazetted by DOSH OSHA (1994) ,Table 2.1 below is the summary of the safety culture-related legislation mentioned in the act and regulation:-

Table 2.1 Act and Regulation related to Safety Culture

Issue	**The detail in the category (FMA/OSHA)**	**Act or regulation relevant to safety culture**
Objective of OSHA	Sec.4 OSHA 1994	The objective of OSH: - To promote an occupational environment for person at work which is adapted to their physiological and psychological need
Safety and Health policy	Sec16 OSHA 1994	……...to prepare……a written statement of general policy with respect to the safety & health at work.
General duties of employers and self-employed persons to their employees.	Sec15 OSHA 1994	The provision of such information, instruction, training and supervision as is necessary to ensure, so far as is practicable, the safety and health at work of his employees.

General Duties of Employees at work	Sec 24 OSHA 1994	It shall be the duty of every employee while at work: - To take reasonable care for the safety and health of himself and of other persons who may be affected by his acts or omissions at work. - To comply with any instruction or measure on occupational safety and health instituted by his employer or any other person by or under this Act or any regulation made thereunder.

According to Nik Hisyamudin et al. (2017), a comprehensive national OSH framework is fundamental for the powerful execution of the national strategies and should be incorporated to increase the level of safety culture.

2.3 Definition of Safety Culture

A safety culture revolves around the emotional, behavioral, and situational factors. The Books (2005) elaborated that psychological components consist of common values, attitudes, perceptions, and beliefs that drive results and behaviours regarding safety. Furthermore, the behavioural factor can be regarded as the means concerning the safety in the place of work, and the situational component as the policies, procedures, regulations, organizational structures, and management systems related to safety.

The word ‘safety culture” first made its mark after the Chernobyl tragedy in 1986. The International Nuclear Safety Advisory Group (INSAG) who conducted the investigation identified ‘poor safety culture”, singling out the main reason to this horrible nuclear-powered plant disaster in recent times. Wilpert, Itoigawa, and Francis (2001) added that safety culture is a bold and intricate concept which requires the speculative and empirical clarification. Many demarcations can be affiliated with safety culture (Cooper, 2000).

The three factors between psychological (people), behavioral (jobs) and situational (organization) often defines the product of interactions in a holistic safety culture (Cooper, 1998). In another study, Cooper (2000) cogitates those characters, observations, and beliefs of people, their deeds, and the safety management systems as well as the situational objective features as the elements of the safety culture in the workplace. To add to that, a similar view has been uttered by Lefranc, Guarnieri, Rallo, Garbolino, and Textoris (2012), that safety culture can be focused on three main components: organizational, psychological and behavioral. However, an agreement telling that the organizational and related features are significant in the safety culture definition. The psychological element is intended to study the attitudes and perceptions of the individual and the group. The component of the behavioral assesses external factors, for example, wearing Personal protective equipment (PPE), adhering to safe operating procedures that apply to individuals in the field and visible behavior. Lastly, the component that the organization can connect to an analysis of business operations through its structures, procedures, and policies.

Fernández-Muñiz, Montes-Peón, and Vázquez-Ordás (2007) described the culture of safety as a module of the organizational culture which refers to the each personnel, to the job, and to the organizational features that can impact their safety and health.

Several scientists defined safety culture as the coming together of norms, ideas, professional, roles, social customs and views that were developed from strings of persons effort to avoid potential risks and dangers (Monnery, 1998).

Richer et al added a twist by defining safety culture as a explanation of understandings and analysis of learning from the job and safety that dictates individual behavior from any incidents occurring.

Some may regard safety culture as a capacity in which personnel or team pledge to safety efforts and issues for consistency, continuous learning and correction and also learning from errors made. Wiegmann, Zhang, VON, Sharma, and A.A (2016) put in a remark that safety culture is the value or preference given to safety at any level and by any individual.

The reason of a positive safety culture is to generate a situation in which the workers are aware of the risks to which they are up against in their area of work and the means of safety. Safety culture is a significant organizational instrument in analyzing the attitudes, faith and behavior of the employees on safety. It will be easy for any Company wanting to achieve the seamless HSE system. The initial step towards the goal should first revolve around implanting a comprehensive safety culture that drive safety towards the involvement of the action from the planning stage until finish. Safety shall be incorporated into each employee which only can be achieved if top management realizes in the significance of HSE and providing actions on the foundation of this faith (Wiengman, VON Haden, & Gibbons, 2007).

2.4 Conceptualizing Safety Culture and It's Outcome

Due to the variety of research perceptions, scopes, and subjects, until now, a small number of compromise has been documented on the diverse characteristics normally related with the thought within the technical discipline. According to the scope and characteristics of the definition, research on the concept of safety culture everywhere in recent years can be split into two narrow and broad aspects.

Firstly, according to Gao-ming (2008), the broad concept of safety culture is the consequent based on the description in the dictionary, that is, safety culture is the summation of security-related spiritual and material wealth. Additionally, Li Shuang (2007) added that the norm is that safety culture theorization consists of four stages.

Safety culture is the system of physical culture, institutional culture, behavior culture, and spiritual culture.

There were two industrial standards in Directives for Developing Enterprise Safety Culture and Assessment Standards of Enterprise Safety Culture Developing that were endorsed by the State Administration of Work Safety in 2008 (Safety, 2009). From the standards, it is defined the culture of safety as "the sharing of safety values, attitudes, ethics and code of conduct" in the workplace. By having these qualities, it will provide a basis or foundation to develop a profound safety culture. However, there are many other definitions out there that are related to the term safety culture. Pidgeon (2001) relates safety culture to a collection of safety problems that further enlarge the broad definition of safety culture.

On the other hand, the narrow definition of safety culture can be derived through specific levels, for example "behaviour" or "spirit" level. It has been well known that safety culture can affect the spirit level, which can decide behavior to a certain point. Grote G (2000) agrees that safety culture is just a simple hypothesis which can affect the behavior and attitude of the employees, (Cooper, 2000). In addition, safety culture is also the belief and value of the issues on health and safety (OTM, 2002). Nevertheless, although the research provided some concentration on a certain level, they still do not clearly define what the safety culture is. Terms such as attitude, belief, and values, appear too theoretical to be used, and it is hard to fathom what the safety culture should consist of. Therefore, whichever you want to describe it, narrow or broad, to grasp the actual concept of safety culture, there needs to be a consensus between the broader and narrow definition to the concept of safety culture.

In conclusion, safety culture is an essential factor of an organization HSE management system. By improving the quality of delivery in the Company safety

management system, this could reduce accident rates, prevent major accidents, and increase safety metrics (Gui, Bai, & Xiu-zhen, 2005). Ultimately, safety culture will be enhanced and nurtured throughout the organization.

2.5 Management and Culture

Over the years, incidences associated with occupational diseases and injuries have gradually reduced due to the developments in science and technology such as engineering controls, protective equipment, safer machinery and processes, and adherence to law and regulation Hale and Hovden (1998). Suffice to say that the improvements made to certain areas have brought new light in bringing down the accident statistics but without the involvement of top management in the overall picture, safety culture in the workplace would never materialize (Hale & Hovden, 1998).

According to the (ILO) (2009), a key element for a resounding safety culture is promoting a culture of prevention within the enterprise. (Hale & Hovden, 1998) also added that positive safety culture in the workplace will never be effective unless the workplace portrays a top-down approach whereby leaders exhibit role modeling qualities. A lot of organization have failed to show improvements in their safety values and commitments as they did not consider organizational culture as part of the occupational health and safety management strategies. Therefore, leadership is paramount in ensuring a successful culture change. Leadership can trigger unfreezing, with leader's commitment and attitudes towards safety being the catalyst towards a fundamental contribution to cultural change.

Like all cultures, building a safety culture takes time and patience. With perseverance, positivity and a steady push towards the goal, we can effectively protect ourselves from injury by influencing our daily habits. According to the Society for Personality and Social Psychology, habits make up approximately 40 percent of human

behaviour. A consistent safety-first mindset calls for focusing on developing and reinforcing critical safety habits. Choudhry and Mohamed (2007) put up a notion that even though the growth of a positive safety culture can be a handy instrument for the measurement of safety performance & improving safety remains challenging. (Haukelid, 2009) claimed that it is changing a culture is doable. Nevertheless, it will require a much longer process. However, because culture is somewhat central and permanent, it is hard to influence or contained. Over time, no matter what management or employees think or do, the culture can be shifted.

Goetzel (1999) described that instilling safety culture in employees, is directly related to the productivity and profitability of organizations. He then added that companies that strived for a generative safety culture in their employees focus on safety/productivity management, not because it is a human resource activity but because of its alignment with the statement of purpose of the organization. Ultimately, the relationship between an organization with its safety culture is like bread and butter. Without each other, they would not function perfectly. Every employee looks up to their leader for direction and guidance. Good leadership represents a strong care culture towards the well-being of their employees, therefore, enhancing the level of culture maturity in the workplace.

2.6 The Safety Culture Ladder

According to Hudson, Parker, and Van der Graaf (2002), the culture ladder has been established to illustrate the numerous stages on development of culture. This also depicts on ways of how organization can discover the gap between their present level of cultural maturity and the desired level. The ladder can be seen in Figure 2.4.

