

KNOWLEDGE MANAGEMENT PORTAL
IMPLEMENTATION TOWARDS
CORPORATE SUSTAINABILITY

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**Knowledge Management Portal Implementation To Facilitate Corporate
Sustainability**

By

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the requirements for the
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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the Business
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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the reference and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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ABSTRACT

This research is intended to implement the concept of knowledge management into facilitating the corporation sustainability. Sustainability concept had always been viewed as the ability to maintain and the responsibility of corporation towards the environment. However, in business level the word 'sustainability' could come in various way of perspective. The research had shown thirty three percent of all new business will fail within the first six months while fifty percent will fail in the first two years and 75% within the first three years .This research will be focusing in corporation sustainability in entertaining the stakeholder expectation by deriving the scope from HSE perspective. It is organization financial goal to increase the value of the organization to the stakeholder. The fact that the industry had become more competitive had somehow alarmed on the shareholder in evaluating their value in the corporation. Hence, corporations always try their best in creating their competitive advantage to differentiate them with other organization to increase the shareholder value. Knowledge management in other hand is a way to manage the knowledge assets of corporations in which had turn up to be more valuable than physical assets. Both corporate sustainability and knowledge management underlined the important of increasing the value of the shareholder. This had given an idea on implementing the knowledge management portal for HSE aligns with the corporation objective to achieve its sustainability.

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ABBREVIATIONS AND NOMENCLATURES

HSE	Health, Safety and Environment
KM	Knowledge Management

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

It is crucial for an organization to survive in the corporate world with the increasing number of new comers and competitor within the same industry. As reported thirty three percent of all new business will fail within the first six months while fifty percent will fail in the first two years and 75% within the first three years. Few factors had been reported as the reason of the organizations failure such as underfunded, no business plan and some of them had underestimate the competition in the business world. This had caused them a severe effect which are not just infected the owner of the business but the employee itself as they have lost their jobs which is the source of living [27].

The fact Tun Dr Mahathir Mohamad once stated in his speech on vision 2020 "... the productivity growth doubled in knowledge rich economies ..." the corporations had started to focus on how they could enrich their knowledge towards corporation sustainability. Hence, as the market size revolves with the development of the country, corporation's management today is aligning their corporation's goal with corporation sustainability. It had been recorded by the research that 93 % of CEO's see sustainability as importance to their company future success [19]. Organizations in their process of increasing the value of the organizations are now looking at building up a strategy that had low cost but can work effectively towards the corporation's sustainability. In the matter of fact; knowledge asset had surprisingly become more valuable than the physical asset of an organization.

1.2 Problem Statement

The surprising records on the organizations failure in sustaining their operations had triggered the idea on how could the organization sustain in the market? How will the knowledge assets which remarks as more valuable to be compared to physical assets could benefits the organizations. Furthermore, it had been difficult to translate knowledge to strategy [20]. The knowledge itself could resides in the documents and even the employees; to extract this knowledge could be difficult and take time. On top of that, the issue on how can the sharing of knowledge be established and sustained business process had been in top 20 issue reported about knowledge management and sustainability [21].

Knowledge management is a method to organize the knowledge existing within the corporation and turning them to a new form to benefit the corporation. By managing the knowledge which resides within the organizations into strategy it was believe would enable the organizations to achieve the objective to sustain in the market. Hence, it will also enable the organizations to maximize the resources and optimize their potential to become more competitive in the market.

1.3 Objectives of study

The objective of this project is to develop a knowledge management initiative that will support corporate sustainability. The project will have to undergo following process:

- Defining and understanding sustainability terminology in corporations' perspective while reviewing the key areas involve in the corporation sustainability.
- Identifying the possible initiative to be taken in implementing knowledge management to facilitate the corporate sustainability.
- Develop and implement a knowledge management initiative to facilitate the corporation objective in fulfilling the stakeholder expectation achieving the corporation's sustainability.

1.4 Scope of study

This project will define the scope of corporate sustainability and identifying the areas involve in the corporate sustainability in the organizations. In this project PETRONAS Penapisan (Melaka) Sdn Bhd had been selected as the case study. Health, Safety and Environment (HSE) had been remarks as one of the key elements of PETRONAS sustainability. Hence, this project will be focusing on strategizing the knowledge management initiative in which could facilitate in achieving their sustainability goal.

CHAPTER 2

LITERATURE REVIEW

2.1 Sustainability

2.1.1 Definition

Sustainability could be translated in different version based on the perspective, some might see it as continuation, capacity to ensure, ability to maintain or other. Corporation in the other hand based on Wikipedia a separate legal entity that has privileges and liabilities that are distinct from those of its members [1]. However, when both of these words combine forming “Corporate Sustainability” it brings a depth definition on sustainability based on business perspective. Corporate Sustainability is derived from the words sustainability development; it had popularly defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs [2]. Corporate sustainability had further be define as “the field of thinking and practice by means of which companies and other business organization work to extend the life expectancy of: ecosystems (and the natural resources they provide); societies (and the cultures and communities that underpin commercial activity); and economies (that provide the governance, financial and other market context for corporate competition and survival)” (Visser et al., 2007 forthcoming) [9]. However, a corporation will be in advance in assuring their sustainability from what it collectively knows, how efficiently it uses what it knows and how quickly it acquires and uses the new knowledge [10]. Winston Churchill once said, "The empires of the future are the empires of the mind." Knowledge is power. The organization had recognized knowledge as a competitive advantage and not just as common intangible assets [11].

2.1.2 Areas

Meanwhile, based on Dow Jones he describes it as a business approach in increasing the long term shareholder value by utilizing the opportunities and managing the business risk [3][4]. This does not mean corporate sustainability will be achieved only based on financial factor [6]. But instead from the goal its mean corporation must maintain and grow on the three key areas which are economical, environmental and social which so called the triple bottom line [4][7][8][6].

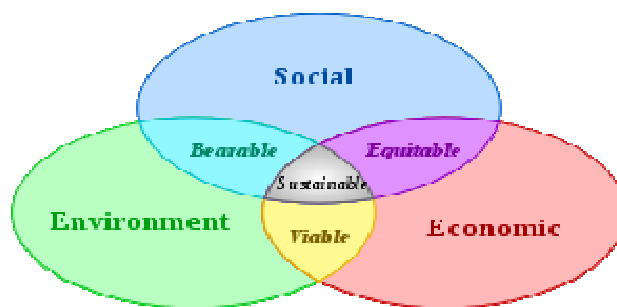


Figure 2.1 Sustainability Sector[1]

2.1.2.1 Social

Social based on oxford dictionaries definition relating to society or its organization to provide the needs companionship and therefore best suited to living in communities [24]. Meanwhile, social sustainability was about achieving fairness in distribution and opportunity, adequate provision of social services. This also includes organization responsibility to attain the individual needs such as health, shelter education and cultural expression. [22]

2.1.2.2 Environment

Environment sustainability in the other hand in the business perspective could be defined as the responsibility of the organizations to align their goals with ethic to maintain the environment for future generation such as maintain or reduce the rates of pollutions, renewable sources harvest. Sustainability is a fundamental objective of public policy with regards of all organisms which includes human being and motivated by three broad goals; individual maintenance and fulfillment, species maintenance and balanced mutual relationship with other living beings for ecological maintenance [23]. This means the functions of the environment should not be degraded and all should be keep in balanced.

2.1.2.3 Economic

Economic meanwhile was defined as giving good value or service in relation to the amount of money, time, or effort spent. Beside that's, it could also be define when the social and environmental sustainability initiative could maintain the economic capital. However, economic factor had always kept in the top list of the shareholder in which sometimes lead to the violation of the need to achieve the other two sector environmental and social. Meanwhile, Hicks(1939) define economic sustainability as the maximum amount of income that can be spend without reducing real consumption in the future.

2.2 Knowledge Management

2.2.1 Definition

Knowledge management in business practice is divided into two primary aspects. The first aspect was treating the knowledge component as the explicit concern of business reflected in strategy ,policy and practice at all level of organization and making direct connection between an organization intellectual assets both explicit and tacit – and positive business results [12] The second aspect is where knowledge management was briefly define as the systematic approach to capture, structure, manage and disseminate knowledge in order to work faster ,reuse best practice, and reduce the cost for rework from project to project [13][14][15][16][17]. Knowledge management will also be able to help organization to stay ahead of the competitor [18]. Both corporate sustainability and knowledge management hold the aim to increase the value of corporation shareholder. Dow Jones had address knowledge management practices and benefit in managing human resources to maintain workforce capabilities and employee satisfaction [3]. There are two knowledge- related aspects in which important for success in any level. These are the knowledge asset which must be preserved and nurtured to maximum possibility by both individual and organizations; and knowledge related processes to create, organize, transform and transfer which must be effectively organize in all areas involved.[18] Carla O’ Dell had successfully completed her researched and listed following as the KM needs in a cross industry benchmarking :

- Knowledge management as business strategy
- Transfer of knowledge and best practices
- Customer focused knowledge
- Personal responsibility for knowledge
- Innovation and knowledge creation.

2.2.2 Data, Information and Knowledge

Even though the knowledge had been remark as one of the organization asset there are still low understanding to enable them to differentiate between data, information and knowledge. By describing the meaning of each of this element, it will useful to capture the knowledge existing and useful to the organizations to be use as its strategy. The interaction of this element is represented in below figure.

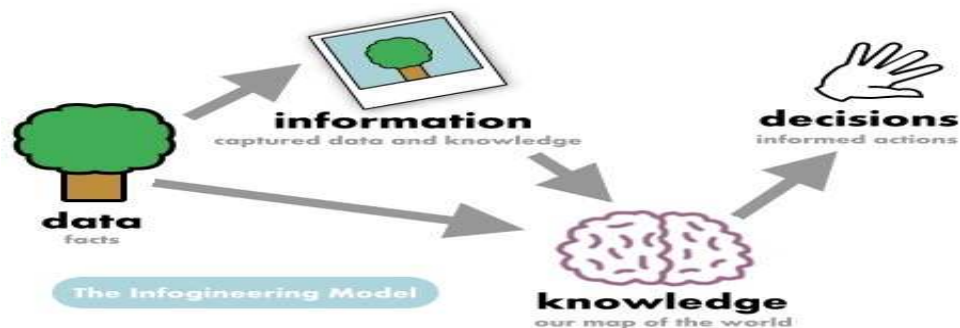


Figure 2.2: Data, Information and Knowledge

2.2.2.1 Data

Data is an unprocessed fact which is static. It can present a set of discrete facts on an event. In a simple word data represent the facts of the world. The example of facts could be blood is red and you have a black hair. Data could also be perceived as the description of the world.

2.2.2.2 Information

Information meanwhile is the aggregation of the data which makes decision easier. It has purposes and meaning. Furthermore, it enables us to expand our knowledge. For example the story about data just now without the use of information the knowledge it will be limited to the direct experiences. People will only get to know you have a black hair if they look at you personally. Information

is when a photo of you was taken and spreading the photo will allow others to know you have a black hair without the need to meet you personally.

2.2.2.3 Knowledge

Knowledge on the other hand is the human understanding of a subject matter that acquired through a proper study and experience. Knowledge is not information as the information is not a data. It was derived from information in the same way information was derived from the data. Knowledge in a simple word is what we know. For example information could be steps on how to swim but only will knowledge we will be able to apply the information practically and at last manage to swim. However knowledge itself could be divided into two types. First is explicit knowledge which is the knowledge that is codified and conveyed through documentation. The second type of knowledge is tacit knowledge which represents the personal experience which usually resides in human minds. Even though both this types of knowledge seem to have different kind of knowledge, Nonaka and Takeuchi in their book had presented a model to transform the tacit to explicit and the other way around.

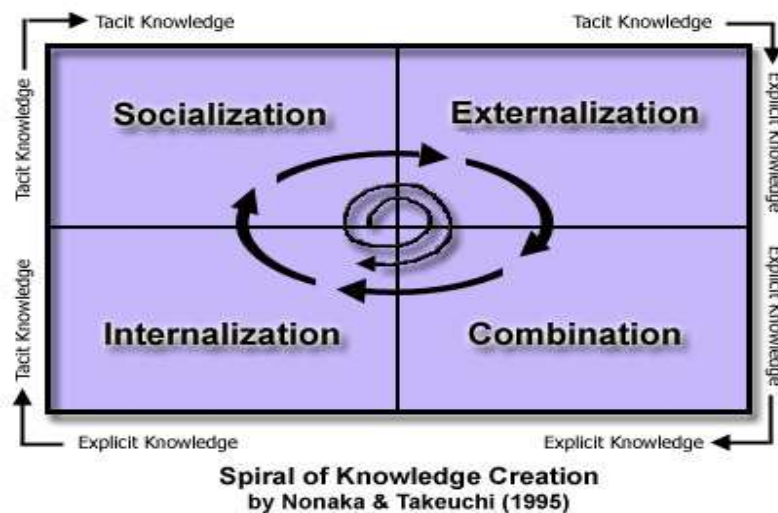


Figure 2.3: Nonaka and Takeuchi Model

Figure 2.3 show the relation between tacit and explicit knowledge. Socializations is the direct conveyance of tacit knowledge through socializing and sharing of the experiences between people. For example by exchanging ideas through forum or informal meeting. Externalization meanwhile, is the process of converting tacit knowledge to explicit knowledge. For example by documentation of the projects and previous experienced by writing manuals. Combination in other hand is the form of changing explicit knowledge to explicit knowledge. This is done through converting the combining the existing explicit knowledge to be more complex and resulting in a new idea and integrating the existing database. Last but not least, the internalization which is the process of converting the explicit knowledge to tacit knowledge. This for example could be done through online learning where the documentation could be use to create a shared models.

