

Knowledge Sharing Factors and Innovation Capability

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Abstract—In practicing knowledge management in organization has a potential in developing and nurture innovation culture and competitive advantages in manufacturing industry. The innovation culture required people in organization to collaborate and work together in exchange and share their knowledge, ideas and experience. Apparently, knowledge sharing is a pivotal process of enhance innovation through exchange their ideas, opinions and discuss among employees to come out with new ideas. Hence, the main purpose of this study is to determine the knowledge sharing factors such as technology, rewards, leadership, trust and organization in innovative capability. Survey was conducted in twenty three selected manufacturing companies in Selangor. Descriptive and correlational study was conducted and result showed that reward system, trust and organizational learning were significant in the developing innovation capability in manufacturing. Technology and leadership did not support for this study. The findings were contrast with the previous study as highlights the importance of technology usage was mainly contributed in innovation capability. The results of this study would give a notion that technology, reward system, leadership/management support, trust, and organizational learning may have an influence on innovation capability. Besides that, this study is significantly useful for manufacturing company especially the exporter companies. Companies that involve import export business worldwide particularly require continuous innovation to remain competitive in the market. However, before any innovation made, they should recognize the factors that can help them to do innovation. Therefore, knowledge sharing is a vital factor that can increase innovation in organization.

Keywords- innovation; technology; knowledge management; knowledge sharing

I. INTRODUCTION

In a knowledge based economy, knowledge becomes the main resources to enable people contribute in economic development, land, labor and capital [1]. It is important for the organization to manage knowledge to ensure the useful and

continuity of knowledge is always available for employees. According to [1], by setting up an appropriate knowledge management, the organization will get a lot of benefits such as creating opportunity in competitive advantage, new product development, new service, improvement of existing product and service, reducing in waste, improving in operation speed, cost efficiency, and increase high profit for long term.

Apparently, knowledge sharing is one of the knowledge management processes [2]. Knowledge sharing is the initiatives to organization development. In this study, focuses to manufacturing area believed knowledge sharing also benefit in terms of the development of product and services [3]. While, refer to [4] highlights importance of knowledge sharing practices also as the contributors to competitive advantage.

Knowledge sharing appears as powerful asset in an organization because of the benefits it brings to the sharers (giver and receiver) and also to the organization itself. For example, Siemens is a company that strongly emphasizes knowledge management. They are benefited from the knowledge management efforts such as the ability to harness knowledge for innovation. According to [1], Siemens has emerged as a company with good reputation in world-class innovations which contributed towards the company's position as one of the largest electronics group in the world. Moreover, their management believes that by having appropriate knowledge management system, it helps to introduce successful innovation in the marketplace [1].

However, promoting knowledge sharing among employees remains as challenge to the organization. In order to achieve the aim, several factors such as social factors must be taken into account; trust [5]; [6] technical support; technology and information, and communication infrastructure [7] and also organizational factors; leadership [8]; [9], reward system [10] and organizational learning [11] [12]. At the moment, there are challenges to encourage their employees to share knowledge, experience, and idea among co-workers. Given the fact that

employees are resisting to share their knowledge, and it is worth to investigate the factors that can eliminate this behavior.

Many studies have been conducted to verify the reason of knowledge sharing barriers by considering factors such as demography, organizational and personality [14] [15];[16]. However, the empirical studies had less investigated the relationship between knowledge sharing factors such as technology, reward system, leadership, trust, and organizational learning on innovation capability. Therefore, this study attempts to examine the significant of knowledge sharing factors on innovation capability in manufacturing industry.

II. LITERATURE REVIEW

A. Nature of Knowledge Sharing

There are variety definitions of knowledge sharing. The literature analysis identified knowledge sharing defines in the context of the process and individual capabilities. In context of knowledge process, knowledge sharing is a process involving people exchanging their ideas, opinions and proposing new ideas through discussion [17]. Similar as refer to [18] stated that knowledge sharing is a process where individuals mutually exchange their knowledge and create new knowledge. In other view, knowledge sharing is a process of capturing, organizing, reusing and transferring the unique knowledge within the organization and the knowledge can be used by others in the business. In perspectives of individual capabilities, refers to [19] mentioned knowledge sharing is a personal capability that can bring improvement of organization performance. While refer to [20] stated that knowledge sharing is people behaviors that are willing to share experiences and useful information with others in organization. In other words, knowledge sharing is also an action of releasing knowledge to others within the organizations.