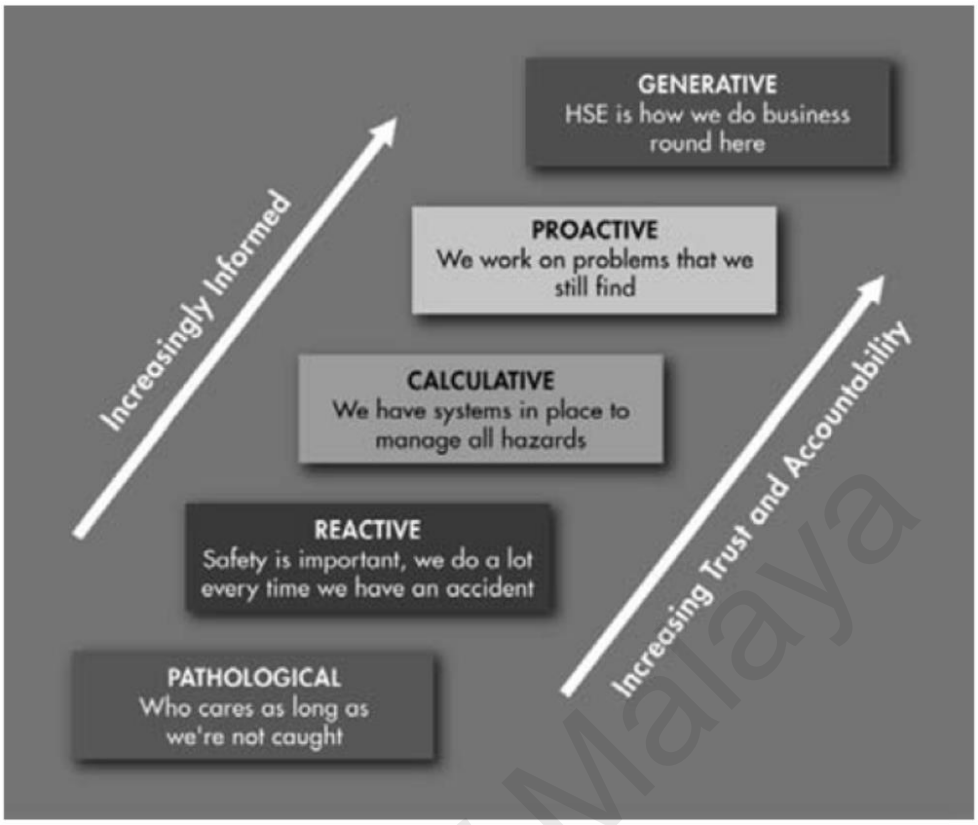


Figure 2.4 the Safety Culture Ladder

Cooper (2000) described the 5 steps as follows:

i. Pathological
ii. Reactive
iii. Calculative
iv. Proactive
v. Generative

At the bottom part, we can find the Pathological culture wherein this level is described as a scenario whereby nobody cares to understand why accidents happen and how they can be prevented. Furthermore, in this level, less consideration is given for HSE and only procedures are charted. Therefore, the safety culture is not properly understood.

In between, there lies the Reactive stage in which a lot of thoughtfulness is provided into HSE (but mainly Safety) after a mishap has occurred. To put it simply, at

this level safety culture is high on the agenda but only in the presence of risks. Some notable words normally uttered like "it's dangers career, be careful" or "people who have the accident are the ones who were responsible for it" (Corvalan, Kjellstrom, & Smith, 1999).

In the Calculative stage, employees believe that they have everything in place. They can “tick the boxes” and validate that all the checklists related to the guidelines and procedures are looked upon. Realistically at this level, the organization has already developed a decent system. The HSEMS is implanted positively and HSE is taken seriously. The focus is on statistics and numbers. Data are analyzed, collected and examined accordingly. For this level, the occurrence unsafe acts and conditions occurring as still visible much to the disbelief of everyone associated with the organization (Sarmad, Bazargan, & Hejazi, 1385).

In the Pro-active ladder, most of it are already in order but further improvements are considered actively. In this level, previous incidents weren’t the benchmark for verdict. Not only that previous mishaps are preventable but potential accidents moving forward are being closely monitored. Employees are more connected to HSE. HSE personnel are only there to provide consultation and govern the process. When the organization starts to embed this culture in the workplace, trust and understanding ultimately amplified and people become more responsible.

At the top of the chart, the Generative HSE culture, HSE is no more detached from all discussion. HSE has become wholesome and is integrated with the business, workplace and therefore part of everything that is being done. Generative Company are of quality standard organizations and are more towards self-regulation. These organizations are proactive towards any shortcomings and use it for enhancement rather than blaming others. They don’t expect the work to be perfect but instead working

towards a more superior workplace. The leadership knows that employees have their fullest trust and are dynamically communicating and providing feedback to one another Health (1994). Hence, the main goal of an organization is to always strive for the top which means progressing up the safety culture ladder, developing a safety culture maturity to become truly pro-active and generative. A basic characterization of the culture stages is shown in Figure 2.5 below.

2.7 Behavioural Safety and Creating a Positive Safety Culture

Behavioural Safety is an approach to reduce workplace risk exposures by focusing on the attitude, behaviour, and act of employees. A Behavioural Safety programme shall engage in efforts to drive safety values and to instill personal safety responsibilities to accomplish clear safety goals.

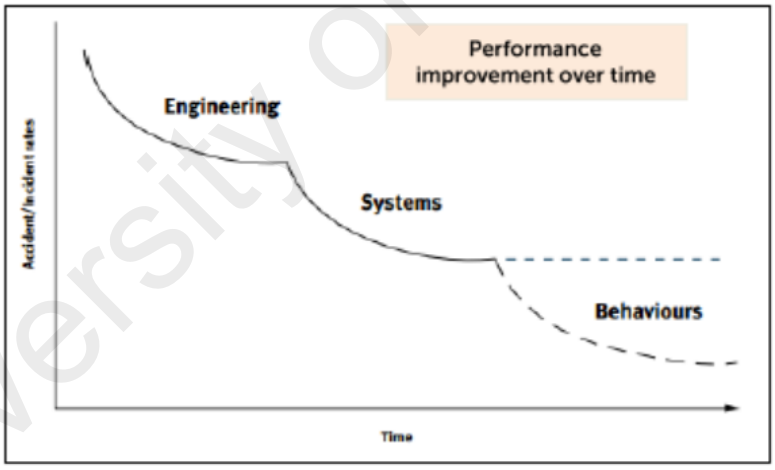


Figure 2.5 Work Steps in Reducing Accident Rates

Behavioural Safety is one of the important steps in improving safety, after the deployment of effective engineering designs and safety management systems (Figure 2.6). Emphasis on behaviour is vital as it determines how efficiently employees within the organisation typically use systems.

Behavioural Safety works on the concept that a more positive Safety culture will ultimately address attitude change of an individual and positively develop a positive

Safety culture and create a safer work environment, therefore reducing the overall workplace risk exposure.

In a way, Behavioural Safety programme provides a means of having a planned conversation to either positively encourage or stop the observed behaviour. By doing this, it is anticipated that the number of unsafe acts will decrease, good practices will be reinforced, and ultimately the chance/probability of injuring personnel will decline in proportion.

PETRONAS has a long-standing HSE commitment to the highest standards for the health and safety of its employees, customers, and contractors as well as to the protection of the environment in the communities in which we live and work. Through it's PETRONAS (2018), PETRONAS has established a Cultural Belief tool to transform the Company towards being a leading oil & gas multinational of choice. The objective is to train, retain and sustain employees' culture maturity and ultimately the business itself.

Behavioural Safety is in-line with PETRONAS Cultural Beliefs® (PCB). According to the Results Pyramid® adopted in PCB (Figure 2.6), culture comprises of our Experiences, Beliefs and Actions. In short, the Experiences that we have enforced the Beliefs that we hold, which influence the Actions we take, that ultimately produce the Results.

Figure 2.6 PETRONAS Results Pyramid

As such, Behaviour, which is the reflection of one's Action, is also seen to be the precursor of Safety culture in a workplace whereby the right Experiences and Beliefs must be established to derive the right Behaviour towards safety.

Positive Safety culture is a culture in which:

i. Individuals hold safety as a 'value' and not just a priority;
ii. Individuals take responsibility for the safety of their co-workers in addition to themselves; and
iii. All levels of employees are willing and able to act on their sense of responsibility

Several fundamental principles and approaches may contribute to the success of a Behavioural Safety programme (Figure 2.7), and may bring about noticeable and lasting results, which will contribute to an enhanced Safety culture:

i. A solid management pledge towards improving and maintaining behavioural safety perceived in the regular acts of personnel at the management level.
ii. Trusting, respectful and open communication between all layers of workforce about all aspects of safety in the workplace.

iii. An honest, tell me culture among workers, which allows them to consistently grow and learn.

iv. The importance on unsafe and safe behaviour; instead of dependecy on slow indicators and HSE measurements.

v. A consistent, strong and timely reaction to the innovation of UAUC, whether the outcome results in and incident or not. HSE incidents are regarded as a chance to improve and learn.