2.2.3 Knowledge Management System

KMS is the information system “develop to support and enhance the organizational processes of knowledge creation, storage, retrieval, transfer and application [28]. The difference between ordinary information system and knowledge management system are the existing of knowledge attribute. This means one should be able to find the knowledge the acquired through the system. For example instead of looking at contact number in the web the user will be able to find the correct contact person who responsible for their corresponding issues. There are few types of KMS for example, expert system, groupware, document management system, decision support system, database management system and stimulations system [29].

2.2.4 Three Tiered View

In emphasizing on the reason of knowledge management important Kimiz Balkir had underlined three tiered view which are knowledge management for individual, for community practice and for organization as shown in figure below.

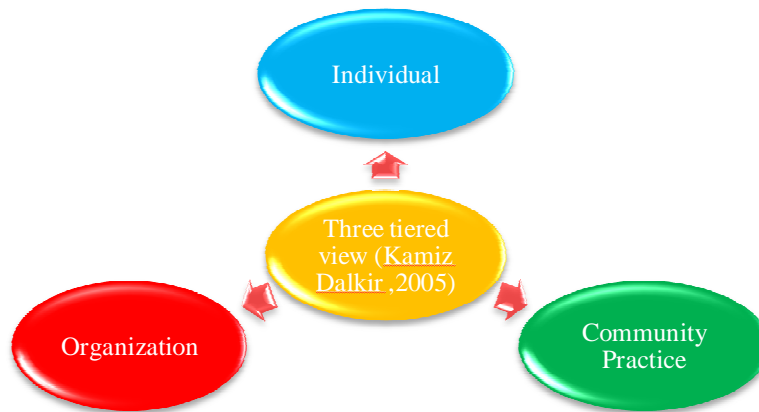


Figure 2.4 Three Tiered View [18]

2.2.4.1 Individual

From individual side knowledge management was believed to help individual to fasten their work and making a better decision making and problem solving. Beside that's its keep the individual updated with the latest knowledge and create a better community bonds within the organizations. Other than that, it could provide the individual more opportunities to contribute their ideas to the community [18]. Individual knowledge management also could be link to the personal knowledge management. This is by managing their daily activities which not necessarily includes the work element. It could be a diaries, skill and sharing knowledge with others. However, its work perspective it could be procedure, sample of previous project or even manual.

2.2.4.2 Community Practice

Meanwhile, for the community of practice knowledge management will be able to promotes professional skills, facilitate more effective networking and develops a professional code of ethics that member can follow. This is because knowledge management will involve a lot of communication in other to capture and distribute the knowledge [18]. For example the sharing session via informal meeting the exchange of idea will help them to create new ideas and build up the employee confident in expressing their idea while increasing their professional communications skills

2.2.4.3 Organization

As for organization knowledge management will help to drive strategy, solves problem quickly, and improves knowledge embedded in product and services by utilizing the knowledge available in the organization. Beside that's, knowledge management will increase the cross fertilizes ideas and increase opportunities for innovations. This will enable organizations to stay ahead of the competitor and builds up the organization memory [18].

2.3 Knowledge Management and Sustainability

STEPS framework has been used to implement the knowledge management in facilitating the corporation sustainability. STEPS framework is derive from the process involve in the framework which is start up, take off, expansion, progressive and sustainability. [19] In implementing a successful knowledge management system in which in this project to manage intellectual capital STEPS framework will be use as a review model. The frameworks stages are as shown in the figure below.

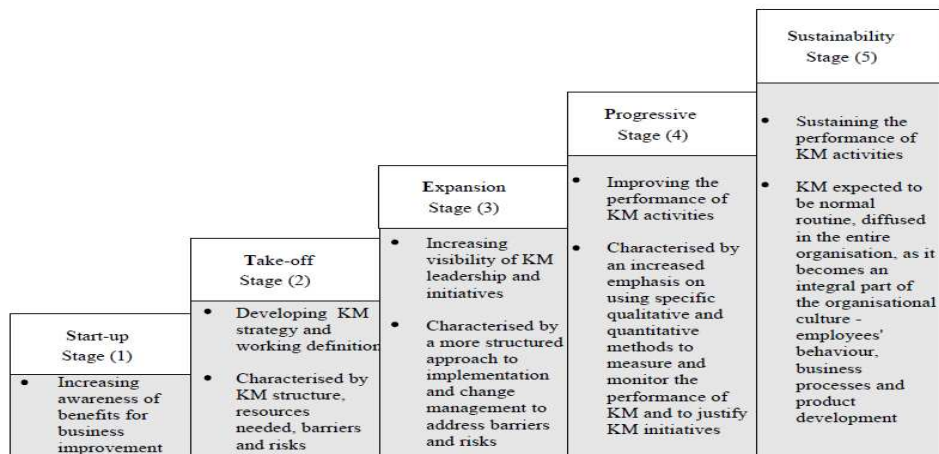


Figure 2.5 STEPS Framework

2.3.1 Start up

This phase focuses more on the understanding the concept of knowledge management and its practical implications. While recognize the potential knowledge asset that will create value to the organization this phase also is a step to establish the need of knowledge management. This also includes creating awareness on the willingness to share the knowledge within the organization [19].

2.3.2 Take Off

Take off phase is where the organization starts to explore on their potential knowledge management strategy. It will based on the deliverable in real time where and when it is needed. The focus will be on personalization, codification or computerization and will be needing leadership quality to identify the barriers associated with the strategy and solutions required. Beside that's, this is where knowledge management will be experiment on it compatibility into the organization processes [19].

2.3.3 Expansion

Next, will be the expansion phase in which knowledge management strategy will be refine and link into business goals. The organization will be responsible to allocate the resources needed and prepare a program to identify the barriers and risk. This is when appropriate tools are needed to support the knowledge management initiatives. However, the management still need to measure and evaluate the effectiveness of the initiatives taken had fully maximized the usage of knowledge asset available [19].

2.3.4 Progressive

This phase includes the usage of balanced scorecard and the excellence model to measure the knowledge management initiatives taken. The result will later use to establish the evaluation criteria and check on the impact to the knowledge assets. Organization will then need to introduce initiative such as rewards and incentives to strengthen knowledge management activities. It's also to increase the awareness on the benefits from the knowledge management towards the individuals and organization [19].

2.3.5 Sustainability

The last stage of the framework will be sustainability in which the stage where organization had been able to linked knowledge management to all business objectives to achieve organization sustainability. The knowledge management system should be able

to diffuse in the entire organizations. It should react as the organizational culture and employee routine in development of product and business process [19].

2.4 Key Sustainability Framework Health, Safety and Environment (HSE) in PETRONAS

PETRONAS had been established since 1974 and always committed to carry out their business in socially responsible and holistic manner. Based on the ex CEO of PETRONAS Tan Sri Mohd Hassan Malikan the organization are not only focusing on achieving business growth and financial returns but as well on how well the corporations could contribute to the community. Hence, PETRONAS always ensure the trust was gained through the performance on HSE, integrity, product quality, human right and employment practice. These factors also must be aligned with the three main sector of sustainability which is social, environmental and economical. As showed in Figure 1.5 PETRONAS have set seven areas as sustainability framework and HSE had been one of the main areas to enable PETRONAS to sustain in the market [26].



Figure 2.6 PETRONAS Sustainability Framework [25]

2.5 Knowledge Management and HSE in PETRONAS

Align with the sustainability framework PETRONAS had also emphasizes their business to sustain profitability through value creation and process efficiency by putting operational excellence as their target. For 2012 they are transferring the operational concept to new business by embracing leadership, behavior change and capability building. Apart from that, HSE had been one of the operational excellences indicators in which PETRONAS had target to have zero tolerance for risky conduct in workplace. HSE had been identified as important element in the key sustainability indicators in which must aligned with international standard and policies by not just to secure employee safeguard but as well as well being of the stakeholder asset, investment and interest.

Since PETRONAS are trying to achieve the HSE excellence in all activities there are a lot of initiative taken to facilitate this process. This include the use of knowledge management system such as HSE Management System to manage risk of HSE by including the systematic identification, assessment and monitoring the risk which contribute to better risk management and planning. Beside that's, the also implement iHSE which able to track, analysis, and sharing on the HSE incident. However, even though such system exists in 2011 HSE incident had increase and recorded as the highest rate ever [26][25]. Figure 2.5 showed few others rating that had been remarks by PETRONAS in their effort to sustain the organizations.

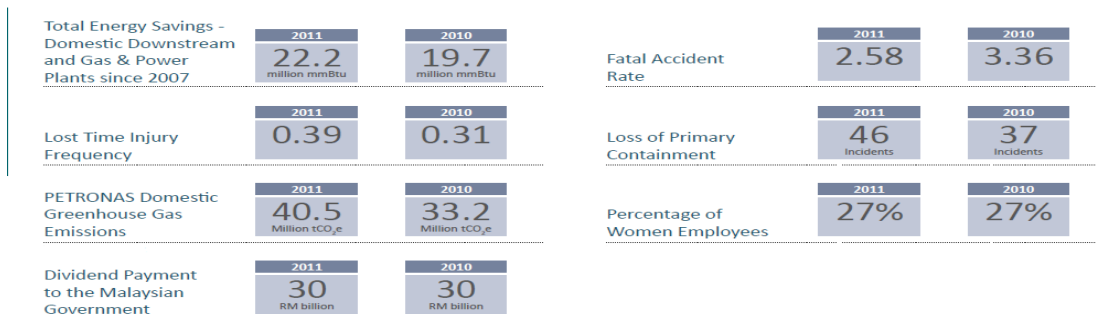


Figure 2.7 PETRONAS Key Sustainability Indicators [25]

CHAPTER 3 METHODOLOGY

3.1 Throwaway Prototyping

The methodology chosen for this project is Throwaway prototyping- based methodologies. The reason of choosing this methodology is because its capabilities to identify a clear user requirement in which very important for a system to be usable after being develop. Since the method are more user friendly it will be more reliable and refine any issue before a system being build which safe cost when business usually seek for a system that can increases the business value instead of losses.

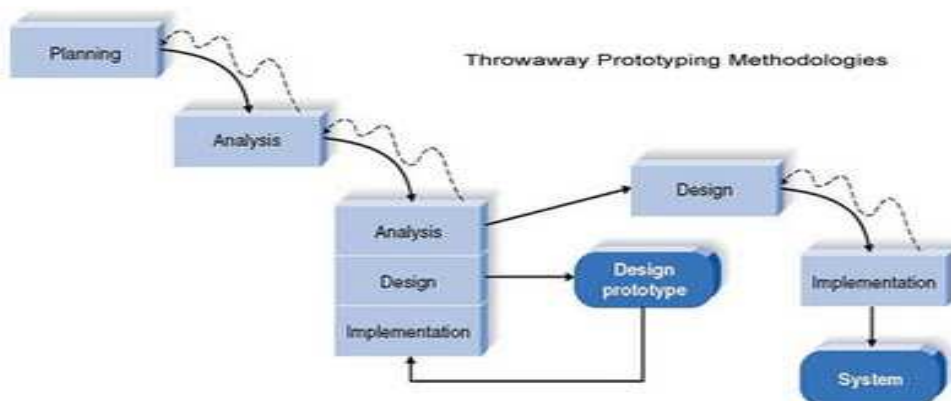


Figure 3.1 Throwaway Prototyping

3.1.1 Planning

3.1.1.1 Literature research

In the process of identification a clearer pictures of the relations between knowledge management and sustainability a literature research will be conducted. This is done by reviewing the journal on what is the sustainability in the organization and defining the areas involve. The researched later will be narrowed further down into knowledge management definition and how it could be implemented. It was further continued in searching what exactly it means by knowledge and its comparison between data and information. A research will also be done on the example of knowledge management system.

Other than that, in an effort understanding the implementation of knowledge management towards sustainability a framework had been reviewed to get a better understanding on how knowledge management could sustain the organization. While taking in count PETRONAS, as the case study the project also intended in understanding what element that PETRONAS valued in the objective to obtain their sustainability. The existing knowledge management initiative within PETRONAS on the selected areas will also be reviewed. The literature will be retrieved from the internet, books and also few subscribe database such as emerald.

3.1.1.2 Feasibility Analysis

In order to check on the feasibility of the knowledge management initiative chosen, below analysis objective had been underlined and the result were to be reviewed

- Technical Analysis

In this aspect the ability of building the system is examine. In this project the main key is to check on how knowledge management could be used to support corporate sustainability.

- Economic Feasibility

This feasibility test is to examine either the system develop will bring any value to the business. Corporate sustainability is defined as an approach to meet the shareholder expectation. Conducting this project will resulting in producing a system that could meet the shareholder expectation.

