

# Preliminary Study of Knowledge Management Implementation Strategy for the Automotive Industry in Malaysia

Nor Athirah Mohd Fadzil, Azmi Jaafar, Rusli Abdullah, Masrah Azrifah Azmi Murad

**Abstract** - This paper covers a research in the area of knowledge management implementation strategy for the automotive industry. A preliminary study on the knowledge management implementation strategy was conducted in the local organizations in order to obtain an initial overview of the practice of knowledge management in the automotive industry in Malaysia. The data was analyzed by using Microsoft Excel 2010 on a Microsoft Windows 7 Home Premium platform. This study reveals that although the organizations had agreed that the five aspects: (i) knowledge assets, (ii) learning people, (iii) fostering and rewarding the learning, (iv) information technology, and (v) commitment of both the top management and the employees - are important to make the knowledge management become successful, but the performance of these organizations regarding these aspects were not really good.

**Index Terms** – Automotive Industry, Knowledge Management, Knowledge Management Implementation Strategy

## I. INTRODUCTION

Nowadays, the world is in an era which has been termed as “knowledge age”. The land and natural resources have become the less important things compared to the knowledge. This is illustrated by Nonaka who states that in an economy, where the only certainty is uncertainty, the one sure source of lasting the competitive advantage is knowledge [2]. Xu agrees and says that the knowledge has been regarded as an essential asset for the competitive advantage [8].

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Nor Athirah Mohd Fadzil is a PhD candidate in Department of Information System, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia (phone: +6013 9700574; fax: +603 89466577; e-mail: athirah\_fadzil@yahoo.com).

Azmi Jaafar is an Associate Professor in Department of Information System, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia (phone: +603 89471722; fax: +603 89466577; e-mail: jaafarazmi@gmail.com).

Rusli Abdullah is an Associate Professor in Department of Information System, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia (e-mail: rusli@fsktm.upm.edu.my).

Masrah Azrifah Azmi Murad is an Associate Professor in Department of Information System, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia (e-mail: masrah@fsktm.upm.edu.my).

The knowledge management has been applied in many industries around the world for many years. The automotive industry is not spared in applying the knowledge management. According to [7], the knowledge management is important for the competitive advantage, generating the greater value to the customers, and reducing the costs. However, the effectiveness of knowledge management in this industry needs to be observed again and again to ensure that no shortage exists. Any shortage must be improved and overcome with the appropriate efforts.

The main purpose of this study is to obtain an initial overview of the practice of knowledge management in the automotive industry in Malaysia. This initial overview can then be used as an initiator in implementing the efforts for improving the knowledge management in the automotive industry.

## II. LITERATURE REVIEW

### A. Knowledge

Although the knowledge is regarded as an important resource for competitive advantage in the modern organizations, a variety of different definitions in the literature still exists. According to [6], knowledge is defined as the human expertise that is stored in a person’s mind and is gained through the experience and interaction with the environment. Knowledge also has been explained as the actuality of skillful action and the potentiality of defining a situation so as to permit the skillful action [3]. In addition, [4] had defined the knowledge as: (i) the facts, information, and skills acquired through the experience or education; or (ii) the awareness or familiarity gained by the experience of a fact or situation.

There are two (2) types of human knowledge, namely tacit knowledge and explicit knowledge [2]. Tacit knowledge is a form of knowledge that is subjective. It is difficult to articulated, developed from the direct experience, and usually shared through the highly interactive conversation and shared experience. Explicit knowledge, on the other hand, is a form of knowledge that is objective. It is easy to articulated, captured, and distributed in the different formats.

For the purpose of this study, the knowledge is regarded as the understood information that is stored in a person's mind and is gained through the interaction with the environment.

**B. Knowledge Management**

According to [6], knowledge management is a process to identify, develop, and effectively apply the existing organizational knowledge to achieve the organizational goals, while creating an organizational culture that allows the creation of further knowledge. Knowledge management also defined as the practice of applying the selective knowledge from the previous experience of decision making to the current and future decision making activities with the purpose of improving the organizational effectiveness [1]. According to [9], knowledge management is defined as a process of managing the tacit and explicit knowledge in the organization in order to increase the competitive advantages.

For the purpose of this study, the above views are adopted. Knowledge management is regarded as a process to identify and effectively apply the existing knowledge, while creating the new knowledge in order to increase the competitive advantages.

**C. Knowledge Management Implementation Strategy**

According to [6], knowledge management strategy is a high-level plan designed to provide an organization with the knowledge resources that it needs in order to carry out its vision and goals. As a result, the knowledge management strategy must be aligned with the overall business strategy and produce a tangible result to the organization as a whole [6].