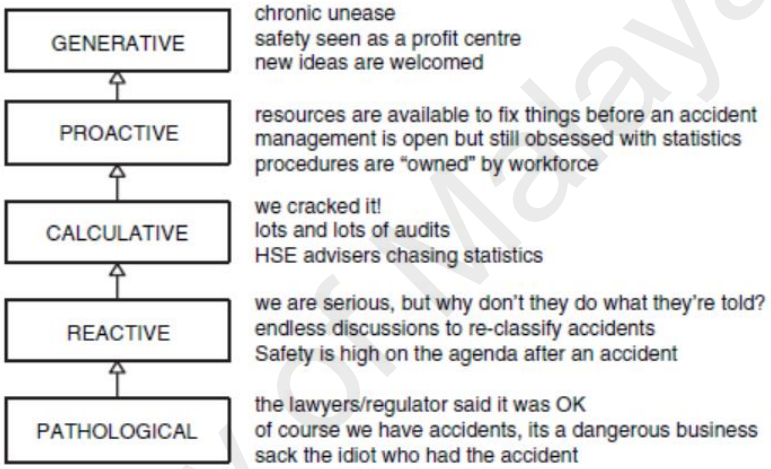


Figure 2.7 Simplified characterisation of the stages of the culture ladder

2.8 Measuring Safety Culture

Through researches done regarding the safety culture model, it can be seen that there are certain elements or themed that can be focused on measuring safety culture. Firstly, leadership and commitment is the top element to be mentioned that is essential to be part of the safety culture model. There is nothing better than to see the leaders committed to driving the safety culture in the organization as they are the ones that set the safety policies and operation structures in the organization (PETRONAS, 2017 – Book). Top administration portray an imperative duty in connecting dots from high to bottom as employees look up to their leaders for good safety culture practices (Høivik et al., 2009).

Organization, Responsibilities, Resources & Standards are also mentioned as one of the elements for the safety culture model as they are fundamental in establishing the Company's key operating model and ultimately improve the safety culture in the organization. Nonetheless, Høivik et al. (2009) disputes that in most of the organizations, there are repetitive versions of the same procedures and standards which lead to the misperception when performing a particular task. This will create a culture of incompetence whereby employees will be confused about which procedures and standards to follow, thus opening up to potential risks of incidents occurring. On the other hand, studies show that organization with proper resources & structures is key in improving the safety culture in the organization. Filho and Andrade (2010) stressed that to instill the correct safety culture in an organization, a suitable reporting avenue should be introduced where employees can report any unsafe act, unsafe conditions, near misses and even incidents at the workplace. The data analyzed can be shared throughout the organization via email communication, portal page or bulletin board (Filho & Andrade, 2010).

Above all, another element that comes to mind which ties the whole safety culture model together would be audit & assurance. This is vital in ensuring an effective safety culture as during the activities, non-compliance to standards, performance feedback and pain points for safety culture can be identified and action plans can be established for further improvement (Kim, Park, & Park, 2016).

2.9 PETRONAS HSE Management System

A management system labels how a Company is steered concerning its stated purposes. It does this by focusing on vital tasks, ensuring that they are properly organized and those dimensions are made and conveyed to allow monitoring of overall statistics and identification of capacities for improvement. According to Wilpert (2000), worldwide

companies found their proficiencies and experience in HSE as the main reason behind containing risks in the industries.

Management systems provide continuity, consistency and structured method in pinpointing progress prospects, and can be used to establish that controls supported by framework in place. The introduction of systems is required in some areas by policymakers. In PETRONAS, the changing face of the business, including the collective use of contractors for non-core business activities requires more, rather than less, formalisation of the business processes.

The profits and steadiness provided by management systems are self-evident, basically in aiding to find gaps in the current management organization. However, for management systems to be effective, it is important to minimize bureaucracy, stringency, over-complexity, and the suppression of innovative rational.

HSEMS consists of 8 elements (Probst, 2010), it comprises of 8 main elements covering leadership and commitment, Policy and Strategic Objectives, Organisation, Responsibilities, Resources, Standards and Documents, Hazard and Effect Management Process, Planning & Procedures, Implementation & monitoring, Assurance and finally Management Review.

Most management systems have in common a basic 'plan,' 'do,' 'check,' and 'act/feedback' (PDCA) loop. The figure 2.8 below shows this basic process, which provides the basis for most ISO-related systems and best practice approaches as well.

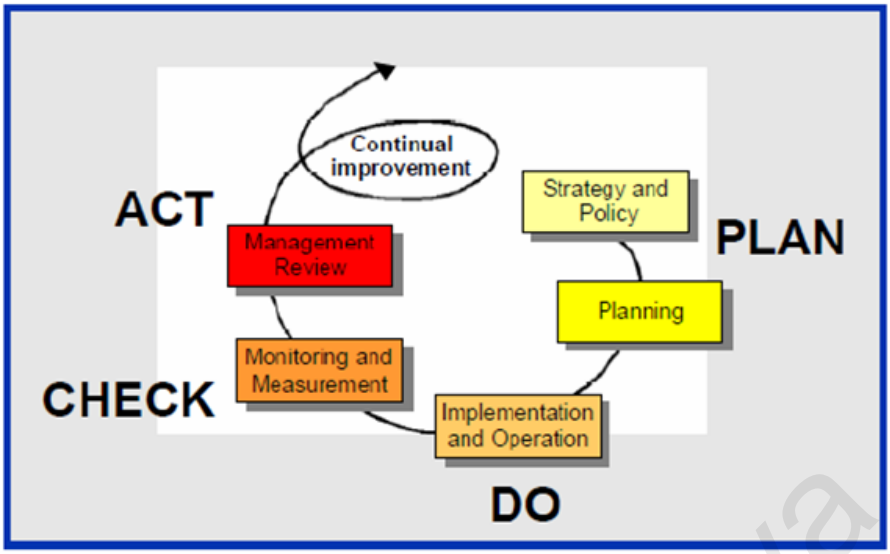


Figure 2.8 PDCA process

Within the context of PDCA continual improvement loop, PETRONAS HSE Management System was established.

2.10 Summary

Through this literature review, it can be summarized on the importance of safety culture to aim towards the foundation of zero accidents in the working environment (Belanger, 1981). According to (European Agency for Safety and Health at Work, 2011), to ensure health and safety at the workplace for all the employees, organization who wish to embark on this zero accident target should pay close attention to behavioural, social and cultural processes. A healthy organization is those who's culture, management, working environment, and business practice generate an atmosphere that increases health, efficiency, and quality of employee's work (Carayon, Hoonakker, & Smith, 2012).

CHAPTER 3: METHODOLOGY

3.1 Introduction

In this chapter, the methodology of the assessment study will be discussed. The details regarding the key research question, the research design, sampling, data collection method, and data analysis method are also mentioned. Below flowchart is simplified to achieve the purposed research in Figure 3.1