- Organizational Feasibility

This test is to evaluate on the importance of the system develop and will it be used after it is develop

Feasibility Test Initial Result	
Technical	The system proposes will only need basic knowledge using the web. Hence, it reduce the risk of unfamiliarity of the user towards propose system. There are available open source hence it will be a lot easier to develop the portal.
Economic	Minimum costs are required to build this system since it will only use the internal connection in the corporations.
Organizational	The system proposes was believed to help the corporation to sustain their operations with the use of knowledge management concept.

Table 3.1 Feasibility Test

3.1.1.3 Work Plan and Activities

Since the project is to be completed in a limited time frame, by creating and managing the work plan will enable the project to be keep track either it is following the schedule or otherwise. Hence, the following Gant chart was prepared to identify the details and task required for the project.

No	Description/ Week	Ja n				Fe b				Mar ch				Apr il				Ma y				Jun e				July				Augu st			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Selection of Project Topic	Yellow	Yellow																														
2	Preliminary Research Work		Yellow	Yellow	Yellow	Yellow																											
3	Submission of Extended Proposal						Red																										
4	Proposal Defense									Yellow	Yellow																						
5	Project Work Continue										Yellow	Yellow	Yellow																				
6	Submission of Interim Report													Red																			
7	Design KM Blueprint													Yellow	Yellow	Yellow	Yellow	Yellow	Yellow														
8	Verify and Validate KM System																	Yellow	Yellow	Yellow	Yellow												
9	Submission of Progress Report																					Red											
10	Development of the system																					Yellow	Yellow	Yellow	Yellow								
11	Implementation KM System																					Yellow	Yellow	Yellow	Yellow								
12	Pre – Edx																									Red							
13	Submission of Draft Report																													Red			
14	Submission of Dissertation																													Red			
15	Submission of Technical Paper																													Red			
16	Oral Presentation																														Red		
17	Submission of Project Dissertation (Hard Bound)																															Red	

3.1.2 Analysis

3.1.2.1 Data Collection

A face to face interview is to be conduct to explore in depth the culture within the organization in accepting knowledge management and their understanding on corporate sustainability. This is also to identify potential business process either in economical, social or environmental that could contribute in sustaining the corporation.

A several set of question will be draft and distributed to the group of people (experts, employee and corporation leader) within the organization choose as the case study. The purpose of this questionnaire is to survey the impact of knowledge management system implementation based on HSE areas by the Malaysian companies. The survey also attempts to examine how HSE could contribute towards the corporations sustainability .

3.1.2.2 System Request

As the initial steps in underlying the project purpose the System Request in Table shown below are to be prepared. This is to help in making sure the requirement are to be fulfill and constraints are to be reduce in the progress of the project. The details are also determined partly from the data collection which conducted earlier.

System Request – Knowledge management portal for Corporate Sustainability

Project Sponsor	:	Corporations
Business Need	:	Enable the corporations to maximize productivity Improve business Process
Business Requirement	:	Provide online access to information Act as medium for knowledge sharing
Business Value	:	Decrease the cost related to HSE incident Reduce the dependency to specific expert Enable corporations to sustain
Special Issues or Constraints:		The portal build should be applying the concept of knowledge management. The system should able to be completed in the required time frame.

Table 3.2 System Request

3.1.2.3 System Requirement

The details of requirement on the propose knowledge management portal such as nonfunctional and functional requirement are to be underlined. Its also includes the process of determining the suitable design for user interface, database and etc.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Propose Design

The selection of developing the portal for HSE and the proposed design was derived from the result collected from the data collection done in the previous phase.

4.1.1 System Requirement

Nonfunctional Requirement

- Operational Requirement

The system will required internet connection and should be able to work in any web browser.

- Performance Requirement

The system should be updated will any new information and should not exceed 30 seconds to respond to interaction with user. It should also available to be use in 24 hours

- Security Requirement

Only authorized member could view the whole text and post comment.

- Cultural and Political Requirement

No special cultural and political requirements are available

Functional Requirement

1. Forum

- a. The user can view the news publish in the forum
- b. The user can comment and have open discussion the issue
- c. The user (expert) can share their knowledge and get credited
- d. The user(expert) can validate others knowledge before the article posted

2. How to search engine

- a. The user can search for the required knowledge by typing the word related.

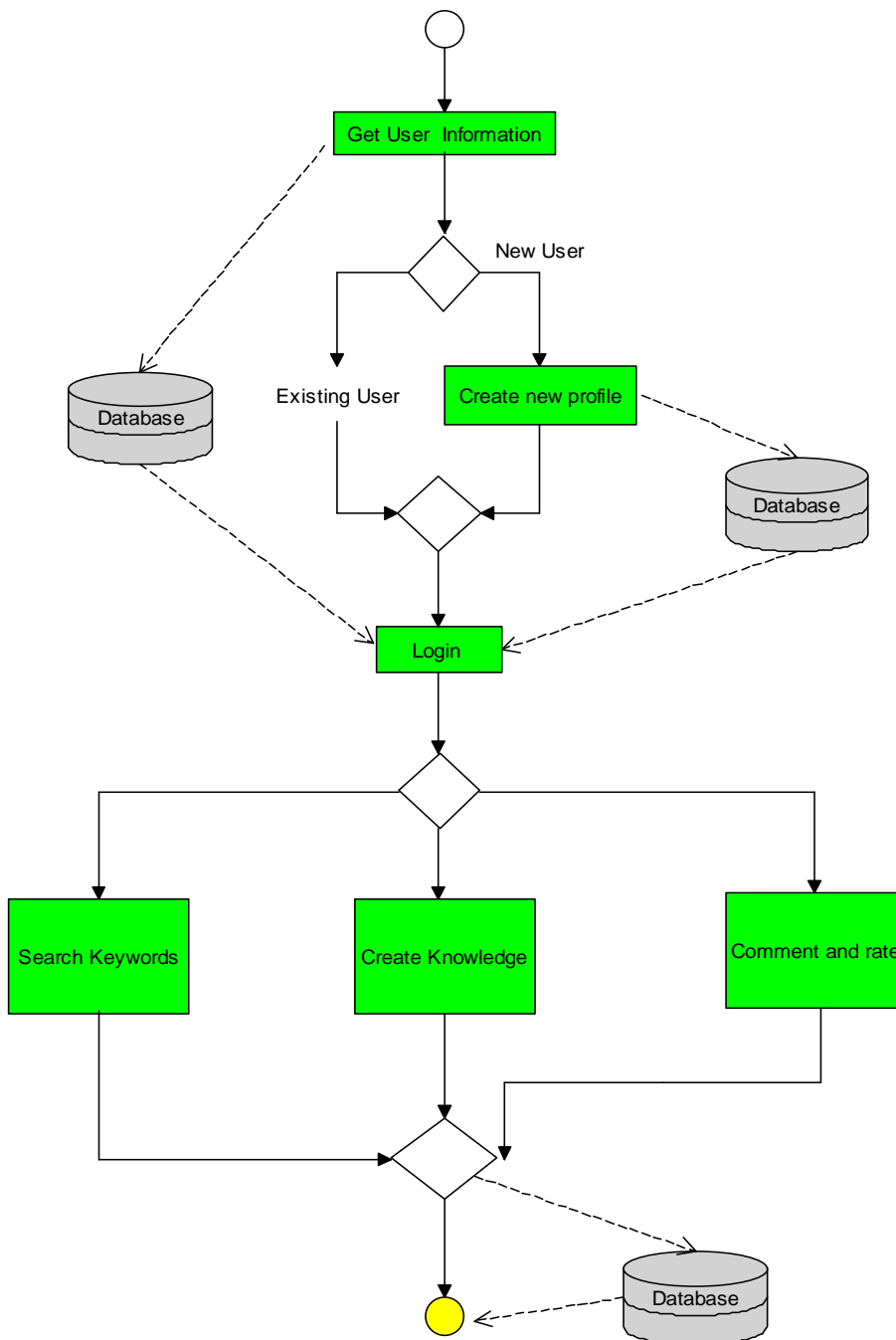
3. Rate the post

- a. The user could rate the post.

4.1.2 Functional Model

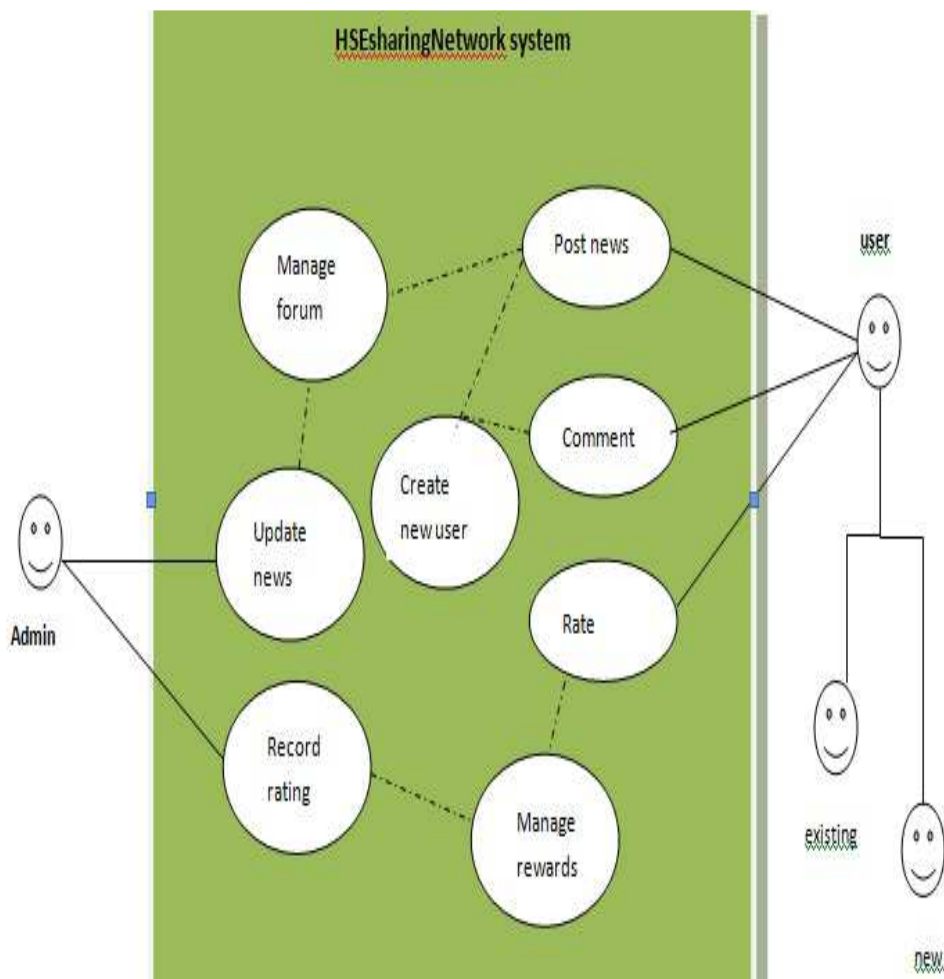
Activity Diagram

This diagram show the process flow of the portal designed.



Use Case Diagrams

This diagram shows the participated actors in the portal and their available function with the usage of the portal to share their knowledge and managing the activities in the portal itself.



4.1.3 Database

The portal was develop using an open source software called myBB and with the support of xampp. Since it is open source the database design had also been created which comprises of 70 standard tables.

Database Tables

The following table lists all database tables created with a standard MyBB installation, and links to a page on each table that describes the structure and format of each table.