According to [21] knowledge sharing is an edge to create knowledge that will increase the employees' performance and innovation. Knowledge sharing is important to move the organization towards innovativeness. It is important to know the factors that can encourage people to share their knowledge especially people in an organization. There are some researchers have identified knowledge sharing as factors that contributed to the success of the organization [20]. According to [22] claimed that knowledge sharing factors were categorized into three sections as individual, organizational, and technological.

B. Individual Factors

In context of the individual factors, this study found that trust represents the individual capability willingness to share their knowledge in organization. As cited by refer to [23], trust has positive impact on knowledge sharing. Based on [24] supported that mutual reciprocity and trust might influence individual's knowledge sharing behavior. In this sense, refer to study by [22], suggests trust as one of the most important knowledge sharing factors that will influence individual to share their knowledge and enhance individual competency towards innovation capability. Thus, there is no denying that

trust is one of the competencies that apparently evaluate an individual capability willing to share and be innovative in organization.

C. Organizational Factors

While, organizational factors refers to organization capability in support the knowledge sharing such as, organizational structures, organizational cultures, and organizational learning cultures. In previous studied, refer to [25] identified the organizational factors consist of perceptions of management support for knowledge sharing. Furthermore, top management becomes the main factor that can encourage employees to contribute their knowledge within group and organization [25]. According to [26] supervisory control can be defined as the management approach to increase the action of individual in order to achieve the organization's objectives. Supervisory control has been identified as an important factor that can give positive impact on an individual's willingness to share his/her knowledge [26].

Another factor is reward system. The rewards can be from monetary incentives or non-monetary awards. Monetary incentives such as increasing salary and bonuses can be used to encourage employees to share knowledge, while non-monetary awards such as promotions will also can the source of motivation to share knowledge with colleagues [2];[27]. In research as cited by [28] reward system boost employees' motivation to share knowledge with their colleagues. The concept of rewards as a mean of driving behavior is inherent in motivation theory [29].

Organizational learning can be defined as a process of using and making sense of new knowledge and insights in order to improve behavior and performance [30]; [31]. As cited by [32] organizational learning is a dimension of knowledge management, which involves a continuous assessment of organizational experience. There are two different kinds or organizational learning process, which are learning 'how' and 'why' [32].

Consistent with study by [32] highlights that learning refer to 'how' of organizational members engaging in processes to transfer and improve existing skills or routines and learning, While concept of 'why' refer to organizational members diagnosing causality. In this sense, the organizational learning requires organizations to have a shared memory where individual employees' discoveries, inventions and evaluations are embedded substantially. Organizational learning requires skills like communication, listening and observing, mentoring, and supporting co-worker, holistic perspective, and also coping with challenge and uncertainty for sharing information and knowledge [33]. Learning organization provides the opportunity to create and recreate, and extend the individual ability to be more creative.

D. Technology Factors

Technology is an important element for organization if they want to achieve innovation and stay competitive. There are three components that embodied in the technology domain; ICT infrastructure [34] Information Technology application usage and end user focus [19]. Information technology can be considered as part of technology

infrastructure because it can assist organization to perform task and also to effectively manage knowledge in the organization processes.

In context of knowledge sharing, effective knowledge sharing does not occur without technology infrastructure. These information technologies will support organizational activities such as transactional, development and innovation. According to [35], the information and communication technology (ICT) plays important role in knowledge management such as to obtain knowledge, to defining, storing, categorizing, indexing, and linking knowledge-related digital.

It also facilitates people to carry out their routine task such as obtaining knowledge, correcting flow processes, and identifying the location of knowledge carriers and requesters.