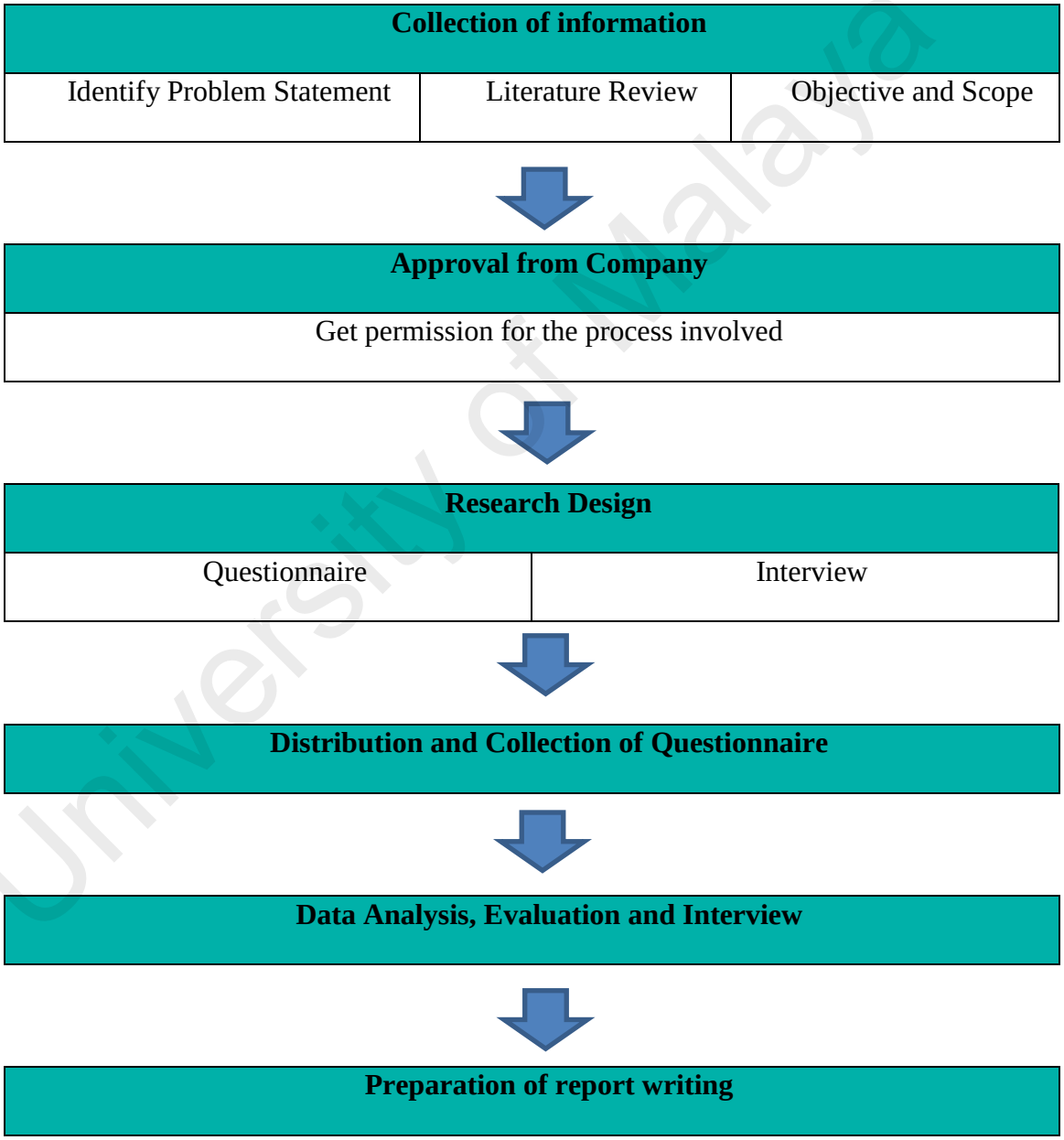


Figure 3.1: Research Flow Chart

3.2 Ethics

The study was conducted in PETRONAS ICT Sdn. Bhd located at Menara ExxonMobil, KLCC. Permission was obtained from the Health, Safety and Environment department to conduct the research related to culture maturity assessment. This research has been done with the Floor Safety Manager & Assistant Floor Safety Managers (FSMs & AFSMs) on each floor. Each FSMs & AFSMs have been given the consent letter for the permission before taking the questionnaire.

3.3 Selection of Company and Process Involved.

In this study, PETRONAS ICT Sdn. Bhd, a digital technology enabler that supports PETRONAS to be a leading oil & gas multinational of choice has been chosen as the research location. To perform the study, questionnaires & interview method has been selected for the culture maturity assessment.

3.4 Floor Safety Manager and Assistant Floor Safety Managers

The role of FSMs & AFSMs are voluntary positions open to all staff of PETRONAS ICT Sdn Bhd. The Chairman of the HSE Committee will confirm the appointment of the FSMs & AFSMs. They will report to the secretary of the HSE committee on matters with regards to the health and safety on their respective floors. They are responsible for:

a) A Floor Safety Manager's main duty is to facilitate the safe evacuation of floor occupants in the building.

b) Must be familiar with the building's emergency procedures and the locations of all staircases;

c) Facilitate the safe and complete evacuation of floor occupants to the designated or nearest Evacuation Assembly Area.

d) On any matter with regards to Safety & Health, the floor safety manager shall be reporting to the Secretary of the HSE Committee and HSE Department.

e) Floor contact person, for information about the emergency evacuation plan.

f) Conduct regular fire and safety inspections on their respective floors. Such as fire safety equipment is in place and adequately signed, exit signed and doors functioning, exit doors have clear access, emergency procedures displayed and current.

g) Maintains an updated floor occupancy listing;

h) To provide first assistance or treatment for a sick or injured person before the arrival of an ambulance or qualified expert.

i) To be the Ergonomic Representative/Focal on their respective floor.

3.5 Samples of Study

This research involved a combined total of fifty-five (55) FSMs/AFSMs that participated in the questionnaire on the culture maturity survey. After the questionnaire was conducted, a series of interviews will be done to the selected FSMs/AFSMs to gage further clarification on their earlier responses. All the FSMs/AFSMs are permanent employees and work on normal eight (8) working hours, five days a week.

3.6 Research Design

3.6.1 Questionnaire

A set of questionnaires as in (Appendix A) that revolves around the comprehensive eight elements of PETRONAS HSE Management System were developed in this study. The key objectives of formulating the questionnaires are to determine the eight (8) focused key areas to measure the safety culture maturity effectively. Detailed descriptors for each element at different culture levels will be assigned accordingly at the end of the study. By having developed a thorough survey, the overall safety culture can

be identified. Furthermore, both the management and the employees can identify the lagging area and action plan for further continuous improvement. The questionnaires will be distributed via hardcopy papers & softcopy (online). Based on the results collected, eight (8) key areas that are essential to improve the safety culture in the organization will be identified and detailed descriptors for HSEMS elements will be assessed and populated.

A minimum of fifty-five (55) FSMs/AFSMs are targeted to complete the questionnaires. They are divided based on the following:

a) Age Group

b) Department

Age Group

The FSMs/AFSMs are divided into four different age group which are:

a) Age 24 years old and below

b) Age between 25 to 34 years old

c) Age between 35 to 44 years old

d) Age between 45 to 54 years old

e) Age between 55 to 64 years old

With having this specific characterization, this allows comprehensive reporting in terms of the results as employees would have different opinions and assessments on their understanding of the Health, Safety and Environment culture level. This is also will indirectly reflect their level of maturity as they developed their career growth from executives to management as age passes by.

Department

Employees in different department usually have different views and understanding of the importance of HSE to them and the Company. The department that works closely with the HSE Department or is involved in projects will have more tendency to adhere to the HSE rules and regulations set by the Company compared to the others. This is because rules and regulations such as the application of permit to work, compulsory toolbox meeting, and submitting job hazard analysis forms shall be observed completely before they can even start to perform their work.

3.6.2 Interview

Based on the data collected from the questionnaires, interview sessions will be conducted with selected respondents. The selection will be based on the respondents that provided Pathological and Reactive answers to the questionnaires. This is to get a better understanding of their answers and what was the reason behind them.

3.7 Data Analysis

A set of measurement matrix is proposed to measure the safety culture of PETRONAS-ICT staff in Menara ExxonMobil. The measurement matrix is established by incorporating both Health, Safety and Environment Management System (HSE MS) and the PETRONAS Safety culture ladder. The results will allow the organization to determine the overall safety culture and come up with a suitable and appropriate recommendation. The proposed measurement matrix is as per Appendix D.

For questionnaire, Likert scale has been introduced and each item has been represented with weight rating score to identify the extremely effective to the least effective scoring among the staff as Table 3.1 below:

Table 3.1 Likert Questionnaire Scoring Method

Score
Extremely Effective = **Generative**
Very Effective = **Proactive**
Somewhat Effective = **Calculative**
Not so Effective **= Reactive**
Not at all Effective = **Pathological**

An investigative interview question (as per Appendix B) was established and utilized during the interviews to make certain that appropriate inquiries were brought up and to retain some extent of direction and scope. The questions asked was to gage on why the respondents think that the level of safety culture is still at the Pathological and Reactive level. The questions were designed to probe the respondents' experience in their job area and to investigate task-related concerns that could clarify their response to the level safety culture in the organization.

The interviews will more or less take around 30 minutes to complete. Interviews were conducted at the informant's work area. The dialogues will start by explaining the purpose of the study and how the outcomes from the interview would be utilized. All participants were notified of the discretion of the interviews and the fact that they were being done for research purposes.

CHAPTER 4: RESULTS ANALYSIS AND DISCUSSION

4.1 Introduction

In this chapter, the results of data analysis from the questionnaire will be discussed. The data obtained is analyzed using excel. From the questionnaire, a series of interviews will be conducted to get further understanding behind selected respondents' responses.

4.2 Respondent Background

There were 55 respondents involved in this research consisting of PETRONAS ICT Floor Safety Managers (FSMs) & Assistant Floor Safety Managers (AFSMs). The data were obtained by giving them the questionnaire and only collected during the next day of work. This is to ensure all respondents receive an ample amount of time to answer the related question.

4.2.1 Gender of the Respondent

At PETRONAS-ICT, we have a good mixture of male and female FSMs & AFSMs as per table 4.1 and figure 4.1 below to provide equal exposure and to promote gender equality in the Company.