Table Names

mybb_adminlog	mybb_adminoptions	mybb_adminsessions	mybb_adminviews
mybb_announcements	mybb_attachments	mybb_attachtypes	mybb_awaitingactivation
mybb_badwords	mybb_banfilters	mybb_banned	mybb_calendarpermissions
mybb_calendars	mybb_captcha	mybb_blacklist	mybb_delayedmoderation
mybb_events	mybb_forumpermissions	mybb_forums	mybb_forumread
mybb_forumsubscriptions	mybb_groupleaders	mybb_helpdocs	mybb_helpsections
mybb_icons	mybb_journals	mybb_maintlogs	mybb_maillogs
mybb_mailqueue	mybb_maintenance	mybb_moderatorlog	mybb_moderators
mybb_mailtools	mybb_mysqlcode	mybb_polls	mybb_pollvotes
mybb_posts	mybb_privatemessages	mybb_profilefields	mybb_promodocslog
mybb_promotions	mybb_reportedposts	mybb_reputation	mybb_searchlog
mybb_sessions	mybb_settingsgroups	mybb_settings	mybb_smblogs
mybb_spiders	mybb_stats	mybb_testing	mybb_tests
mybb_templategroups	mybb_templates	mybb_templatesets	mybb_themes
mybb_themestylesheets	mybb_threadprofiles	mybb_threadratings	mybb_threadvot
mybb_threadread	mybb_threadsubscriptions	mybb_threadviews	mybb_userfields
mybb_usergroups	mybb_users	mybb_usertitles	mybb_warninglevels
mybb_warnings	mybb_warningtypes		

Example of the structure of table

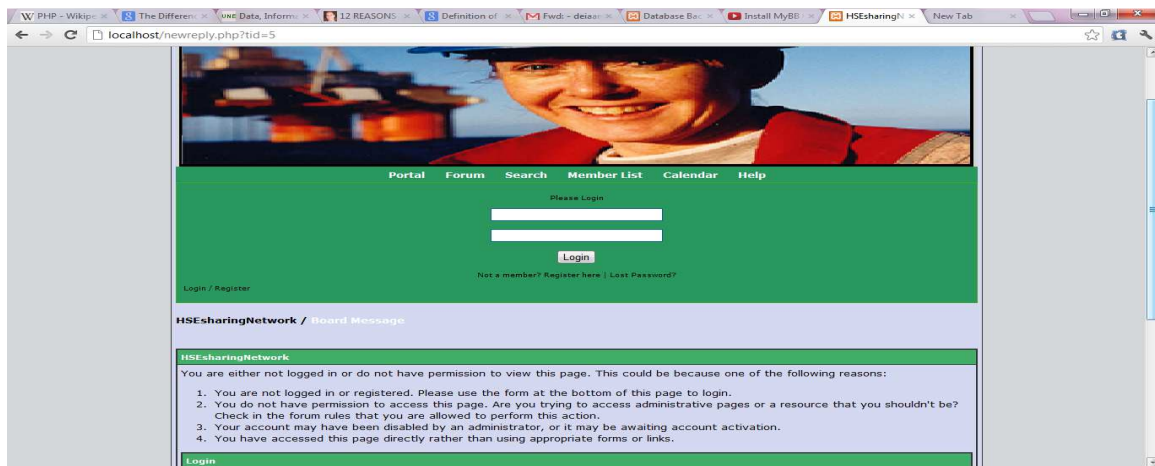
mybb_themes

Stores information on themes.

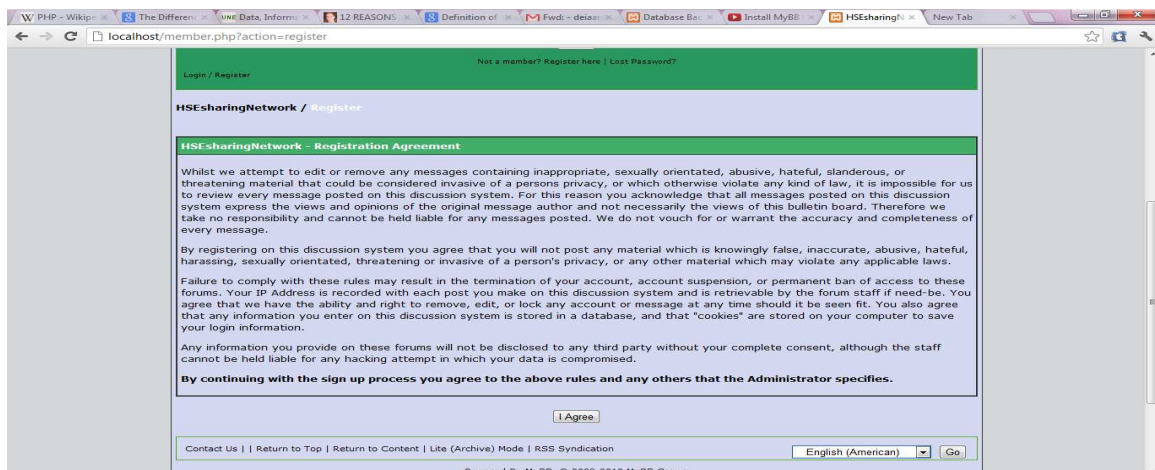
Field	Type	Null	Key	Default	Description
tid	smallint(5)	No	Primary		Theme ID
name	varchar(100)	No			Name of the theme
pid	smallint(5)	No		0	Parent theme ID
def	smallint(1)	No		0	Default theme if set to 1
properties	text	No			Array of information about the theme
stylesheets	text	No			Array of stylesheets used by this theme
allowedgroups	text	No			Groups allowed to use this theme

4.1.4 User Interface

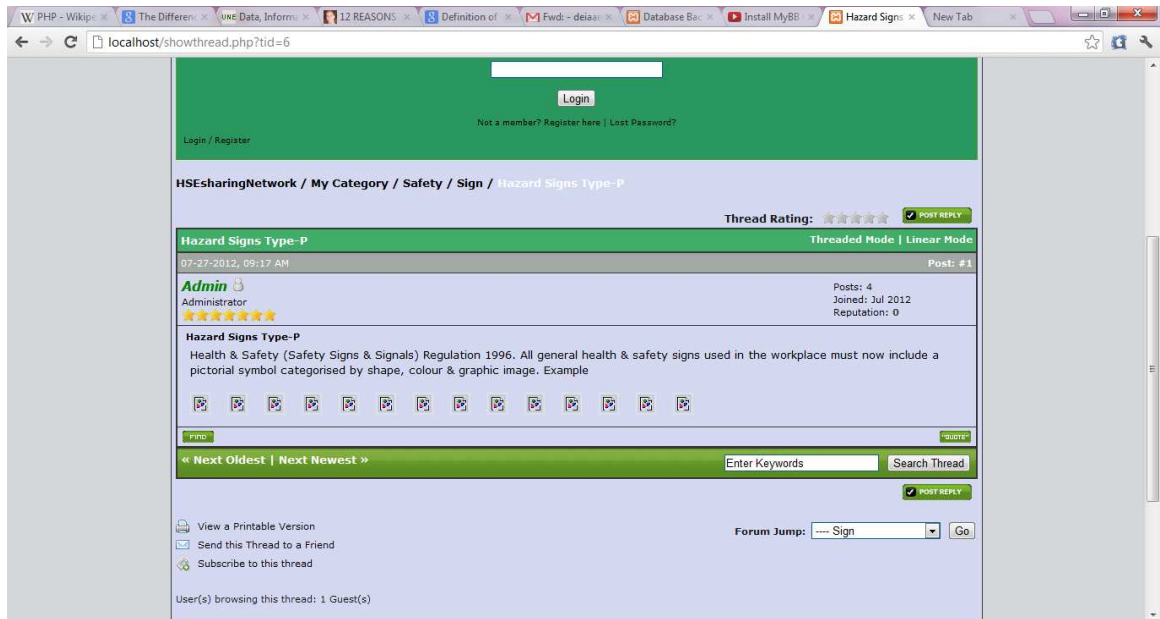
The interface was designed accordingly to the requirement on the functional and nonfunctional requirement from the data collected in the previous phase. Below figures show the complete design of the develop portal for HSE.



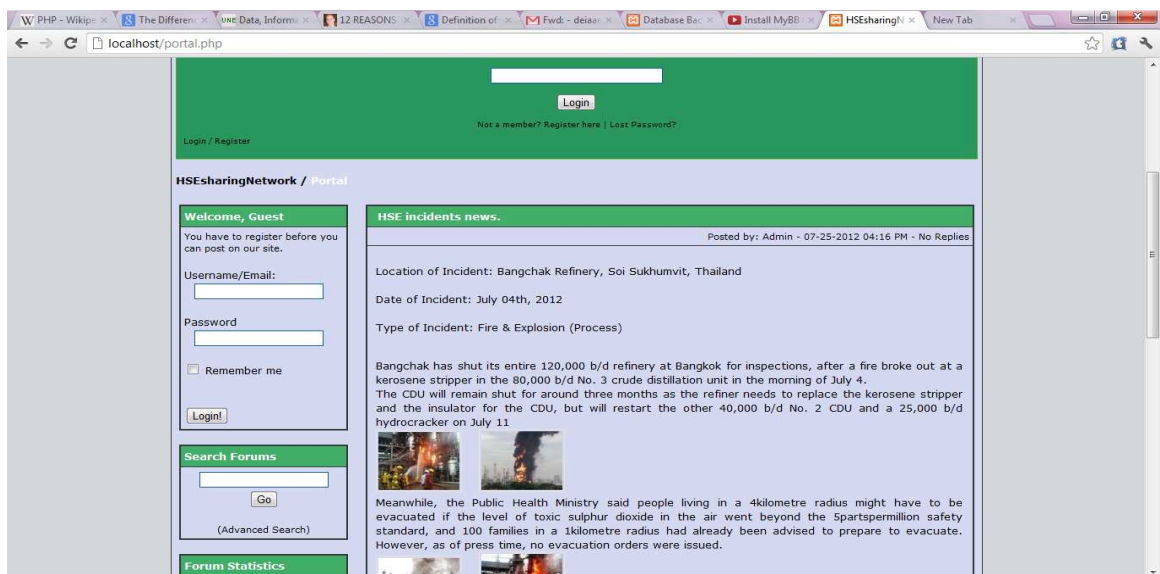
Homepage where the user will need to login before they could view all the information in the forum. If the user do not have any id yet they will be required to register before they could comment and rate the post.



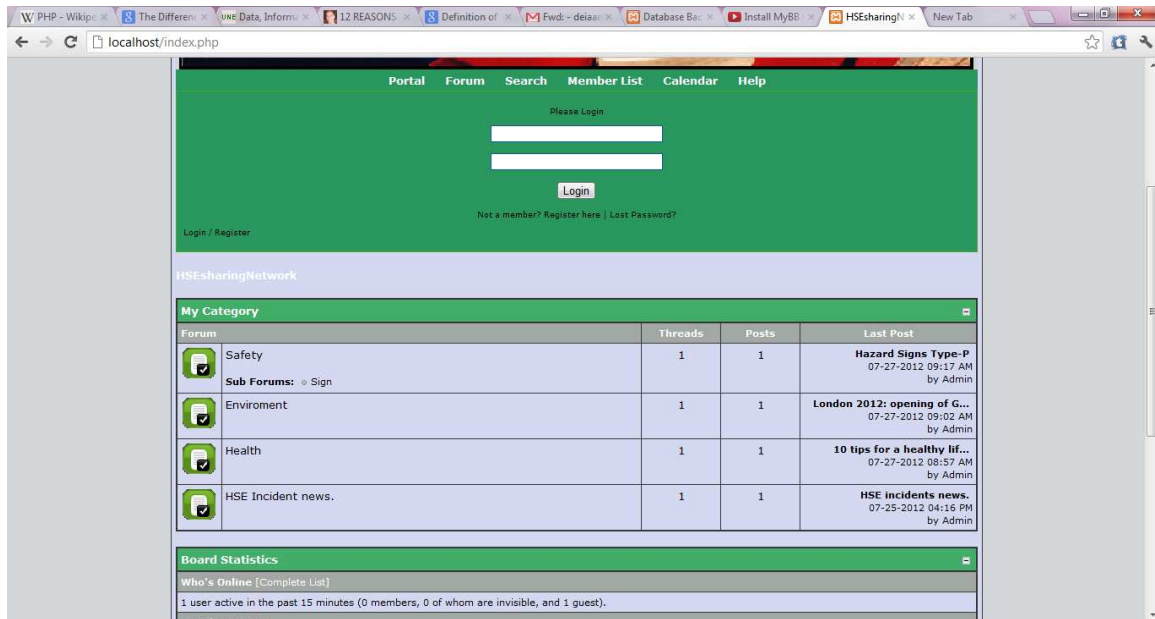
The agreement need to be agreed by the user before they could register themselves this is in order to keep them aware that the admin have the right to terminate the account if admin felt it is necessary



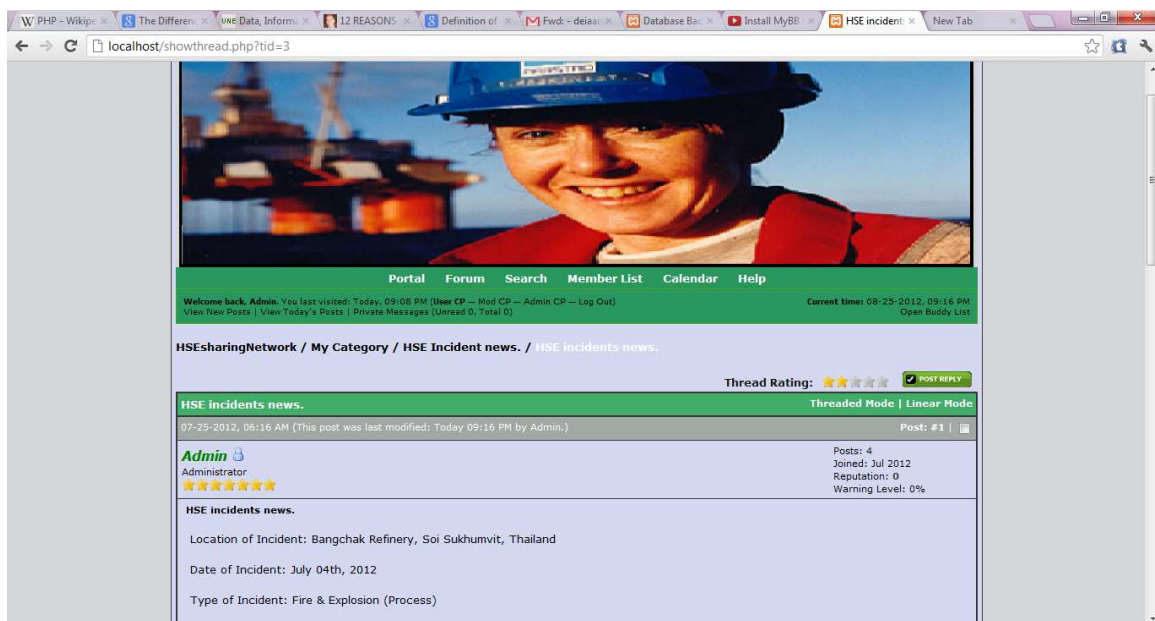
The unregistered user wont be able to view the post completely and wont be able to access the attachment if any,