Recent study supported that the technical support, technology and information, and communication infrastructure are among the factors that will influence knowledge sharing in an organization [7]. According to [36] the information and communication technology (ICT) and knowledge sharing are closely linked. It is because the ICT usage enables employee to rapid searching information, access and retrieval of information, and can support communication and collaboration among organizational employees [36]. Furthermore, the usage of information and communication technology (ICT) in knowledge sharing allows organization to expand available social networks by overcoming geographical boundaries and thus, achieving more collaborative activities [37]. It is also enhance the innovative capability among the people in organization. According to [7] technology becomes an important tool to encourage innovation in organization.

E. Innovation Capability

In previous studied, refer to [38] defines innovation is an organization trying to explore the knowledge for new product, service, and process developments. Innovation is often described in terms of changes in what an organization offers to customer such as service and product the changes in the products and services [30]. Innovation is important for an organization because it will create opportunities to grow faster, better and smarter than their competitors [40]. The introduction of new products and services is also viewed the important for organization performance to ensure their competitive advantage and creating new value [41].

Innovation is crucial for organization in order to stay competitive, thus knowledge sharing is essential to ensure the effectiveness of innovation. According to [42] innovation is correlated to a knowledge process of replicating or creating new knowledge. The knowledge process involved of technical, physical and knowledge-based activities that are central to perform product development process [43].

As cited by [44] highlights the drive to encourage employees to do innovation in the organization is the ability to define, instill and emphasize innovation supporting traits among employees. The roles are closely related to the innovation capability of organization. The concept of innovation capability refers to behavioral variable [45]. The behavioral variable is the rate of adoption of innovations by organization. While innovation capability of an organization is generally the

ability to access and use internal and external knowledge in developing and introducing new products, services, and process [27]. To sum up the discussion above, the conceptual framework was designed to the direction of this study. Figure 1 showed the conceptual framework of this study.

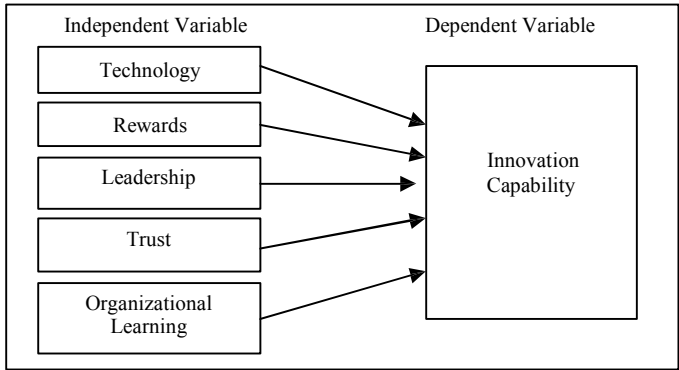


Fig. 1. Conceptual Framework

The hypotheses development was as following:

- H1: Technology is positively related with innovation capability.
- H2: Reward system is positively related with innovation capability.
- H3: Top management/leadership is positively related with innovation capability.
- H4: Trust is positively related with innovation capability.
- H5: Organizational learning is positively related on innovation capability.

III. METHODOLOGY

A. Participants

In this study, the respondents were selected among the engineers in manufacturing who are listed in directory of Federation of Malaysia Manufacturer (FMM). They selected because currently engineers in the company were involved in on-going process and product development. The total number of population is 285. According to [46] the sample size for 285 is 165. This also indicates that there were 165 respondents, to whom a questionnaire was administered for each.

B. Items Measurements

The items measurement was adapted from the previous studied. The questions ranged from strongly disagree to strongly agree on a 5-point Likert scale. Table I below presented the original sources of the items used for this studied.