Table 4.1 Gender of the Respondent

Gender	Frequency	Percentage, %
Female	30	54.55
Male	25	45.45
Total	55	100

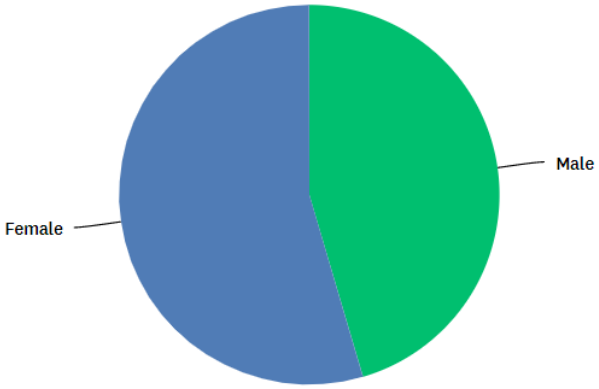


Figure 4.1 Percentage of Respondent's Gender

4.2.2 Age of the Respondent

Table 4.2 Distribution Age of the Respondent

Gender	Frequency	Percentage, %
24 below	4	7.27
25-34	31	56.36
35-44	13	23.64
45-54	6	10.91
55-64	1	1.82

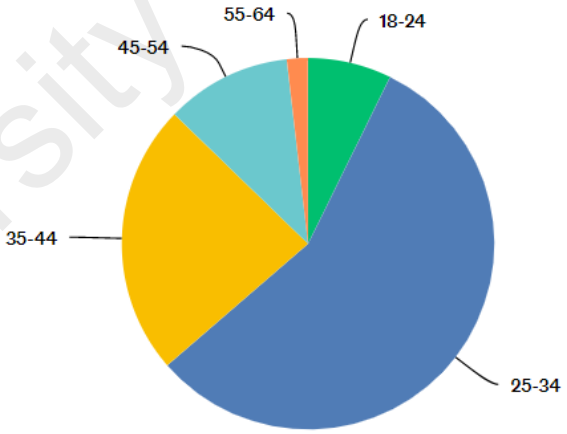


Figure 4.2 Percentage of Respondent's by Age Group

Table 4.2 and figure 4.2 shows that 56.36% of the respondents were within the age group of 25-34 years old. Meanwhile, only 23.64% were within the age group 35-44 years old, 10.91% within 45-54 years old, 7.27% below the age group of 24 and only 1.82% is at the age group of 55-64 years old.

4.2.3 Department of the Respondent

Table 4.3 and figure 4.3 presents the data from different departments of the respondents. Operations and FASD employees recorded the highest number of respondents apart from 'other' with 14.55% & 12.73%, respectively.

Table 4.3 Distribution Age of Department

Department	Frequency	Percentage, %
FASD	7	12.73
PCC	3	5.45
OPS	8	14.55
BF OEX	2	3.64
BF FIN	1	1.82
BF CORP	1	1.82
BF INFRA	0	0
HR	0	0
LEGAL	4	7.27
E.D	1	1.82
D.A	0	0
S&P	1	1.82
EPMO	1	1.82
BTS	1	1.82
OTHER	25	45.45

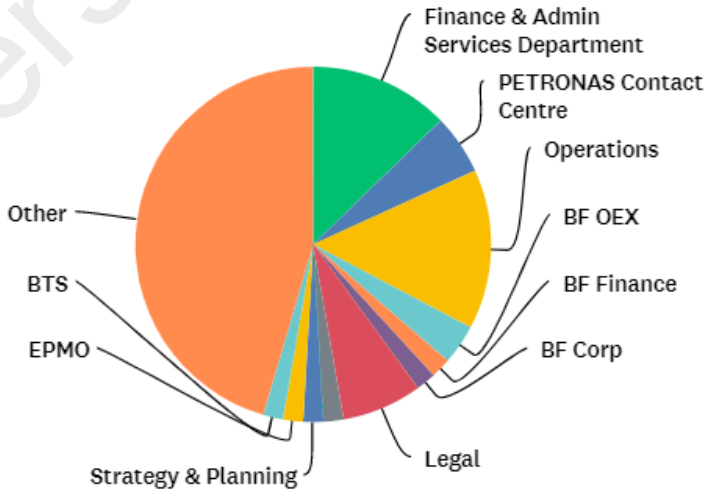


Figure 4.3 Percentage of Respondent's by Department

4.3 Focused areas for Safety Culture Maturity Survey

In the survey questionnaires, the respondents were required to answer multiple questions related to each key area of PETRONAS HSE MS which are crucial to determine the level of safety culture maturity as per culture maturity ladder in PETRONAS-ICT. Hudson, Parker, Lawrie, Van der Graaf, and Bryden (2004) reiterated that a culture ladder has been developed to characterise various levels of cultural maturity.

4.3.1 Leadership & Commitment

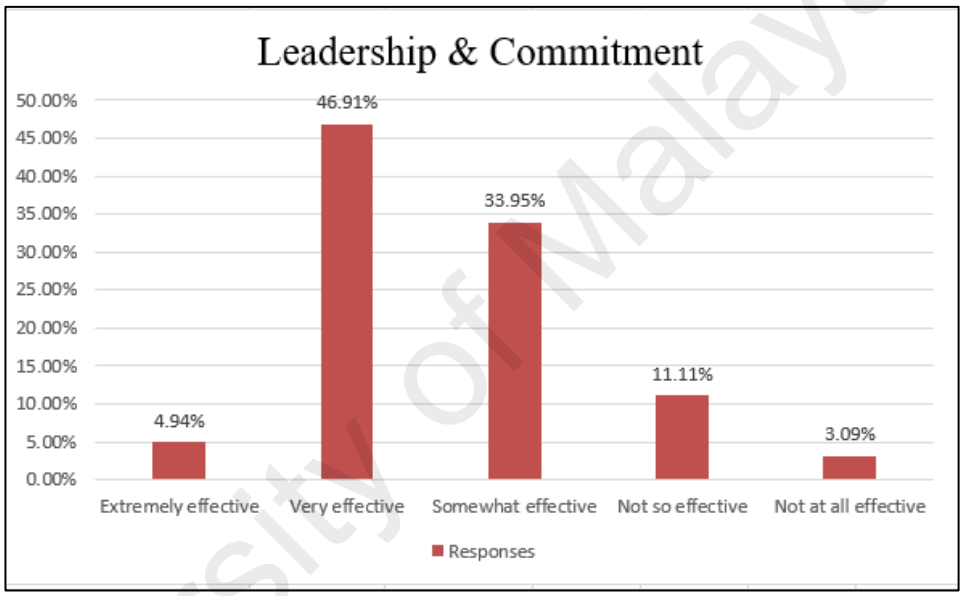


Figure 4.4 Leadership & Commitment Data Analysis

Every personnel within PETRONAS-ICT including contractors' personnel is expected to play leadership roles in ensuring excellent HSE performance. Each personnel shall lead, show exemplary personal conduct, provide resources and give training and guidance within his/her ability for HSE causes. Based on the results displayed in Figure 4.4, almost half which is 46.91% of the respondents believe that the current leadership & commitment portrayed by PETRONAS-ICT is very effective. This shows that the top management is proactive in dealing with HSE matters in the organization by participating in HSE events, HSE Council meetings, HSE Committee meetings, etc.

Cooper (2000) echoed that management should make sure the requisite of HSE is understood for everybody and the actions are supported by committing to an effective system in HSEMS. A third of the respondents at 33.95% thought that HSE can still be improved holistically throughout the organization. Ultimately, this shows that the employees acknowledge the roles of top management in anchoring HSE as the number one priority in the organization.

4.3.2 Policy & Strategic Objectives

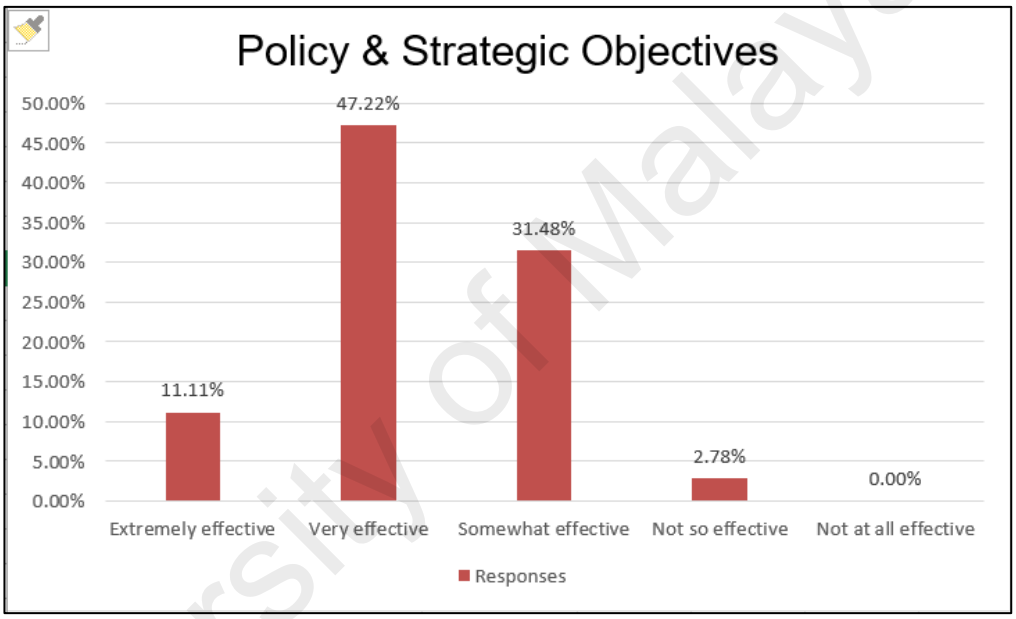


Figure 4.5 Policy & Strategic Objectives Data Analysis

It is PETRONAS-ICT's Policy to continuously adhere to the Malaysian Occupational Safety and Health Act (OSHA) 1994 and committed to the environment. The policy is thus designed to protect people and the environment. PETRONAS-ICT will endeavor in every feasible and practical way to provide a safe and healthy place of employment for all its employees and will continuously promote a safety-conscious work culture.