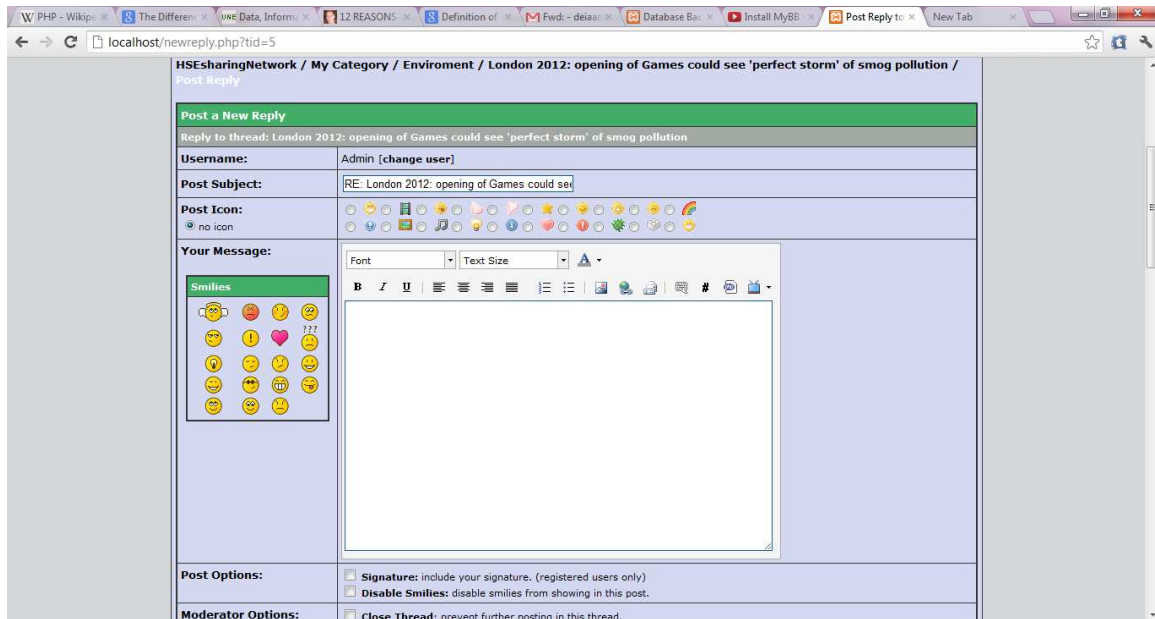
Portal page where the hot news will be available. The hot post was identified with the numbers of view as well as the rating given by the user. There are also quick search function and some information regarding the forum in the right panel. For example latest thread.



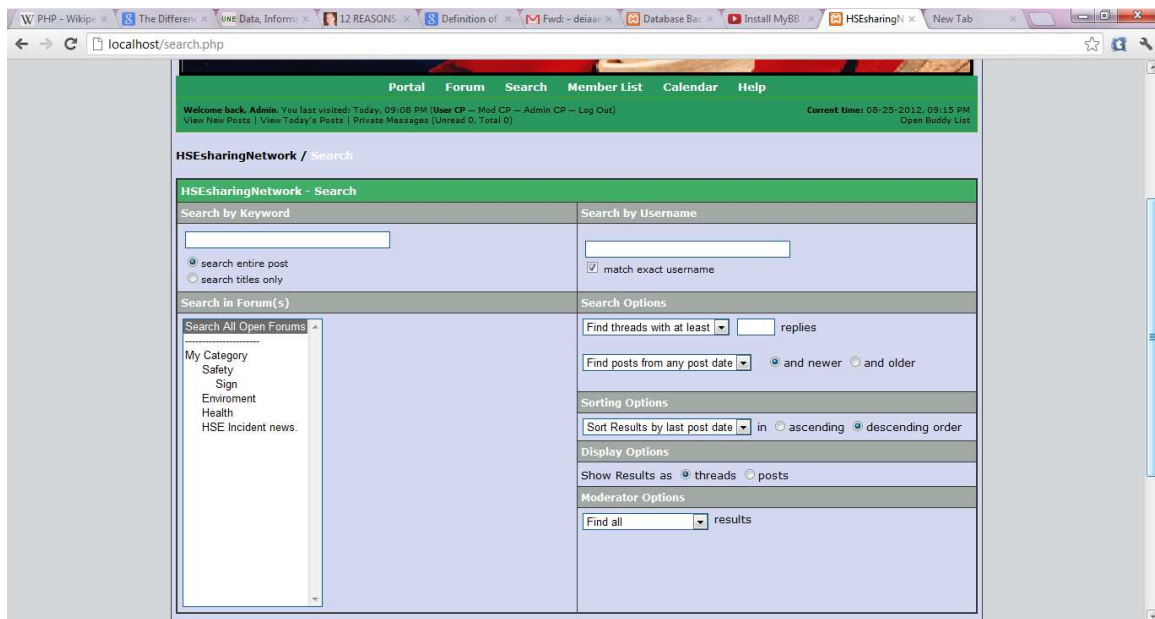
Forum page where there are classification on the group for the posting preference and easier search functions.



The user have the availability to rate the post using the rating function .However, they won't be able to rate themselves.



Posting reply and the user could add attachment and smileys as well.



The main search engine the user could choose either to use a keywords and either to run the search to all categories or just on the selected ones.

4.2 Interview

4.2.1 Findings

An interview had been conducted with Mr. Mustafa Saharan, the senior manager of health, safety, environment and security department at PETRONAS Penapisan (Melaka) Sdn Bhd to check on how HSE play its role to sustain the organization such as PETRONAS. Based on the interview conducted it had been determined, HSE had acted as one of the main pillar that support the business and was believed might cause the organization huge loss if the pillar or policies being violate by irresponsible individual or group of people. It is their goals to sustain the Health, Safety, Environment Management System (HSEMS) through superior compliance and maintaining the HSEMS achievement.

Furthermore, they also are trying to reach the interdependence phase of HSE in which HSE will be practice by all contactor and employee without the need of reminder from the management. HSE matter was handled by HSE Committee which consists of HSE officers which are responsible to monitor the HSE matter within the assigned plant. Meanwhile, the guideline was prepared according to the international standard guideline. However, since are not just own by the department, they really promote the participation of all the employee and contractor to being responsible on any HSE matter around them. By launching the Behavioral Safety Programme any employee or contractors are allowed to report or request for HSE evaluation on the site.

There are also iHse in which enable them to track and analyze HSE incident. Since HSE is an important element in PETRONAS it is every each of employee and contractors obligations to prepare themselves by attending the training provided or scheduled for them. However, the training had previously and currently conducts through face to face training. It is also identified there are no proper sharing medium on HSE between the committee and the employee.

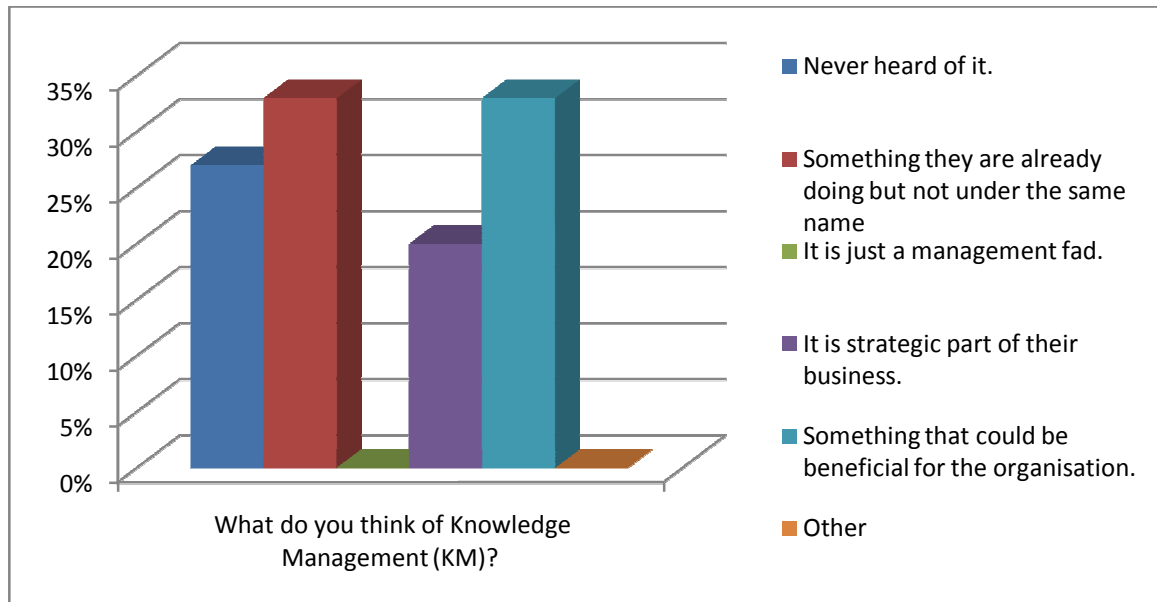
4.2.2 Discussion

Even though HSE training had been a key element for organization but it also cause the organization the need to allocate the expenses to be use to conduct the training and they will need to bare with the lost of labor time hour. Hence, online training would be a good platform to share information and conduct the training about HSE. However, HSE as the important knowledge which is to practice it could save a life and poor understanding on it could take a life the online training could not be very effective. HSE participation usually gets a low feedback from the employee and leaving them to learn it through laptop or computer could make them lost their focus easily. Besides the best way to keep HSE be taking care of is by practicing it.

So how we can relate HSE to knowledge management system to sustain a corporation? Knowledge management is about getting the knowledge to the right place and to right person. Other arising issue identify through the interview is that even though PETRONAS had well recognized the importance of HSE and many action had been taken to help the organization to reduce the incident none of the initiative provide the opportunity to the employee to share their thought . Other than that, the only medium of sharing the knowledge about the incident is through email which is not wrong at all but the knowledge will just later be a part of junk in the email. Hence a sharing platform with regards to HSE matters should be develop to help the corporation to sustain in the future.

4.3 Questionnaire

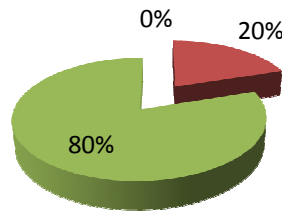
A set of question had been distributed to 50 respondents to get their feedback regarding the knowledge management implementation on HSE towards the corporation's sustainability.



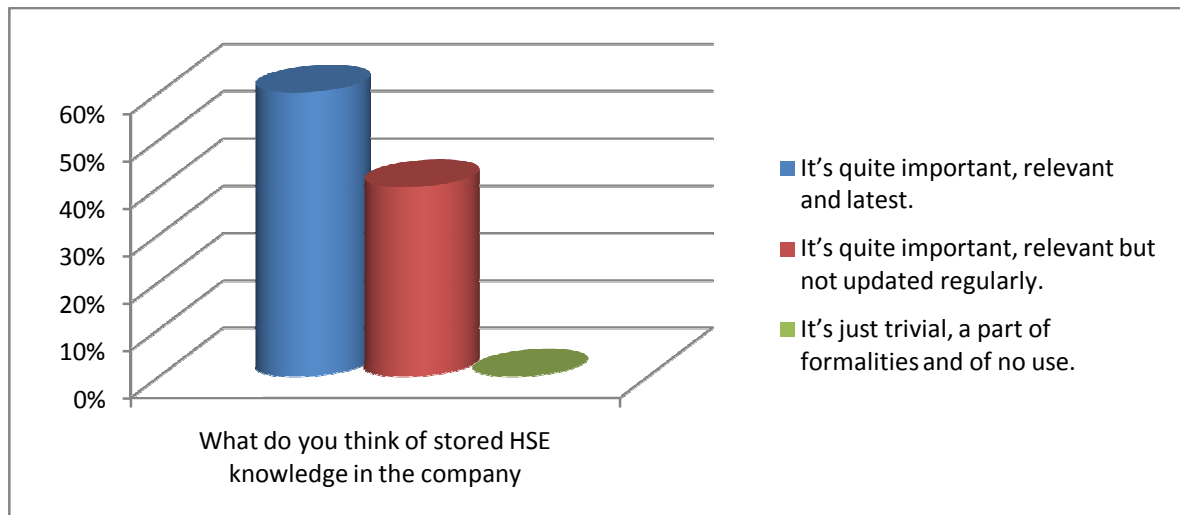
Based on the graph above the feedback shows 33% of the respondents think that knowledge management is something that could be beneficial for the organization and something that they already doing but not under the same name while 20% of them felt it is a strategic part of their business. However, the remaining 27% had never heard about it from this result we could conclude the important of knowledge management in the organization are in growth stage and well recognize as something that are beneficial to the organizations. However, there are still quite a number who are not aware of this implementation that we afraid as a sign of ignorance on the important of knowledge management not just to be implement by the corporation but also a part of the daily life.