TABLE I ITEMS MEASUREMENT

Variables	Item Measurements Analysis	
	Numbers of Items	Sources of Items
Technology	4	Yang (2006)

Variables	Item Measurements Analysis	
	Numbers of Items	Sources of Items
Rewards	5	Yang (2012)
Leadership	5	Yang (2007)
Trust	5	Lin (2007)
Organizational Learning	5	Hao (2012)
Innovation Capability	5	Kamasak and Bulutlar (2010)

IV. FINDINGS AND DISCUSSIONS

A. Demographic Analysis

The data analysis identified male workers were 59 (55.7%), while female workers were 47 (44.3%). These results imply that the overwhelming majority of the respondents were found to be males. In addition, majority the workers involved in this study were having age range from 26-40 years (60.4%), followed by age group below than 26 years (30.2%), and 41-50 years (9.4%). The lowest percentage of engineers was observed in age of 50 years and above. While, there were four types of company which are local of company, multinational company, joint venture, and others. The results show that the highest percentage of the company type where the respondents are selected from is multinational company (48.1%), followed by the local company (34.9), and joint Venture Company (11.3%). In final analysis, majority of the respondent's year of service is within 6-15 years in an organization (56.6%). There are respondents whose working experience is less than 6 years (36.8%) and only 6.6% of them have worked for 16-24 years. It can be concluded that the majority of the respondents have less than 6 years of working experience.

TABLE II DEMOGRAPHIC ANALYSIS

Demographic Factors	Item Measurements Analysis		
		Frequency	Percentage
Gender	Male	59	55.7
	Female	47	44.3
Age	Less than 26 years	32	30.2
	26-40	64	60.4
	41-50	10	9.4
	50 and above	0	0
Types of Company	Local	37	34.9
	Multinational	51	48.1
	Joint Venture	12	11.3
		6	5.7
Working Experience	Less than 6 years	39	36.8
	6-16 years	60	56.6
	16-24 years	7	6.6
	25 years and above	0	0

B. Reliability Analysis

The highest correlation for each item with at least one item in the construct is between 0.3 and 0.85. Therefore all the four items correlate adequately in the constructs. The cronbach alpha values as indicated in the table III below were result

more than 0.7. Therefore, the five constructs are sufficient internal consistency.

TABLE III RELIABILITY ANALYSIS

Variables	Reliability Analysis	
	Numbers of Items	Cronbach Alpha Values
Technology	4	0.613
Rewards	5	0.788
Leadership	5	0.719
Trust	5	0.780
Organizational Learning	5	0.764
Innovation	5	0.876

C. Correlation Analysis

Results of correlation demonstrate that there are three variables demonstrate positive relationship between knowledge sharing factors and innovation capability. Reward system had shown positive relationship with innovation capability ($r = .241$; $p < .013$). This result implies that, reward system influences to innovation capability in organization. This result is consistent with previous study such Yang (2012) that show reward system is significantly related with innovation capability. In the study, Yang (2012) stated that reward system can be used to persuade people to share knowledge. Similarly, Tsai et al. (2008) also found that reward system is significantly related with innovation capability. Reward system can be used to encourage employees to do innovation in organization. It is because reward system can reduce turnover in organization and the reputable employees can be retained (Tsai et al., 2008).

In addition, trust ($r = -.230$; $p < .018$) and organizational learning ($r = -.363$; $p < .000$) also indicated there was positive relationship between innovation capability. Other than that, trust in this study is also found to be significantly related with innovation capability. This result is consistent with [47] that stated trust is significantly related to innovation capability. According to [47] people will start know each other and the trust will be developed. When trust have been developed, it will influence the extent to which people will be more willing to share knowledge and it can enable them to do innovation in their organization. Besides that, [6] stated that trust can contribute to knowledge sharing than can lead to innovation.

The finding also reveal that organizational learning ($r = .036$; $p < .000$) was significant with innovation capability. Organizational learning in this is found as a contributor to innovation in organization. This finding is consistent with [12]. Organizational learning is important to ensure innovation in organization. Besides that, organizational learning is a process those employees learn based on experience of the expertise [11]. Organizational learning in this study has positive impact on innovation capability because of knowledge sharing among expertise and new comer.