All employees are responsible and accountable for ensuring a safe workplace and environment in the conduct of their duties. Figure 4.5 shows that more than 95% of the respondents considered that the policy and strategic objectives on HSE for the

organization are at least at the calculative level. This is a strong indicator that the employees are already conscious of HSE and that PETRONAS does not tolerate any non-compliance with regards to safety. PETRONAS' introduced ZeTo Rules, which represent PETRONAS Group's first set of mandatory safety rules that have been drawn up to create a more focused and firm approach to addressing the recurring causes of major accidents and fatalities.

4.3.3 Organisation, Responsibilities, Resources, Standards & Docs

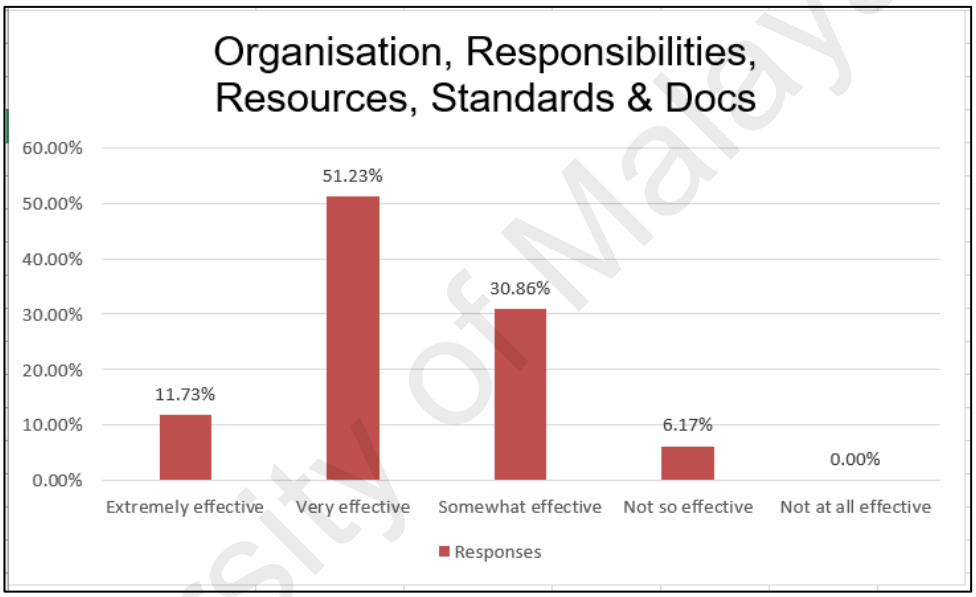


Figure 4.6 Organisation, Responsibilities, Resources, Standards & Docs Data Analysis

Execution and running a successful HSE program is amongst the responsibilities of organizations and all levels of management and leadership must get involved in it. This must be measured while designing the structure and allocation of the resources. To successfully implant HSE plans, organizational chart must encompass all responsibilities, tasks, authorities, and communications. The results from the survey in Figure 4.6 demonstrate that PETRONAS-ICT has a very effective organization, responsibilities, resources, standards, and documentation with 51.23% of the respondents.

It was convincing to know that around 11.73% of respondents have measured our organization to be at the generative level. Generative Safety culture is where PETRONAS-ICT aspires their staff to be at and they are certainly moving in the right direction. By having a proper organizational structure, it ensures adequate resources are in place to achieve HSE goals. Furthermore, proper standards, procedures, documentation will standardize a work process/technique/tool and to set requirements across PETRONAS-ICT.

4.3.4 Hazards & Effect Management

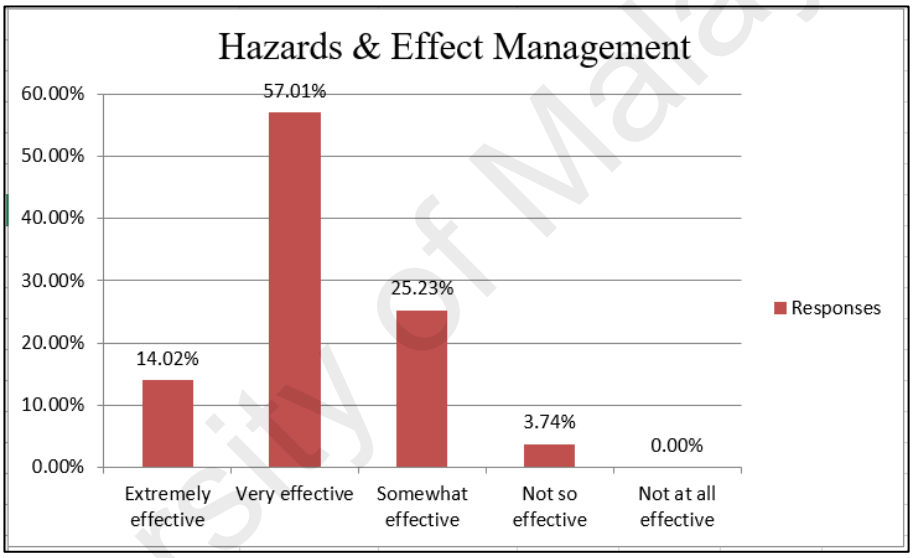


Figure 4.7 Hazards & Effect Management Data Analysis

Figure 4.8 revealed a whopping statistics of 96% of the respondents are aware of the threat of hazards and the consequences they bring to the people, environment, asset, and reputation. Nevertheless, 3.74% of the respondents still feel that PETRONAS-ICT has to pay more details to reduce and mitigate hazards to as low as reasonably practicable.

HEMP is a structured methodology for the identification of HSE hazards and the management of associated risks. The Hazards and Effects Management Process consists of four basic steps: identify, assess, control and recover. This systematic process ensures effective management of HSE by selecting controls for each relevant threat capable of

triggering a hazard or causing an effect. It can be applied by starting with the hazard or affect directly or by first applying it to the activity or work being done.

The Hazards and Effects Management Process shall be applied to past, current and new activities, operations, products, and services. It involves the assessment of HSE impacts or potential impacts on people, on the environment and on assets and should include the full life cycle of the activity from inception to termination.

PETRONAS-ICT shall be responsible for the identification and assessment of HSE hazards and effects, implementation of controls and recovery measures, and maintenance of documents demonstrating that major HSE risks have been reduced to a level that is as low as reasonably practicable (ALARP). PETRONAS-ICT will introduce risk management techniques by ensuring that all workplace hazards and associated risks have been appropriately identified, assessed and controlled.

The Company shall achieve this by:

- Establishing a register of hazards and associated risks.
- Undertaking all risk management in conjunction with representatives from the workforce.
- Training all employees in the use and application of controls introduced for each identified risk.
- Employing specific techniques to ensure risks within PETRONAS-ICT premises are managed effectively.

4.3.5 Planning & Procedures

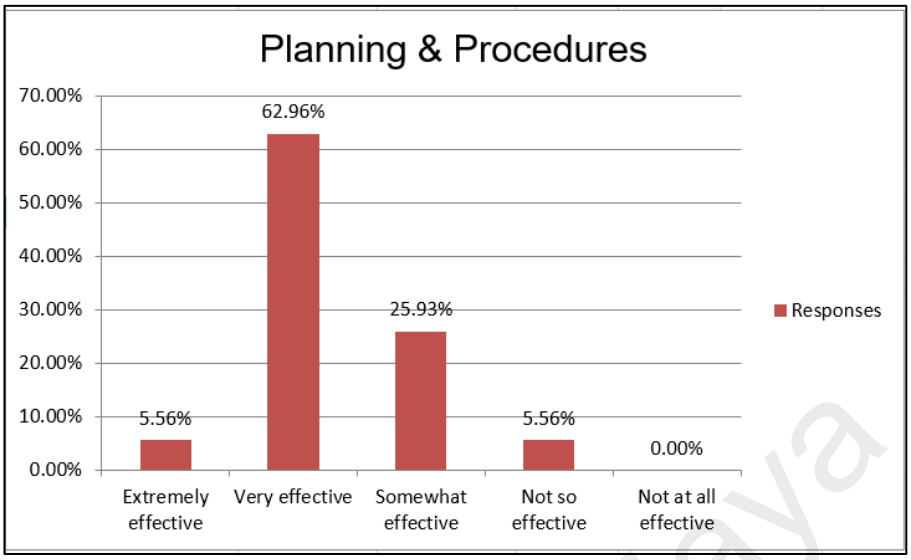


Figure 4.8 Planning & Procedures Data Analysis

This element addresses the planning of work activities, including the risk reduction measures (selected through the evaluation and risk management process). This includes planning for existing operations, managing changes and developing emergency response measures.

Adequate standards and procedures shall be in place and understood at the appropriate organisational levels. Preparation, review, and distribution of all key reference documentation shall be adequately controlled.