For the purpose of this study, the knowledge management strategy is regarded as a knowledge management

implementation strategy. It is expected to go in more detail than just only a high-level plan.

**III. METHODOLOGY**

**A. Data Collection Tool**

For this study, a questionnaire was used as the data collection tool. There were two objectives of this questionnaire:

- (i) to analyze the importance of knowledge management practices in the automotive industry companies in Malaysia.
- (ii) to analyze the performance in knowledge management practices in the automotive industry companies in Malaysia.

The questionnaire was adapted from the Sunassee's questionnaire [5]. There were six sections in the questionnaire. The first section of questionnaire deals with the background details of the respondents and the remaining sections deal with the specific aspects of knowledge management. The six sections in the questionnaire include "Background Details", "Knowledge Assets", "Learning People", "Fostering and Rewarding the Learning", "Information Technology", and "Knowledge Management and Its Related Issues".

The respondents were asked to rate the importance of specific aspects of knowledge management on a scale of one (1) to ten (10) and then rate their organizations' performance on those specific aspects on a scale of one (1) to ten (10) also. Any major conflict between an importance rating and a performance rating will indicate a shortcoming in the specific area of knowledge management in the organization.

**TABLE I  
KNOWLEDGE ASSETS**

		<b>Importance</b>		<b>Performance</b>	
		<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
2.1	The quality of data, information, and knowledge is managed	9.5	0.58	7.0	2.00
2.2	Knowledge assets are formally identified	7.5	1.00	5.8	2.22
2.3	The locations of knowledge assets are known	7.5	1.00	6.3	1.89
2.4	Knowledge requirements are related to business needs	9.0	0.82	8.3	1.26
2.5	Specific plans and policies exist for growing knowledge	7.8	1.26	6.8	1.50
2.6	Knowledge assets are measured	7.8	1.26	5.0	1.41
2.7	Formal systems exists to:				
2.7.1	identify required knowledge	7.5	1.00	5.0	1.41
2.7.2	acquire knowledge	7.5	1.00	5.5	2.41
2.7.3	store knowledge	8.0	1.41	5.8	1.96
2.7.4	facilitate access to knowledge	8.3	1.50	5.8	1.96
2.7.5	distribute knowledge	8.0	2.00	6.0	0.00
2.7.6	protect knowledge	8.3	2.22	6.8	0.50
2.7.7	purge knowledge	7.0	1.41	5.3	0.50

TABLE II  
LEARNING PEOPLE

		Importance		Performance	
		Mean	SD	Mean	SD
3.1	Never stop learning	8.3	1.50	6.8	1.50
3.2	Are constantly alert for new information	7.5	1.73	5.8	0.50
3.3	Create and accumulate knowledge	8.0	2.00	6.0	0.00
3.4	Accept change	8.0	2.00	5.5	0.58
3.5	Are willing to communicate and share knowledge	8.3	1.50	6.8	1.50
3.6	See knowledge as fuelling personal growth	8.3	1.50	7.8	0.96
3.7	Have a high tolerance for complexity	8.0	1.41	6.8	1.50
3.8	Think systematically (e.g. about the underlying causes)	7.5	1.00	7.5	1.00
3.9	Continually search for ways to do things cheaper, better, faster	8.3	1.50	8.3	0.50
3.10	Are willing to experiment	7.5	1.00	6.8	1.50
3.11	Are not afraid to question the status quo	7.5	1.73	6.3	1.89
3.12	Can interact with people as well as technology	7.8	1.26	6.8	1.50
3.13	Are not complacent	8.0	1.41	6.8	1.50
3.14	Are keen to solve problems and help colleagues to do so too	8.3	1.50	7.3	1.26
3.15	Can work in teams	8.3	1.50	7.5	1.00
3.16	Welcome empowerment by their organizations	8.0	1.41	7.3	1.26
3.17	Use information technology effectively in pursuing knowledge	9.0	0.00	6.8	1.50

#### B. Data Collection

The questionnaires were sent to the eight (8) automotive industry companies in Malaysia. However, only a total of four (4) questionnaires were returned. The managers at senior level or middle level were the targeted respondents for this study. The selection of senior managers or middle managers to be respondents for this study because they were seen as having a broad knowledge of all their organizations' functions, activities, and operating environment.