How important do you think HSE knowledge and awareness should be informed to the employees?

■ Not important ■ Not so important ■ Very Important

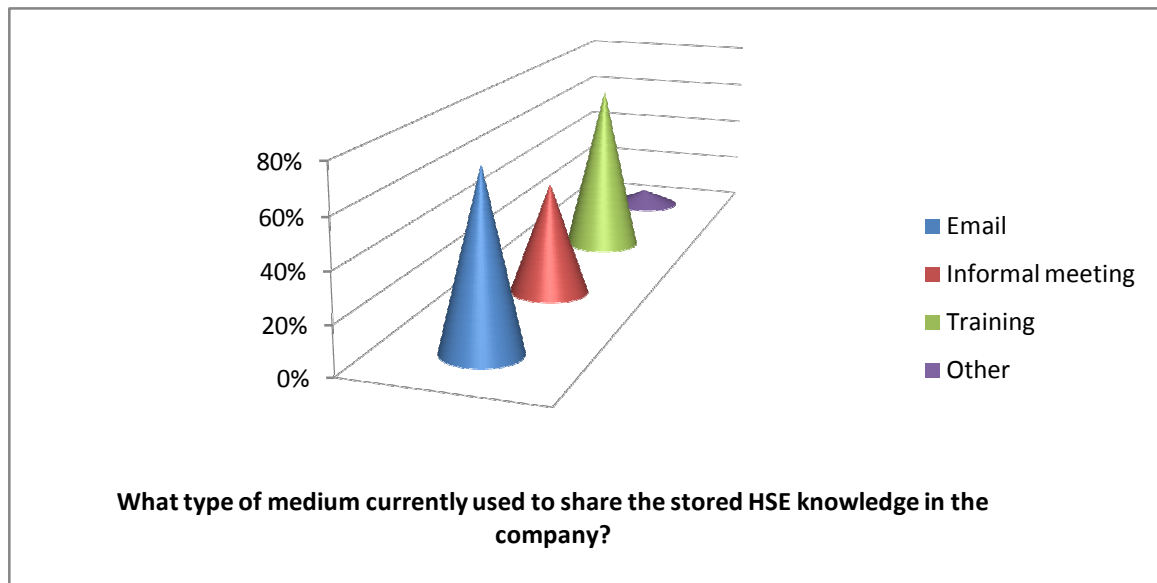


As the project is on the implementation of knowledge management in HSE areas, a question had been asked on how important the respondents think the HSE knowledge and awareness should be informed to the employees. Based on the pie chart above we could it shows that 80% of the respondents think it is very important while the balance 20% thinks it is not so important. With the huge number of respondents agreeing on the important of HSE we could assume that the organizations are really taking care on the HSE matters and the remaining 20% could probably come from the organizations which are not heavily effected with the HSE matters or issues.

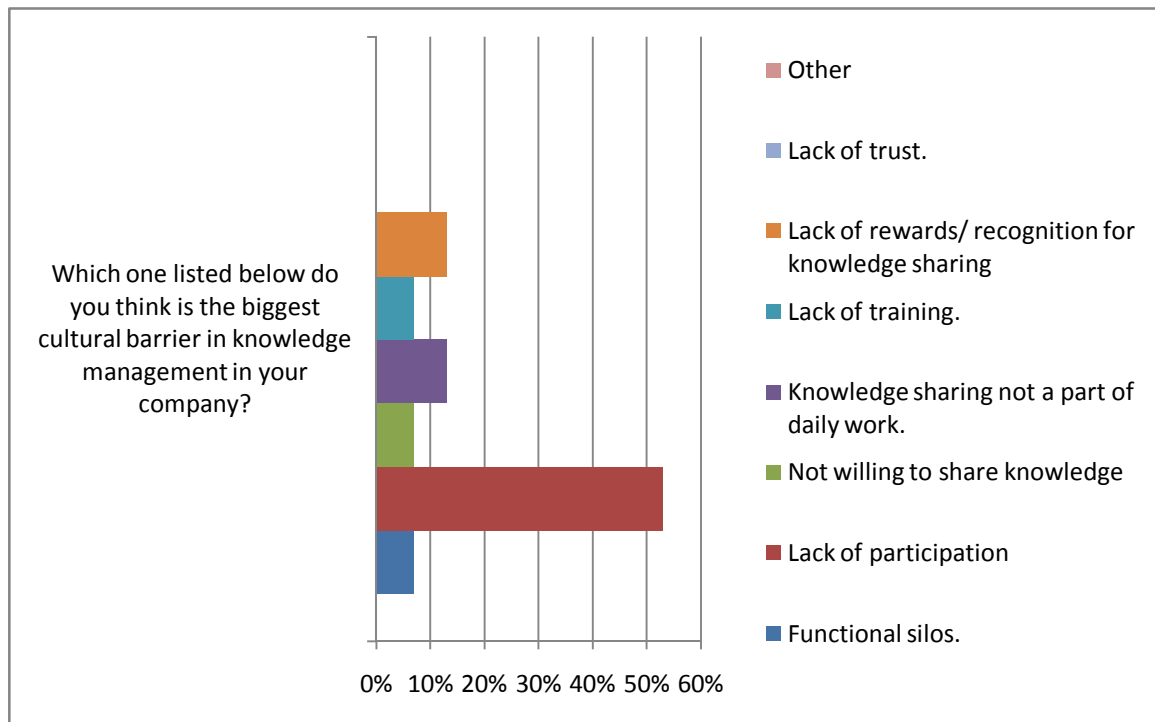


However, despite the huge number of ignorance from the previous graph the above graph show how the employee feel on the important of the stored HSE knowledge in the company. Surprisingly, 60% of them think it is quite important and latest meanwhile the balance of 40% thinks it is quite important relevant but not updated regularly. From the

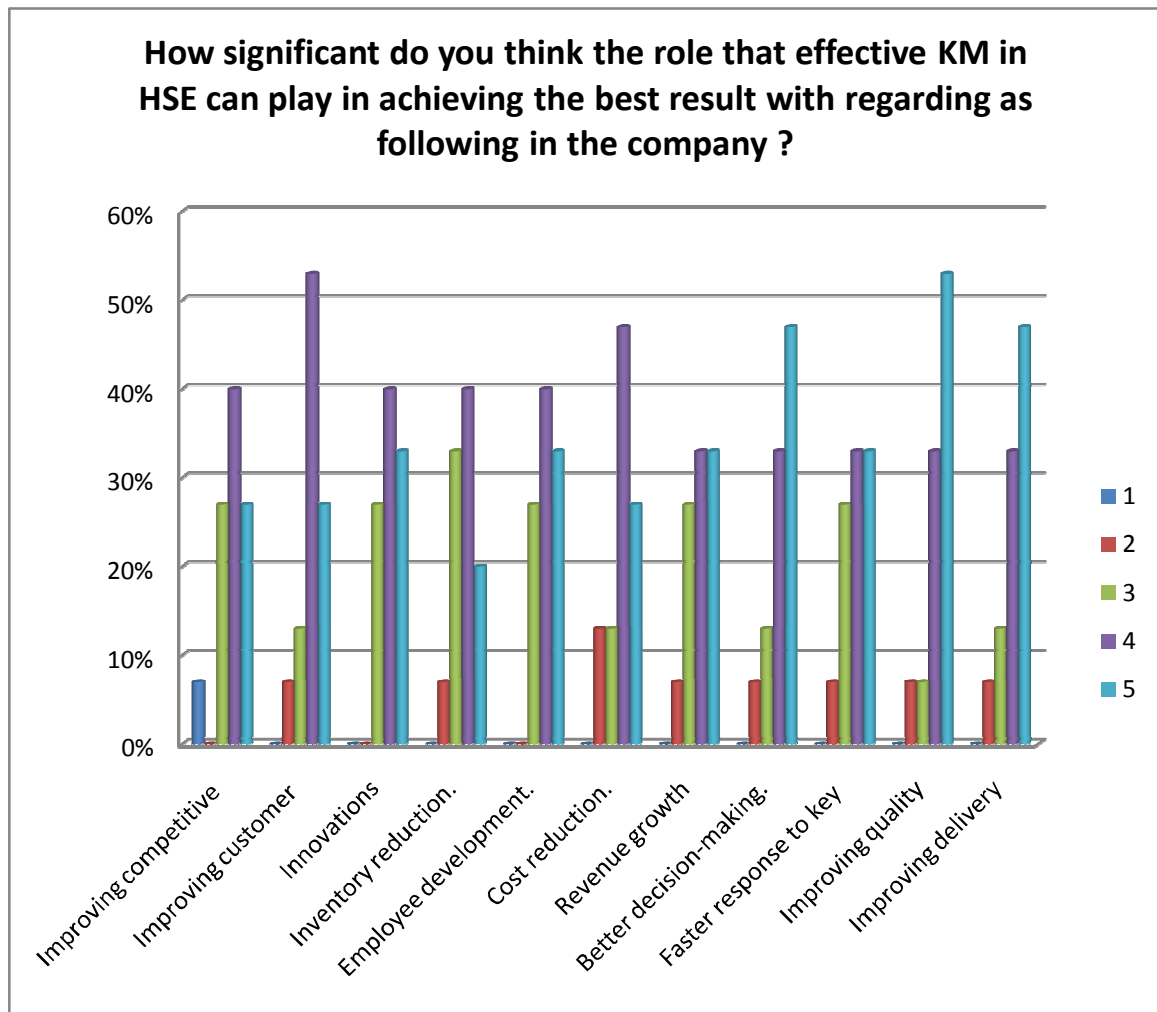
result we can deduced that the entire respondent agreed as for HSE as important matters within the organizations. However, there are still lacking in updating the information to be latest as possible and perhaps the employee have no access to the latest information which make them think it is not updated regularly.



Based on interview conducted previously it had been determined that the medium use by our case study to distribute the awareness on HSE issue is through email. Hence, a question had been asked to the respondents on the current type of medium are used by the organization to shared and stored the HSE knowledge within the organization. Based on the result above, 73% from the respondents organization are using email and training as their medium while 47% are using informal meeting and remaining 7% using others medium. From the result we assume most of the respondent organizations have not yet using a proper sharing network for the HSE knowledge and awareness.



In the determination of the suitable knowledge management system to be implemented, a question has been drafted to check on the cultural barriers within the organizations that could reduce the possibility of the maximization on the creation of new knowledge and reducing the dependency of a organization to its human capital. Based on the survey done the highest record hold by the lack of participations of the employees but however there are 0% of respondent think that they are lacking of trust in order to support knowledge management. From the result , it can be assume that the employee are not exactly avoiding from participating but perhaps because there is no proper platform for them to share and sharing have not be a part of their daily work. Other than that there is also lacking on rewards for those who participating in the sharing. Hence , the develop system should provide a better platform for them to share their thought and knowledge beside allowing the organizations to evaluate the participation and rewarding them to support the knowledge management implementation.



From the questionnaire it is also determined what will be the significant of effective knowledge management in HSE can play in organizations. Based on the result it is determined that effective KM in HSE could highly improve the quality, improve delivery of knowledge and a better decision making. However, most of the significant have a high mark given by the respondents as the significant of the implementation. From this result we could conclude the effective KM implementation in HSE could help in improving competitiveness, customer relation, innovations, inventory reduction, employee development, cost reduction, revenue growth, better decision making , faster responses, improve quality and delivery. Hence, this had proved that there is a need of the development of this sharing network for HSE.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

Knowledge has been well recognized as the asset of an organization. Knowledge itself could be the competitive advantage of the organization. The large portion of this valuable asset however resides in the human mind without the skill and knowledge of the employees the company cannot survive at all. Furthermore, the knowledge gain through years of experience could not be easily share to others. These result organizations to lose their advantage once the employee left the organizations since they will bring along the experiences with them. Hence, a platform to share this knowledge should be available in the organization to reduce the dependency of the organization to an expert in the organization. This is also an opportunity to document the expert knowledge for future review and enable the user (employee) to access the information easily. HSE in other hand is the major element in the organization which could be an advantage to the organization but also a major disaster which could cause the organization to suffer lost of huge sum of money. The combination of both the knowledge sharing and HSE importance in the organization had led to development of sharing platform for HSE which were hope to reduce the number of HSE incident, improve the performance of the workers and lead the organization towards achieving their sustainability. Knowledge management system are not limited only to portal since there are few others possible solutions could be proposed to help the organizations to sustain in future. However, in this project we are looking into using the portal for HSE as one of the solutions. For the future recommendation it was to be proposed, for an approval function created in this portal this is to ensure only validate and useful knowledge could be published. Other than that, a reward system should be aligned together with the portal to encourage the employee to share their knowledge and creation of knowledge.