Emergency response procedures (including medical, operational and environmental emergencies) shall be regularly tested. The respondents believe that From figure 4.8, PETRONAS-ICT has established comprehensive planning and procedures related to HSE with 25.93% showing a calculative level answer and 62.96% proactive level answer. This clearly shows a high level of care for the employees and that safety culture is already embedded in the work-life. According to Corvalan et al. (1999), organization should embody HSE objectives in long term programs through assessment and pursuit mechanism.

4.3.6 Implementation & Monitoring

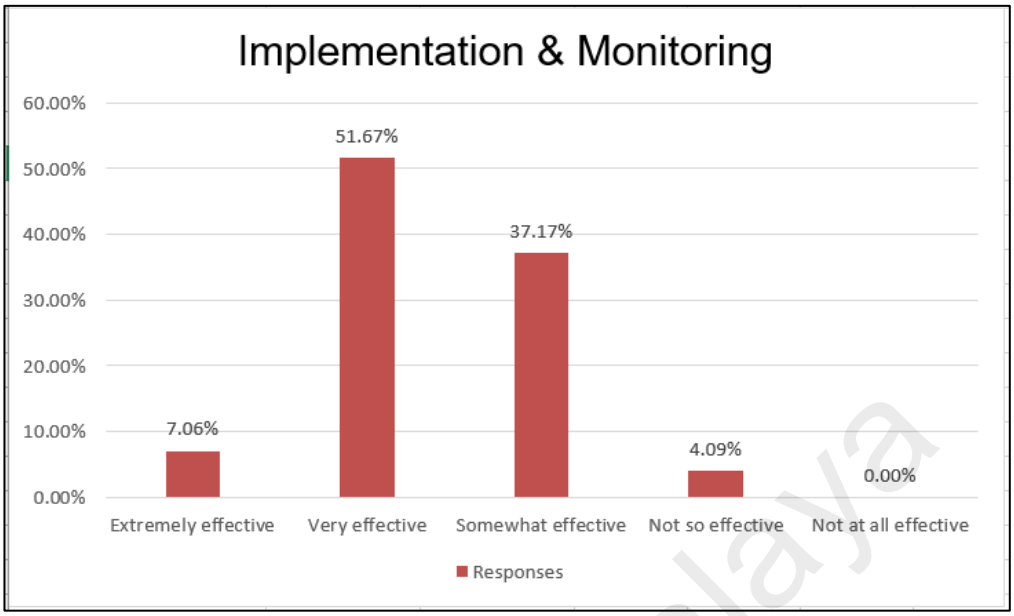


Figure 4.9 Implementation & Monitoring Data Analysis

This element addresses how activities are to be performed and monitored, and how corrective action is to be taken when necessary. In principle:

- HSE performance objectives & targets shall be set to ensure progress towards the long-term goals of no harm to people, asset, reputation and no damage to the environment.
- Performance indicators shall be established, monitored and results reported in a way that can be verified.
- All HSE incidents and near misses with significant actual or potential consequences shall be thoroughly investigated and reported.

Statistics from figure 4.9 showed that the respondents believe that PETRONAS-ICT has set high standards of HSE in all aspects of the organization with 51.67% proactive level of answer and 37.17% calculative respectively. At each start of every fiscal year, HSE Department will set a HSE metrics comprising of a scorecard and HSE

performance plan throughout the year. The performance results shall be reported every quarterly at the HSE Committee meeting and HSE Council meeting.

Nevertheless, based on the results of the respondents, clearly, there are still lots of room for improvements for HSE in PETRONAS-ICT. 4.09% of the respondents still believe that HSE is not being implemented and monitored fully. This is perhaps because some of the FSMs/AFSMs did not participate and attend the training and events organized by the HSE Department due to involvement in projects or was not available for the specific day and time.

4.3.7 Audit

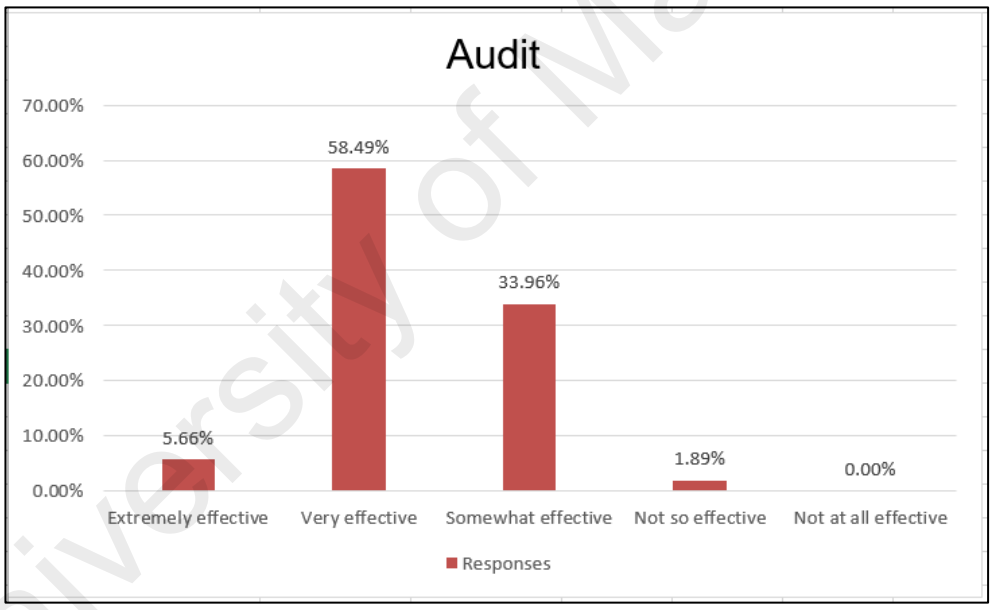


Figure 4.10 Audit Data Analysis

An assurance programme shall be in place to review and verify the effectiveness of the management system. It shall include audits by assessors independent of the process or facility audited.

The Organisation shall retain documented information as evidence of the implementation of the assurance programme and the assurance results. The respondents from figure 4.9 came back with the answers to the survey and 58.49% believed that there

is an extensive assurance program that includes cross-auditing within the organization. Management and supervisors accept that they need 'fresh eyes' to assess their system. Assurances are welcomed as they are seen as positive although they can be unpleasant. PETRONAS-ICT has introduced the Integrated Assurance Program to provide new ways in conducting assurance at all levels through a structured and consistent approach in which internal controls are documented and periodically evaluated for effectiveness.

About 1.89% came back informing of a reactive level response. This means that PETRONAS-ICT needs to further educate the employees regarding existing and furture assurance programs.

4.3.8 Review

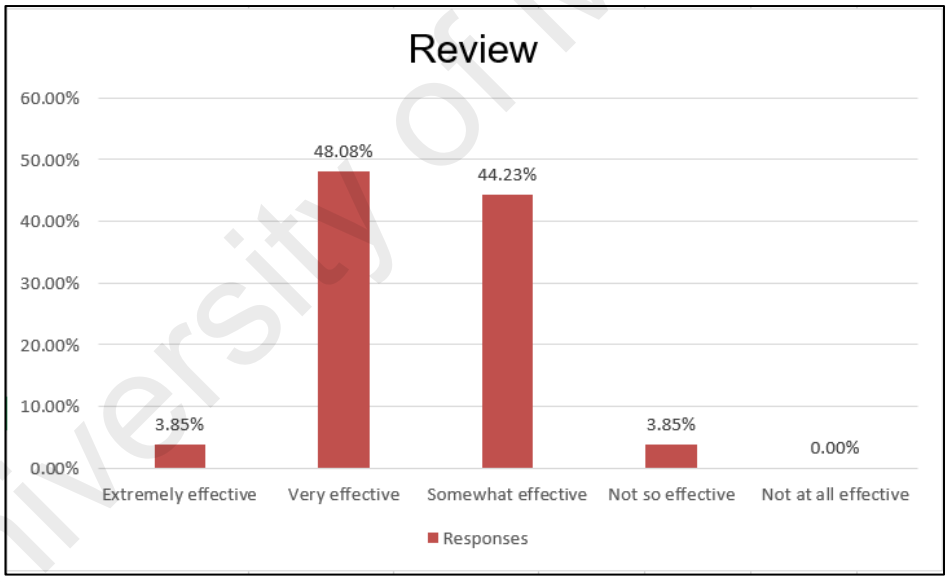


Figure 4.11 Review

Management shall regularly review the suitability, adequacy, and effectiveness of the system. The Organisation shall retain documented information as evidence of the results of Management Review. From the results in figure 4.11, it is believed that 44.23% of respondents trust that benchmarking is done on a wide variety of HSE data. Management displays a lot of HSE statistics and data openly throughout the organization. At 48.08% majority, respondents think that PETRONAS-ICT is already benchmarking against others in the same industry, and is driven by management trying to be the best in

the industry. The organization analyzes leading indicators and leverages on these data in their strategies.

4.4 Interview Results

The results of the data from the 3 people interviewed are presented under each of the questions stated. It was found from the questionnaire that all the respondents that exhibit a pathological and reactive level of safety culture come from the age of 24 and below. This accounts for 75% of that age group. This is a significant finding for our second objectives which is to determine the possible factors that can affect the employees' maturity level on Safety culture.