#### C. Data Analysis

The analysis of data was performed by using the Microsoft Excel 2010 on a Microsoft Windows 7 Home Premium platform. A measure of central tendency which is mean, and the standard deviation were used in analyzing the data. The mean of responses indicates the level of importance of the specific aspects of knowledge management and also the level of organizations' performance regarding to the specific aspects of knowledge management. Meanwhile, the standard deviation indicates how much the agreement between organizations with regards to the specific aspect of knowledge management.

### IV. RESULT AND DISCUSSION

#### A. Background Details

A sample of four (4) respondents was selected from the automotive industry companies in Malaysia. Two (2) of the respondents were from Gurun, Kedah, one (1) was from Tanjung Malim, Perak, and one (1) was from Pekan, Pahang. The size of organizations was ranged from 950 to 1500 employees.

#### B. Knowledge Assets

From Table I, there were high values to the importance of knowledge assets in the organization with the lowest score was 7.0 and the highest score was 9.5. This indicates that the automotive industry had recognized the importance of knowledge assets for the competitiveness of their organizations. The figures of standard deviations of "Importance" were relatively low except for the questions 2.7.5 and 2.7.6. This indicates that there were agreement in many cases and disagreement only in some other cases.

However, from Table I also, there were low values to the performance of particular issues, except for question 2.1 with the score was 7.0 and question 2.4 with the score was 8.3. This indicates that the organizations did not perform well in the aspect of knowledge assets. The figures of standard deviations of "Performance" were relatively low but in some cases there were high values. This indicates that the performance levels of organizations were varying to quite small extent in many cases.

In summary, it can be said that the organizations had identified the areas of knowledge management that are important to them but they were failing to perform well in these areas.

#### C. Learning People

From Table II, there were high values to the importance of learning people in the organization with the lowest score was 7.5 and the highest score was 9.0. This indicates that the automotive industry had recognized the importance of smart people in a knowledge environment of their organizations. The figures of standard deviation of "Importance" were relatively low with the lowest value was 0.00. This indicates

that there were agreement in many cases and disagreement only in some other cases.

However, from Table II also, there were low values to the performance of particular issues, except for question 3.9 with the score was 8.3. This indicates that the organizations did not perform well in the aspect of learning people. The figures of standard deviations of "Performance" were relatively low. This indicates that the performance levels of organizations are varying to quite small extent.

In summary, it can be said that the organizations had agreed on what type of people are necessary to make the knowledge management successful in their organizations but their performance in this area need to be improved.

#### D. Fostering and Rewarding the Learning

From Table III, it can be seen that the respondents did not think that an organization should develop its research capability, as shown by the lowest score of "Importance" mean of 6.8 and the low figure of "Importance" standard deviation of 0.50 in question 4.12. However, the respondents thought that the employees should be encouraged to accept the personal responsibility for learning, as shown by the highest score of "Importance" mean of 9.0 and the lowest figure of "Importance" standard deviation of 0.00 in question 4.3. The respondents also thought that an organization should not be responsible for teaching its employees to learn, as shown by the low score of "Importance" mean of 7.0 and low figure of "Importance" standard deviation of 1.41. However, the importance of rewarding the employees for using and sharing the knowledge was agreed by the respondents, as shown by their answers for questions 4.1, 4.2, 4.6, and 4.7.

From Table III also, it can be seen that the respondents indicated that their organizations did not perform well in the aspect of fostering and rewarding the learning. This is shown by the low values for the "Performance" mean with the highest score was only 7.3 and the lowest score was 4.5. The figures of standard deviations of "Performance" were

relatively low, except for questions 4.2, 4.7, and 4.8. This indicates that the performance levels of organizations were varying to quite small extent.

#### E. Information Technology

From Table IV, it can be seen that the respondents thought that the knowledge management needs a technological grounding in order to work. This is shown by the high mean scores and relatively low standard deviations in the "Importance" part. The respondents thought that it is important for a high level of systems integration exist. The same thing can be seen on the database management systems where the respondents thought that it is important for the database management systems be used extensively. However, the least important technology that needed by the organization was extensive access to the external databases, as shown by lowest score of "Importance" mean in question 5.2.

From Table IV also, it can be seen that the mean scores in the "Performance" part were quite high when compared to the previous sections of the preliminary study questions. This happens maybe because of most of the listed information technologies in the Table IV had been used in most organizations for a number of years. The figures of standard deviation of "Performance" were relatively low, except for questions 5.7 and 5.10. This indicates that the performance levels of organizations were varying to quite small extent. Again from Table IV, it can be seen that the respondents indicated that their organizations were performing well in using the technology to facilitate the communication among the employees, as shown from the highest mean scores of 8.8 and 8.3 in questions 5.5 and 5.6 respectively. However, although the data mining was thought as important by the respondents, the performance of their organizations in this area was poor. This was indicated by the lowest mean score of only 5.8. The highest standard deviation of 2.22 for this area indicates that the performance level of organizations were varying to quite large extent.