REFERENCES

- [1] Wikipedia, the free encyclopedia. *Sustainability*.
<http://en.wikipedia.org/wiki/Sustainability>
- [2] Brundtland (2007). *Framing Sustainability Development*.
<http://www.un.org/esa/sustdev/csd/policy.htm>
- [3] Dow Jones (2011). *Dow Jones Sustainability Indexes*. http://www.sustainability-index.com/07_html/sustainability/corpsustainability.html
- [4] BL3 Strategies (2008). *What is Corporate Sustainability?*.
<http://www.bl3strategies.com/Sustainability/corporate.htm>
- [5] Joseph B. Coblenz (2002). *Organizational Sustainability: The Three Aspects that Matter*.<http://www.rocare.org/docs/Organizational%20Sustainability%20by%20Joe%20COBLENTZ%202002-02.pdf>
- [6] Thomas, D. and Kai, H. *Beyond the business case for corporation sustainability*.
John Wiley & Sons, Ltd and ERP Environment. <http://www.interscience.wiley.com>
- [7] Ceres (2010) *The 21st Century Corporation :The Ceres Roadmap for Sustainability* .
www.ceres.org/company-network/ceres-roadmap
- [8] Bertel, S., Papania, D. and Papania, L. (2010) *Embedding sustainability in organizational structure*. Simon Fraser University. www.nbs.net/knowledge/culture.
- [9] Wayne, V. (2007) *Corporate Sustainability and the Individual: A Literature Review*.
University of Cambridge Programme for Industry Research Paper Series: No. 1, 2007.
http://www.waynevisser.com/paper_sustainability_individual_wvisser.pdf
- [10] Davenport, T. and Prusak, L. (1998). *Working Knowledge* .Boston: Harvard Business Scholl Press
- [11] Miller, D.; Shamsie, J. (1996). "The resource-based view of the firm in two environments: The Hollywood film studios from 1936 to 1965". *Academy of Management Journal* (The Academy of Management Journal, Vol. 39, No. 3) 39 (3): 519–543
- [12] Barclay, R., and Murray, P. (1997). What is knowledge management? *Knowledge Praxis*, <http://www.media-access.com/whatis.html>.
- [13] Nonaka, I., and Takeuchi, H. (1995) . *The knowledge –creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- [14] Pasternack, B., and Viscio, A.(1998) *The centerless corporation* . New York: Simon & Schuster.

- [15] Pteiffer, J., and Sutton, R. (1999). *The knowing –doing gap: How smart companies turn knowledge into action*. Boston: Harvard Business School Press.
- [16] Ruggles, R., and Houstone , D.(1999) . *The knowledge advantage*. Dover , N.H.: Capstone Publishers
- [17] Grey, D. (1996) What is knowledge management? *The knowledge Management Forum*. www.km.forum.org/what_is.htm
- [18] Kimiz Dalkir (2005) *What is Knowledge Management?* Knowledge Management in Theory and Practice. Elsevier Inc
- [19] H.S. Robinson, C.J. Anumba, P.M. Carrillo and A.M. Al-Ghassani (2006) *STEPS: a knowledge management maturity roadmap for corporate sustainability*. (Business Process Management Journal Vol. 12 No. 6) . www.emeraldinsight.com/1463-7154.htm
- [20] Epstein MJ, Roy M –J, *Sustainability in action ; Identifying and measuring the key performance driver (2001)* Long Range Planning, 34(5), pp 585-604
- [21] William R. King, Peter V. Marks, Scott McCoy *The most important issue in knowledge management* retrieved from <http://cacm.acm.org/magazines/2002/9/20786-the-most-important-issues-in-knowledge-management/fulltext>
- [22] Harris Jonathan M., and Neva R. Goodwin 2001 “Volume Introduction “ In *A Survey of Sustainable Development : Social and Economic Dimensions*, edited by Jonathan ., Harris, Timothy A. Wise , Kevin P. Gallagher and Neva . R Goodwin , Washington, DC; Island Press.
- [23] Jeroen C. J. M. Van den Bergh, Marjan W. Hofkes *Theory and Implementation of Economic Models for Sustainable Development* retrieved from <http://books.google.com.my/books>
- [24] Oxford Dictionaries. Retrieved from <http://oxforddictionaries.com/definition/social>
- [25] PETRONAS Sustainability Report retrieved July 2012 from www.petronas.com.my
- [26] PETRONAS Sustainability Report 2009 retrieved July 2012 from www.petronas.com.my
- [27] Pendrith M. , *12 Reason Why New Business Fail* Retrieved July 2012 from <http://www.evancarmichael.com>
- [28] Alavi, M., Leidner, D.E.(2001) Review: knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly*, 25(1)
- [29] Gupta, J.D., & Sharma, S.K.(2004) *Creating Knowledge Based Organization*. Hershey, PA :Idea Group Publishing.

APPENDICES

Sample of Questionnaire.

Who are conducting this research?

This is a research conducted by a final year student of Bachelor(Hons) Business Information System of Universiti Teknologi PETRONAS.

What are the purposes?

The purpose of this questionnaire is to survey the impact of knowledge management system implementation based on HSE areas by the Malaysian companies. The survey also attempts to examine how HSE could contribute towards the corporations sustainability .

What is Knowledge Management ?

Knowledge management is the process of creating, sharing and storing of employee information within the business environment and making it available to others. Knowledge management boosts the efficiency, profitability and overall productivity of an organization. Through this survey we are examining knowledge management as a vital role in the growth and development of any organization.

How will the data be used?

This data will be used to develop a framework model of knowledge management towards corporate sustainability . All information collected in the course of this study will be regarded as STRICTLY CONFIDENTIAL. Names of enterprises will not be mentioned in any form of publication.

1. What is your designation in the company? *

- MD / CEO / Director
- CFO / CRO / COO / GM
- Senior Manager / Manager
- Executive / Officer
- Trainee
- Other:

2. What do you think of Knowledge Management (KM)? *

- Never heard of it.
- Something they are already doing but not under the same name.
- It is just a management fad.
- It is strategic part of their business.

- Something that could be beneficial for the organisation.
- Other:

3. What is the current status of Knowledge Management in your company? *

- Not in existence at all.
- Nascent stage
- Introduction stage.
- Growth stage

4. What type of *knowledge do you think existed about the HSE processes of the company?
 **Information and skills acquired through experience or education; the theoretical or practical understanding of a subject.

- Procedures
- Policies
- Skills
- Experiences
- Other:

5. How frequent the employee ask question and participate in discussion related HSE in the company? *

1 2 3 4 5

Do not participate at all Always participate

6. How much time does it take for an employee to get the relevant knowledge in HSE in the company? *

- A few minutes
- A few hours
- A few days
- Week or more
- Other:

7. What do you think of stored HSE knowledge in the company? *

- It's quite important, relevant and latest.
- It's quite important, relevant but not updated regularly.
- It's just trivial, a part of formalities and of no use.

8. How important do you think HSE knowledge and awareness should be informed to the employees? *

1 2 3

Not important Very Important

9 . What type of medium currently used to share the stored HSE knowledge in the company? *

- Email
- Informal meeting
- Training
- Other:

9. What type of knowledge do you have about the various management decisions on HSE issues in the company? *

- You update yourself with every decision.
- You are unaware because of the secrecy involved.
- You think that "It's not my part of the job".

11 .Do your company actively create and support "Communities of Practice*(CoP's)" on HSE in the organisation?

*An informal, self-organising group of people in the organisation, brought together by common interest who share expertise and solve problems together.

- Yes
- No
- Can't Say

12.Which one listed below do you think is the biggest cultural barrier in knowledge management in your company? *

- Functional silos.
- Lack of participation.

- Not willing to share knowledge.
- Knowledge sharing not a part of daily work.
- Lack of training.
- Lack of rewards/ recognition for knowledge sharing.
- Lack of trust.
- Other:

13. How significant do you think the role that effective KM in HSE can play in achieving the best result with regarding as following in the company ? *

	1	2	3	4	5
Improving competitive advantage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving customer focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inventory reduction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost reduction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Revenue growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better decision-making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faster response to key business issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14 . What will be your opinion if a platform is to be setup as a medium of interaction between the employees for sharing and updating information with regards to HSE matters?



Knowledge Management Implementation towards Corporate Sustainability

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Abstract- This research is intended to implement the concept of knowledge management into facilitating the corporation sustainability. Sustainability concept had always been viewed as the ability to maintain and the responsibility of corporation towards the environment. However, in business level the word ‘sustainability’ could come in various way of perspective. The research had shown thirty three percent of all new business will fail within the first six months while fifty percent will fail in the first two years and 75% within the first three years. This research will be focusing in corporation sustainability in entertaining the stakeholder expectation by deriving the scope from HSE perspective. It is organization financial goal to increase the value of the organization to the stakeholder. The fact that the industry had become more competitive had somehow alarmed on the shareholder in evaluating their value in the corporation. Hence, corporations always try their best in creating their competitive advantage to differentiate them with other organization to increase the shareholder value. Knowledge management in other hand is a way to manage the knowledge assets of corporations in which had turn up to be more valuable than physical assets. Both corporate sustainability and knowledge management underlined the important of increasing the value of the shareholder. This had given an idea on implementing the knowledge management portal for HSE aligns with the corporation objective to achieve its sustainability.

Keywords: Sustainability, Knowledge management and HSE

I. INTRODUCTION

It is crucial for an organization to survive in the corporate world with the increasing number of new comers and competitor within the same industry. As reported thirty three percent of all new business will fail within the first six months while fifty percent will fail in the first two years and 75% within the first three years. Few factors had been reported as the reason of the organizations failure such as underfunded, no business plan and some of them had underestimate the competition in the business world. This had caused them a severe effect which are not just infected the owner of the business but the employee itself as they have lost their jobs which is the source of living [1]. The fact Tun Dr Mahathir Mohamad once stated in his speech on vision 2020 “... the productivity growth doubled in knowledge rich economies ...” the corporations had started to focus on how they could enrich their knowledge towards corporation sustainability. Hence, as the market size revolves with the development of the country, corporation’s management today is aligning their corporation’s

goal with corporation sustainability. It had been recorded by the research that 93 % of CEO’s see sustainability as importance to their company future success [2]. Organizations in their process of increasing the value of the organizations are now looking at building up a strategy that had low cost but can work effectively towards the corporation’s sustainability. In the matter of fact; knowledge asset had surprisingly become more valuable than the physical asset of an organization. The surprising records on the organizations failure in sustaining their operations had triggered the idea on how could the organization sustain in the market? How will the knowledge assets which remarks as more valuable to be compared to physical assets could benefits the organizations. Furthermore, it had been difficult to translate knowledge to strategy [3]. The knowledge itself could resides in the documents and even the employees; to extract this knowledge could be difficult and take time. On top of that, the issue on how can the sharing of knowledge be established and sustained business process had been in top 20 issue reported about knowledge management and sustainability [4]. Knowledge management is a method to organize the knowledge existing within the corporation and turning them to a new form to benefit the corporation. By managing the knowledge which resides within the organizations into strategy it was believe would enable the organizations to achieve the objective to sustain in the market. Hence, it will also enable the organizations to maximize the resources and optimize their potential to become more competitive in the market.

II. LITERATURE REVIEW

A. Sustainability

Sustainability could be translated in different version based on the perspective, some might see it as continuation, capacity to ensure, ability to maintain or other. Corporation in the other hand based on Wikipedia a separate legal entity that has privileges and liabilities that are distinct from those of its members [5]. However, when both of these words combine forming “Corporate Sustainability” it brings a depth definition on sustainability based on business perspective. Corporate Sustainability is derived from the words sustainability development; it had popularly defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs [6]. Corporate sustainability had further be define as “the field of thinking and practice by means of which companies and other business organization work to extend the life expectancy of: ecosystems (and the natural resources they provide); societies (and the cultures and communities that underpin commercial

activity); and economies (that provide the governance, financial and other market context for corporate competition and survival)" (Visser et al., 2007 forthcoming) [7]. However, a corporation will be in advance in assuring their sustainability from what it collectively knows, how efficiently it uses what it knows and how quickly it acquires and uses the new knowledge [8]. Winston Churchill once said, "The empires of the future are the empires of the mind." Knowledge is power. The organization had recognized knowledge as a competitive advantage and not just as common intangible assets [9].

B. Knowledge Management

Knowledge management in business practice is divided into two primary aspects. The first aspect was treating the knowledge component as the explicit concern of business reflected in strategy, policy and practice at all level of organization and making direct connection between an organization intellectual assets both explicit and tacit – and positive business results [10]. The second aspect is where knowledge management was briefly define as the systematic approach to capture, structure, manage and disseminate knowledge in order to work faster, reuse best practice, and reduce the cost for rework from project to project [11][12][13][14][15]. Knowledge management will also be able to help organization to stay ahead of the competitor [16]. Both corporate sustainability and knowledge management hold the aim to increase the value of corporation shareholder. Dow Jones had address knowledge management practices and benefit in managing human resources to maintain workforce capabilities and employee satisfaction [17]. There are two knowledge- related aspects in which important for success in any level. These are the knowledge asset which must be preserved and nurtured to maximum possibility by both individual and organizations; and knowledge related processes to create, organize, transform and transfer which must be effectively organize in all areas involved.[16] Carla O' Dell had successfully completed her researched and listed following as the KM needs in a cross industry benchmarking :

- Knowledge management as business strategy
- Transfer of knowledge and best practices
- Customer focused knowledge
- Personal responsibility for knowledge
- Innovation and knowledge creation.