4.4.1 How do you conceptualize Safety Culture?

The respondents used and understood the expression of Safety Culture but provide negative statements on the subjects.

Respondent	Main Talking Points
1	A culture where only the Company takes care of the workers.
2	The Company manages incidents and communicates lesson learnt.
3	A culture of where everything is on paper. Most of it in our head, but we have just about nothing in our heart.

Table 4.4 Interview Question 1

The responses in table 4.4 show that the respondents weren't able to grasp the true concept of safety culture which should holistically cover both employers and employees without neglecting one over the other. OSHA 1994 mentioned the responsibilities of Employers in Section 15 as well as the responsibilities of the employees in Section 24.

4.4.2 What is the overall culture maturity level in the Company? What are the company's challenges or problems?

This question can be regarded as the most significant of all as the respondents gave a direct response to the level of culture maturity in the Company. They also elaborated further on what were the problems and challenges that led them to provide their respective answers.

Respondent	Main Talking Points
1	Reactive
2	Pathological
3	Reactive

Table 4.5 Interview Question 2

It can be concluded from table 4.5 that the respondents believe that the Company is still at the bottom of the culture maturity ladder. Further consultation revealed that the respondents viewed safety as a problem concerning safety culture. They opened up about stories about past incidents: employees who do not follow regulations and procedures, employees performing unsafe acts, superiors not responding to unsafe behaviour, not using the correct personal protective equipment, confidential documents not secured properly and others. In mitigating occupational injuries and accidents, attitude and behaviour were mentioned.

One respondent said:

Take for example our Jom Patuh & Tegur campaign, we have conducted so many sessions involving leaders and employees. Nevertheless, we still see many employees texting while walking and not displaying the security pass. Our culture has not improved and no one dares to do anything about it. It is something we have always done, and it is acknowledged.

Moreover, the respondents talked about the need to improve the office environment, such as poor work equipment, inadequate workspace, limited office facilities, work pressure, managing stress, job satisfaction, and challenges related to work-life balance.

Another respondent said:

What is there to look at about safety in the office? Safety should be more concentrated in the plant and offshore.

Upon further discussion, it seemed like the respondents were from the young graduates programme (YGP) and were not aware of the scale of PETRONAS commitment towards safety. They are still yet to attend any safety training for FSMs & AFSMs and involve in any safety events from the Company.

4.4.3 What are the characteristics of a Company with a strong Safety Culture?

Respondent	Main Talking Points
1	Management communicates by reminding workers not to cause HSE problems/issues.
2	The formation of the HSE Department in the Company.
3	Focus on the safety of people

Table 4.6 Interview Question 3

From the table 4.6, respondents only addressed the people and not the environment, asset and reputation when asked for their opinions about the characteristics of a strong safety culture. Safety is the care for not only the people but the overall aspects. A strong safety culture is where safety is embedded into the line functions and HSE accountability is owned by everyone in the company towards the people, environment, asset, and reputation.

One respondent said:

The finance department is so tied up with datelines to meet. Most of the time we have to work the extra hours and not even have the time for ourselves let alone attend any HSE training or HSE Events. There is no work-life balance for us.

This is one of pain point where the Company can address by perhaps hiring more people in the Department to reduce and segregate the workload evenly for them as FSMs/AFSMs to attend more HSE-related programmes.

In summary, it can be concluded from the interviews that there are still gaps to be filled in terms of instilling safety cultures amongst the employees especially those who are new to the Company. Therefore, both the Company and employees need to create the right experiences to enforce the employee's beliefs, which at the end will influence the actions that they take and ultimately produce the desired results.

4.5 Recommendation

Based on the methods conducted via questionnaire and interviews to gauge the responses from the FSMs/AFSMs on the level of safety culture, some recommendations can be put forward to address the respondent pain points as well as elevating the level of culture maturity towards the generative zone.

Firstly, the Company or the HSE Department needs to establish a behavioral safety team or what we can call 'Change Agents' to drive the culture change. The FSMs/AFSMs are the perfect fit for the role as they are already trained in some of the HSE related training such as Office Safety, Ergonomics, Basic First Aid as well as Fire Safety. Furthermore, the HSE Department will be the ones spearheading these initiatives. The team will be responsible to coordinate the overall development and implementation

of the Behavioural Safety programme according to the specified expectations. The Company shall provide adequate support and avenue to upskill them further.

Secondly, after forming a well-drilled team, only then behavioural safety programmes can be developed and implemented. The programmes can be customized based on the relevancy and suitability of the staff in the organization. Key elements such as at-risk behaviours identification, behavioural observation, and feedback mechanism shall also be included. A typical behavioral safety programme should consist of four (4) main phases which are Identification, Development, Implementation, and Monitoring & Review. Each phase consists of specific tasks that are recognised to be suitable and effective for the respective workplace. The phases shall be a continuous cycle for further improvement in Behavioural Safety.

Lastly, a suitable and comprehensive performance monitoring system that is effective, reliable and auditable needs to be considered. Monitoring of performance shall include assessing the quality and consistency in Behavioural Safety participation and implementation. For continuous improvement, an assurance process shall be in place and carried out to assess programme suitability, adequacy and effectiveness. At minimum, annual analysis shall be conducted to identify the common at-risk behaviours. Based on the outcome, the intervention plan shall be developed and tracked until closure to address these at-risk behaviours.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Introduction

The culture of safety in employees is one of the important aspects which needs to be considered and improved as it affects all employees, and ultimately the organization. Past incidents such as the Chernobyl disaster have taught us that human error and lack of safety understanding can create a devastating impact on the world. This study was concentrated to determine the level of safety culture maturity of PETRONAS-ICT staff in Menara ExxonMobil. The significant findings from this study highlight that the majority of PETRONAS-ICT staff are already at the proactive level in the culture maturity ladder.

However, PETRONAS-ICT still face challenges as the oil & gas sector has been well documented as one of the riskiest careers to have as well as the main contributors to man-made disasters. Therefore, continuous improvement regarding HSE needs to be done as there is still an aspiration for the organization to achieve a generative culture for all the staff. Based on the findings collected from the questionnaire, the conclusions were drawn based on the objectives stated at the initial stage of this research

5.2 Conclusion

The level of health, safety & environment culture for PETRONAS-ICT employees in Menara ExxonMobil can be considered to be at a proactive level. Staff from top to bottom in the PETRONAS community are expected to display a mature safety understanding across the organization due to the high risk nature of its business. Nonetheless, there are still room for improvements as there are still those who have different views about the concept and content of safety culture. Ultimately, the vision of the organization is to reach the generative level of safety culture.

From the response collected through the questionnaire, staff that exhibits a pathological and reactive level of culture come from the age of 24 and below. This is maybe perhaps because they are still new to the working environment in PETRONAS-ICT and they were not fully exposed to the organizational culture. Like all culture formation, building a safety culture takes time and patience. A consistent safety-first mindset calls for focusing on developing and reinforcing critical safety culture. A lot of efforts have been put in changing systems, processes, structure but that never really change the way staff think and act in the workplace. We can change where someone sits in an organization, but it doesn't mean it will change how they think. The interview session conducted provided valuable insights as the respondents opened up about experiencing a bad situation regarding safety in the organization. It shall be the challenge for the Company and the HSE Department to create the right experiences. As new experiences are created, staff will adopt new beliefs and change their actions. Those actions will determine the results that the Company would like to achieve. Changing the beliefs is a viable strategy at changing behavior.

PETRONAS-ICT as an organization has been a strong pillar in being a digital technology enabler that supports PETRONAS to be a leading oil & gas multinational of choice-earnings multiple awards and accolades since its formation. This is all due to the employees that provide endless support and in delivering information and communications technology (ICT) solutions within PETRONAS in 65 countries, servicing more than 51,000 employees worldwide. Therefore, PETRONAS-ICT needs to continuously improve its organizational culture to achieve the vision of generative safety culture. Some recommendation measures for future enhancement are discussed below

5.3 Recommendation

Incidents in the workplace can as far as practicable be avoided with the commitment from both employers and employees. The top management, staff and regulatory bodies need to be on the same page to prevent future workplace accidents by addressing the root cause at the earliest possible stage. Undeniably, the subject of safety culture has attracted considerable attention in the literature in recent years. The safety culture in the organization is judged by the interaction of the social and psychological relationships in the workplace. Other factors that impact safety culture in the organization include its structure and work processes.

Following are several examples, or culture actions, that are considered essential to further improve the level of safety culture in PETRONAS-ICT. These are listed below.

1. Communicate company values throughout the organization
2. Management and Staff to demonstrate leadership and take ownership
3. Clarify required and expected behavior through various communication tools
4. Personalise safety outcomes through storytelling and lesson learnt
5. Develop positive safety attitudes by tackling unsafe behaviours and attitudes in others, and to also recognise them.
6. Self-Regulation to encourage or develop ownership.
7. Increase hazard/risk awareness and preventive behaviours
8. Improve understanding and effective implementation of safety management systems
9. Monitor, review and reflect on personal effectiveness.

These culture actions can easily be executed by any company regardless of its size, and most of them can be introduced with little or no direct financial cost to the company.

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