In contrast, technology ($r = .076$; $p < .441$) and leadership ($r = .043$; $p < .665$) was not significant with innovation capability. Nevertheless, this result has been unable to describe the findings from [9]) that state leadership has significant relationship with innovation capability. The possibility happen in this study, employees do not do innovation based on their leader or management support but may be influence by other factors such as reward system or organizational learning. Furthermore, the results of technology in this study are also not consistent with [7]. Respondents in this study have not prioritized the usage of technology to achieve innovation in organization. Table IV showed the result of correlation analysis.

TABLE IV CORRELATION ANALYSIS

Variables	Correlation Analysis	
	<i>r</i>	<i>Significant Values</i>
Technology	0.076	0.441
Rewards	0.241*	0.013
Leadership	0.043	0.665
Trust	0.230*	0.018
Organizational Learning	0.363**	0.000

To sum up the discussion above, the study reveal that reward system can be regarded as a motivator to encourage people to share knowledge and indirectly lead to innovation in organization. According to [28], there are companies that use reward system to achieve innovation in the company. The finding of this study is consistent with [20] that stated employees will be willing to share knowledge and do innovation if their organization offer reward to them.

Consistent with the rewards factors, organizational learning is also found as a main contributor to innovation capability in organization. Employee will learn from their senior and try to do innovation in organization. According to [12], organizational learning is one factor that can contribute to innovation capability. Organization that implements organizational learning will find it easy to achieve innovation rather than the organizations that work without implementing organizational learning. The results of this study denote that out of six hypotheses, only three hypotheses are supported to this study. Figure 2 show the hypotheses result.

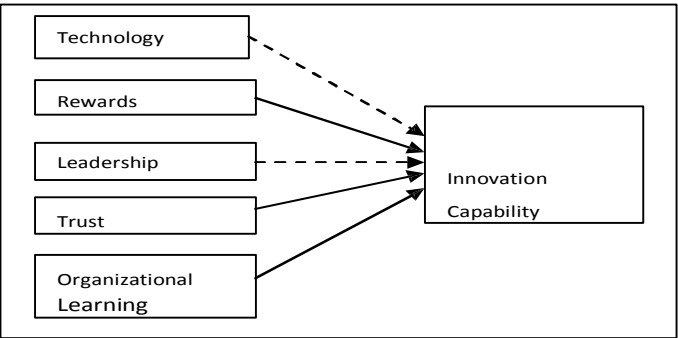


Fig. 2. The Hypotheses Result

VI. CONCLUSIONS

In conclusion, the findings of this research on innovation capability perspective provide a useful method to for many issues including knowledge sharing factors. Additionally, this study indicates that three factors of knowledge sharing have positive relationship with innovation capability. Trust is one of the contributing factors of the innovation capability. Innovation can be achieved with the implementation of knowledge sharing as a part of the working culture. With that, there is a need of the establishment of knowledge culture to enhance the spread of knowledge which will lead to innovation of the organization.

Besides that, reward system also demonstrates significant relationship with innovation capability in organization. This implies that individual will have greater tendency to do innovation if they know that their effort is rewarded. It can be concluded that managers should use reward system as a method to encourage employee to do innovation. This reward is a form of motivation which can be provided by giving some recognition, bonus and increase in salary to the employees who demonstrated any innovation that creates public value for their organization.

Other than that, organizational learning was also found to have a significant relation with innovation capability. Through organizational learning, employees will share knowledge and experience with others. To illustrate further, in order to ensure the successful innovation, the managers should provide mentor coaching to their employees which serves as a platform for knowledge sharing.

Therefore the results of the study indicated that the knowledge sharing in an organization can improve their innovation capability. Taking into consideration the implementation of knowledge sharing will ensure the success of organization and maintain their competitive advantage. More than that, it will retain employees' commitment. For future study, this study recommends that the research could be expanded to include other staffs who involve in ongoing process development in organization to get more respond from them. It is also recommend to the other factors such as emotions, personality, introversion, extraversion and others should be investigated. Besides that, the further study can be expanding to others sectors such academic and public sectors.

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