TABLE III  
FOSTERING AND REWARDING THE LEARNING

		Importance		Performance	
		Mean	SD	Mean	SD
4.1	Rewards employee knowledge	8.5	0.58	6.8	1.50
4.2	Rewards knowledge sharing and dissemination	8.8	0.50	5.8	2.22
4.3	Encourages the acceptance of personal responsibility for learning	9.0	0.00	7.3	1.26
4.4	Has a high computer literacy level	8.5	0.58	6.8	1.50
4.5	Devotes time and resources to training and education	8.0	1.41	6.8	0.50
4.6	Rewards team performance	8.5	0.58	6.5	1.73
4.7	Rewards knowledge outputs (e.g. patents, papers)	8.3	0.50	6.0	2.00
4.8	Measures knowledge sharing	7.0	0.82	4.5	3.00
4.9	Teaches its staff to learn	7.0	1.41	5.8	0.50
4.10	Has someone responsible for knowledge management	7.0	1.41	5.3	0.50
4.11	Has a flat organizational structure	7.5	1.00	6.8	1.50
4.12	Grows its research capability	6.8	0.50	6.3	1.89

TABLE IV  
INFORMATION TECHNOLOGY

		Importance		Performance	
		Mean	SD	Mean	SD
5.1	A high level of systems integration exists	8.5	1.73	8.0	0.82
5.2	There is extensive access to external databases	7.0	0.82	6.8	1.50
5.3	The Internet (intranet and/or extranet) is used extensively	7.8	1.26	7.5	1.00
5.4	Database management systems are used extensively	8.5	1.73	7.5	1.00
5.5	Electronic mail is used extensively	8.3	1.50	8.8	0.50
5.6	The IT architecture is network-centric	8.3	1.50	8.3	0.50
5.7	Knowledge-based systems (expert systems, neural nets) are used extensively	8.0	1.41	6.0	2.00
5.8	Simulation (including what if models) is used extensively	7.8	1.26	6.8	1.50
5.9	Management support systems are used extensively	8.3	1.50	7.5	1.00
5.10	Data mining is used extensively	8.0	1.41	5.8	2.22
5.11	Groupware (e.g. Lotus Notes) is used extensively	7.8	1.89	6.5	0.58
5.12	People databases are used extensively	8.3	1.50	6.8	1.50

#### F. Knowledge Management and Its Related Issues

From Table V, it can be seen that the commitment from the top management and employees, the knowledge intensive products, and the existence of a formal knowledge strategy and a formal knowledge plan were very important as shown by the high mean scores of 8.0 and 7.8, and relatively low standard deviations ranging from 1.26 to 1.41. This indicates that the respondents had recognized the requirements of organization in order to make sure the knowledge management succeeds.

However, from Table V also, it also can be seen that the organizations did not perform well in these key areas. This was indicated by the quite low mean scores in the "Performance" part, ranging from 5.8 to 6.8. The high standard deviations ranging from 1.50 to 2.22 indicate that the performance levels of organizations were varying to quite large extent.

#### V. CONCLUSION

The initial overview of the practice of knowledge management in the automotive industry companies in Malaysia is revealed through this study. Even though the five (5) specific aspects: (i) knowledge assets, (ii) learning people, (iii) fostering and rewarding the learning, (iv) information technology, and (v) commitment of both the top management and the employees – are agreed to be the important aspects in order to make the knowledge management in the automotive industry become successful, yet the performance of automotive industry regarding to

these specific aspect need to be improved. Thus, the future work will focus on the effort to overcome the shortcoming that observed from this study.

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TABLE V  
KNOWLEDGE MANAGEMENT AND ITS RELATED ISSUES

		Importance		Performance	
		Mean	SD	Mean	SD
6.1	Top management is committed to knowledge management	8.0	1.41	6.8	1.50
6.2	Knowledge intensive products or services play a key role	8.0	1.41	6.8	1.50
6.3	A formal knowledge strategy is in place	8.0	1.41	6.0	2.00
6.4	Users are committed to knowledge management	8.0	1.41	5.8	2.22
6.5	A formal knowledge plan exists	7.8	1.26	5.8	2.22