Even though the knowledge had been remark as one of the organization asset there are still low understanding to enable them to differentiate between data, information and knowledge. By describing the meaning of each of this element, it will useful to capture the knowledge existing and useful to the organizations to be use as its strategy. The interaction of this element is represented in below figure.

Data

Data is an unprocessed fact which is static. It can present a set of discrete facts on an event. In a simple word data represent the facts of the world. The example of facts could be blood is red and you have a black hair. Data could also be perceived as the description of the world.

Information

Information meanwhile is the aggregation of the data which makes decision easier. It has purposes and meaning. Furthermore, it enables us to expand our knowledge. For example the story about data just now without the use of information the knowledge it will be limited to the direct experiences. People will only get to know you have a black hair if they look at you personally. Information is when a photo of you was taken and spreading the photo will allow others to know you have a black hair without the need to meet you personally.

Knowledge

Knowledge on the other had is the human understanding of a subject matter that acquired through a proper study and experience. Knowledge is not information as the information is not a data. It was derived from information in the same way information was derived from the data. Knowledge in a simple word is what we know. For example information could be steps on how to swim but only will knowledge we will be able to apply the information practically and at last manage to swim. However knowledge itself could be divided into two types. First is explicit knowledge which is the knowledge that is codified and conveyed through documentation. The second type of knowledge is tacit knowledge which represents the personal experience which usually resides in human minds. Even though both this types of knowledge seem to have different kind of knowledge, Nonaka and Takeuchi in their book had presented a model to transform the tacit to explicit and the other way around.

C. Knowledge Management, HSE and Sustainability

PETRONAS had been established since 1974 and always committed to carry out their business in socially responsible and holistic manner. Based on the ex CEO of PETRONAS Tan Sri Mohd Hassan Malikan the organization are not only focusing on achieving business growth and financial returns but as well on how well the corporations could contribute to the community. Hence, PETRONAS always ensure the trust was gained through the performance on HSE, integrity, product quality, human right and employment practice. These factors also must be aligned with the three main sector of sustainability which is social, environmental and economical. Align with the sustainability framework PETRONAS had also emphasizes their business to sustain profitability through value creation and process efficiency by putting operational excellence as their target. For 2012 they are transferring the operational concept to new business by embracing leadership, behavior change and capability building. Apart from that, HSE had been one of the operational excellences indicators in which PETRONAS had target to have zero tolerance for risky conduct in workplace. HSE had been identified as important element in the key sustainability indicators in which must aligned with international standard and policies by not just to secure employee safeguard but as well as well being of the stakeholder asset, investment and interest. Since PETRONAS are trying to achieve the HSE excellence in all activities there are a lot of initiative taken to facilitate this process. This include the use of knowledge management system such as HSE Management System to manage risk of HSE by including the systematic identification, assessment and monitoring the risk which contribute to better risk management and planning. Beside that's, the also implement iHSE which able to track, analysis, and sharing on the HSE

incident. However, even though such system exists in 2011 HSE incident had increase and recorded as the highest rate ever [18][19]

III. FINDINGS

A. Interview

An interview had been conducted with the senior manager of health, safety, environment and security department at PETRONAS Penapisan (Melaka) Sdn Bhd to check on how HSE play its role to sustain the organization such as PETRONAS. Based on the interview conducted it had been determined, HSE had acted as one of the main pillar that support the business and was believed might cause the organization huge loss if the pillar or policies being violate by irresponsible individual or group of people. It is their goals to sustain the Health, Safety, Environment Management System (HSEMS) through superior compliance and maintaining the HSEMS achievement. Furthermore, they also are trying to reach the interdependence phase of HSE in which HSE will be practice by all contactor and employee without the need of reminder from the management. HSE matter was handled by HSE Committee which consists of HSE officers which are responsible to monitor the HSE matter within the assigned plant. Meanwhile, the guideline was prepared according to the international standard guideline. However, since are not just own by the department, they really promote the participation of all the employee and contractor to being responsible on any HSE matter around them. By launching the Behavioral Safety Programme any employee or contractors are allowed to report or request for HSE evaluation on the site. There are also iHse in which enable them to track and analyze HSE incident. Since HSE is an important element in PETRONAS it is every each of employee and contractors obligations to prepare themselves by attending the training provided or scheduled for them. However, the training had previously and currently conducts through face to face training. It is also identified there are no proper sharing medium on HSE between the committee and the employee.

B. Questionnaire

A set of questionnaire was distributed purposely to survey the impact of knowledge management system implementation based on HSE areas by the Malaysian companies. The survey also attempts to examine how HSE could contribute towards the corporations sustainability .

Result

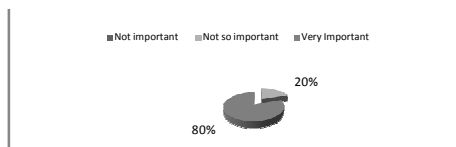


Figure 1 : How important do you think HSE knowledge and awareness should be informed to the employees?

As the project is on the implementation of knowledge management in HSE areas, a question had been asked on how important the respondents think the HSE knowledge and awareness should be informed to the employees. Based on the Figure 1 we could it shows that 80% of the respondents think it is very important while the balance 20% thinks it is not so important. With the huge number of respondents agreeing on the important of HSE we could assume that the organizations are really taking care on the HSE matters and the remaining 20% could probably come from the organizations which are not heavily effected with the HSE matters or issues.

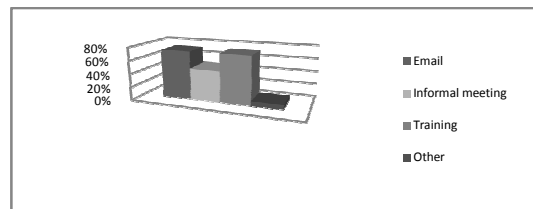


Figure 2: What type of medium currently used to share the stored HSE knowledge in the company?

Based on interview conducted previously it had been determined that the medium use by our case study to distribute the awareness on HSE issue is through email. Hence, a question had been asked to the respondents on the current type of medium are used by the organization to shared and stored the HSE knowledge within the organization. Based on the result above, 73% from the respondents organization are using email and training as their medium while 47% are using informal meeting and remaining 7% using others medium. From the result we assume most of the respondent organizations have not yet using a proper sharing network for the HSE knowledge and awareness.

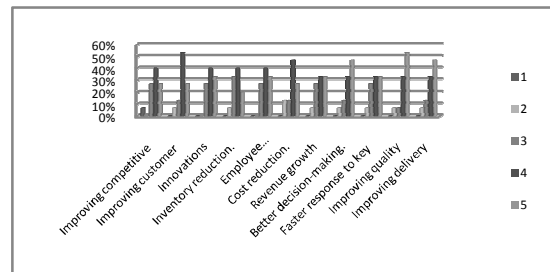


Figure 3: How significant do you think the role that effective KM in HSE can play in achieving the best result with regarding as following in the company ?

Figure 3 show what will be the rating given for significant of effective knowledge management in HSE can play in organizations. Based on the result it is determined that effective KM in HSE could highly improve the quality, improve delivery of knowledge and a better decision making. As shown, most of the significant underlined receive a high mark given by the respondents as the significant of the implementation. From this result we could conclude the effective KM implementation in HSE could help in improving competitiveness, customer relation, innovations, inventory reduction, employee development, cost reduction, revenue growth, better decision making , faster responses, improve quality and delivery. Hence, this had proved that there is a need of the development of this sharing network for HSE.

IV. CONCLUSION AND RECOMMENDATION

A. Conclusion

Even though HSE training had been a key element for organization but it also cause the organization the need to allocate the expenses to be use to conduct the training and they will need to bare with the lost of labor time hour. Hence, online training would be a good platform to share information and conduct the training about HSE. However, HSE as the important knowledge which is to practice it could save a life and poor understanding on it could take a life the online training could not be very effective. HSE participation usually gets a low feedback from the employee and leaving

them to learn it through laptop or computer could make them lost their focus easily. Besides the best way to keep HSE be taking care of is by practicing it. So how we can relate HSE to knowledge management system to sustain a corporation? Knowledge management is about getting the knowledge to the right place and to right person. Other arising issue identify through the interview is that even though PETRONAS had well recognized the importance of HSE and many action had been taken to help the organization to reduce the incident none of the initiative provide the opportunity to the employee to share their thought . Other than that, the only medium of sharing the knowledge about the incident is through email which is not wrong at all but the knowledge will just later be a part of junk in the email. Hence a sharing platform with regards to HSE matters should be develop to help the corporation to sustain in the future. Knowledge has been well recognized as the asset of an organization. Knowledge itself could be the competitive advantage of the organization. The large portion of this valuable asset however resides in the human mind without the skill and knowledge of the employees the company cannot survive at all. Furthermore, the knowledge gain through years of experience could not be easily share to others. These result organizations to lose their advantage once the employee left the organizations since they will bring along the experiences with them. Hence, a platform to share this knowledge should be available in the organization to reduce the dependency of the organization to an expert in the organization. This is also an opportunity to document the expert knowledge for future review and enable the user (employee) to access the information easily. HSE in other hand is the major element in the organization which could be an advantage to the organization but also a major disaster which could cause the organization to suffer lost of huge sum of money. The combination of both the knowledge sharing and HSE importance in the organization had led to development of sharing platform for HSE which were hope to reduce the number of HSE incident, improve the performance of the workers and lead the organization towards achieving their sustainability

B. Future Recommendation

. Knowledge management system are not limited only to portal since there are few others possible solutions could be proposed to help the organizations to sustain in future. However, in this project we are looking into using the portal for HSE as one of the solutions. For the future recommendation it was to be proposed, for an approval function created in this portal this is to ensure only validate and useful knowledge could be published. Other than that, a reward system should be aligned together with the portal to encourage the employee to share their knowledge and creation of knowledge.

REFERENCES

- [1] Pendrith M. , *12 Reason Why New Business Fail* Retrieved July 2012 from <http://www.evancarmichael.com>
- [2] H.S. Robinson, C.J. Anumba, P.M. Carrillo and A.M. Al-Ghassani (2006) *STEPS: a knowledge management maturity roadmap for corporate sustainability*. (Business Process Management Journal Vol. 12 No. 6) . www.emeraldinsight.com/1463-7154.htm
- [3] Epstein MJ, Roy M –J, *Sustainability in action ; Identifying and measuring the key performance driver (2001)* Long Range Planning, 34(5), pp 585-604
- [4] William R. King, Peter V. Marks, Scott McCoy *The most important issue in knowledge management* retrieved from <http://cacm.acm.org/magazines/2002/9/20786-the-most-important-issues-in-knowledge-management/fulltext>
- [5] Wikipedia, the free encyclopedia. *Sustainability*. <http://en.wikipedia.org/wiki/Sustainability>
- [6] Brundtland (2007). *Framing Sustainability Development*. <http://www.un.org/esa/sustdev/ csd/policy.htm>
- [7] Wayne, V. (2007) *Corporate Sustainability and the Individual: A Literature Review*. University of Cambridge Programme for Industry Research Paper Series: No. 1, 2007.

- http://www.waynevisser.com/paper_sustainability_individual_vvisser.pdf
- [8] Davenport, T. and Prusak, L. (1998). *Working Knowledge* .Boston: Harvard Business Scholl Press
 - [9] Miller, D.; Shamsie, J. (1996). "The resource-based view of the firm in two environments: The Hollywood film studios from 1936 to 1965". *Academy of Management Journal* (The Academy of Management Journal, Vol. 39, No. 3) 39 (3): 519–543
 - [10] Barclay, R., and Murray, P. (1997). What is knowledge management? *Knowledge Praxis*, <http://www.media-access.com/whatis.html>.
 - [11] Nonaka, I., and Takeuchi, H. (1995) . *The knowledge –creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
 - [12] Pasternack, B., and Viscio, A.(1998) *The centerless corporation* . New York: Simon & Schuster.
 - [13] Pteiffer, J., and Sutton, R. (1999). *The knowing –doing gap: How smart companies turn knowledge into action*. Boston: Harvard Business School Press.
 - [14] Ruggles, R., and Houstone , D.(1999) . *The knowledge advantage*. Dover , N.H.: Capstone Publishers
 - [15] Grey, D. (1996) What is knowledge management? *The knowledge Management Forum*. www.km.forum.org/what_is.htm
 - [16] Kimiz Dalkir (2005) *What is Knowledge Management?* Knowledge Management in Theory and Practice. Elsevier Inc
 - [17] Dow Jones (2011). *Dow Jones Sustainability Indexes*. http://www.sustainability-index.com/07_html/sustainability/corpsustainability.html
 - [18] PETRONAS Sustainability Report retrieved July 2012 from www.petronas.com.my
 - [19] PETRONAS Sustainability Report 2009 retrieved July 2012 from www.petronas.com.my

