Knowledge Management (KM) in Automobile: Application of a Value Chain (VC) approach using KM Tools

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Abstract
Knowledge Management (KM) has undoubtedly made strong inroads in the automobile industry. However, for KM to be effectively leveraged and permeate across an organization’s value chain, a KM based approach is crucial. Hence, a conceptual framework with a KM based injection across the value chain espoused in this paper is crucial for sustaining and projecting competitive advantage and consequently growth much needed in the automobile sector today. Relationships between internal and external stakeholders have changed with the availability of the internet. Automobile manufacturers must now look inwards by paying emphasis on its value chain as an opportunity to be exploited. The framework outlined in this paper was formulated through case discussions with leading local automobile manufacturers. It also examines the use of KM systems/tools, utility of knowledge tools and opportunities to fuse KM across ones value chain with the interest of adding value to customers and stakeholders alike.

1. Introduction
A conceptual framework on the use of KM tools based on Value Chain around a KM infrastructure enables effective management of innovations, operations and processes. The spin-offs of such efforts in a highly competitive automobile industry invariably results in sustained competitive advantage.

Relationship between manufacturers, assemblers and suppliers has changed with ubiquitous use of internet coupled with growing preference for using suppliers for components supplied by local producers in developing countries. This enabled greater opportunities in second-tier sourcing, increasing global reach. The framework analyzes how developing countries increase the possibility of integration into global brands through a well networked Value chain based KM infrastructure.

A study of this nature is possible through case discussions with some manufacturers on their perception and use of the knowledge system which the paper evaluates to ascertain the utility of knowledge tools for adding value to customers. The paper leaves a wide scope for further research in related areas.

2. Literature Review
Frameworks in practice today, process transformation using KM tools [1], environmental influences in KM use [2], procedures of KM use [3], interactive networking, optimizing relationships and performance [4], developing new design and managing customer experience [5] is reviewed in this section.

Interactive designs and fusion of technology [6], with greater customer involvement in design and styles of automobiles has invariably enhanced customer experiences and thus relationships [7]. The aforementioned was adopted by leading automobiles like BMW [8]. Similarly, other leading automobiles companies have focused their attention on service/delivery relationships, pre-launch campaigns [9] and media support [10]. Several automobile manufacturers have resorted to subcontracting/outsourcing of expertise [11]. Such a move ensuring optimization of plants, as attempted by Indian automobile companies [12] is becoming increasingly commonplace today [11]. It is also observed that compliances needed for corporate social responsibility (CSR) today have been drilled into MNCs’ procurement agenda [13]. Consequently, domestic regulatory compliances, imposed by special interest groups and the international governing fraternity are now mandatory for automobile manufacturers. In the same way, factors/barriers interplay [14], supporting auxiliary bodies in value enhancement of relationships is a key element to ensure sustained growth [15].

Together with the aforementioned, there are other areas often paid little attention to but crucial for enhancing/optimizing relationships within a value chain. These include good crucial governance, monitoring and managing knowledge retention and growth, state of the art technology (optimizing convergent technology), communicating with stakeholders through the NET, value chain based KM framework and use of appropriate technology [16].
Spanning across the value chain, brand building exercises often undertaken by most automobile manufacturers today among others include sponsorship, high impact events, loyalty programs, media, web blogs or NET [17]. The marriage of value chain and KM tools espoused in this paper is crucially supported by the use of AIDA (Awareness, Interest, Desire, and Action) model [18]. Such an alliance propagates value enhancement with relatively low increase in customer cost resulting in increased customer experiences.

Networked relationships when proactively managed enable an organization to position itself effectively [19]. This coupled with sound corporate strategy, when well networked across the value chain augurs well for sustained growth and boost an organisation’s competitive advantage [20]. However, for the aforementioned to be realized, organizations must consider leveraging on appropriate KM tools as an effective means for networking [20].

3. Problem Statement

The major problem of severe competition threatening the survival [18] of automobile industry is real. Cars fitted with best designs, precision engineering, use of the state of the art technology, IT-driven, heightened safety standards, economically produced, reliability and robustness in performance, high fuel efficiency and eco-friendliness, are no longer a taste of luxury [19].

How will car makers embrace the aforementioned demands amidst rising cost and lowered productions?

4. Objectives of the Study

The major objectives is to study present practices and formulate a framework based on value chain enabling value enhancement to evolve/crystallize [19] with KM as its enabler and set a precedent for the sector to develop on VC-based KM approach to optimize productivity [20]. The findings will reveal how the framework can propel and support organization-wide strategies given existing requirements, constraints, investment and resources being maintained. This framework would also clarify whether it would govern all industries or is sectoral in nature.

5. Justification of the Study

The global scenario of competition is beyond anyone’s comprehension, more so in the automobiles sector, where pioneering giants like GM, BENZ, and BMW are facing strong threats of existence despite boasting sound branding, strong customer loyalty, and proven track record of performance and customer satisfaction. World automobile leaders like Toyota on the other hand, have withdrawn from the limelight by their refusal to sponsor Formula One races due to cost cutting measures, often seen by plaudits as a key event for an automobile company’s image, and sustained growth [18]. Local players have stretched beyond productivity initiatives to keep pace with the pressures of value enhancement with heavy cost reduction through restructuring, outsourcing, relocation of plants, etc. Keeping track of the dynamic (fickle) customer expectations and competitors’ strategy has been the norm of the day. Hence, vibrant tools like KM appear to be the only option in contemporary times to ensure sustainable competitive advantage [17].

Due to the aforementioned, a study is therefore commissioned of this sector in the context of VC and KM. The study bestows crucial insights for academicians and industries alike to optimize on their options of strategic development and the right pedagogy of use.

Michael Porter’s value chain was useful in the past with normal growth pattern. Companies were continuously organizing themselves, but in the present changed scenario where fundamental and strategic restructuring is the norm, the need for enhanced value chain is profound and immediate in nature. In the same light, KM tools promises to be a vital option for optimization in the automobile sector [16]. Therefore, the role of a value chain based KM tool to handle the dynamicity of environments is both essential and crucial [18].

6. Definitions in Brief

KM infrastructure is the framework of tapping knowledge flow (experiences, creativity, etc.) in an organization, with supportive retrieval system to prevent exodus of intellectual property vital to an organisation’s continuous learning and decision making.

Value chain approach is the creation/design of a process where every activity or flow of information/knowledge/relationship would enhance the value of the same to the receiver so that the growth by default is spiral by mutually enriching the process(es).

KM tools encompasses and facilitates knowledge enhancement, dissemination and approaches in the KM system/process that would enable realization of predetermined objectives/targets set by the company collectively and with ease in a manner which is dynamic and regulated.
7. Theoretical Framework

The framework is geared for an automobile industry and is triggered by SCM (Supply Chain Management) and related inbound. The next stage involves involvement of service providers and designers, and governance coupled with tools for increasing value. Therefore, one could surmise that a well designed KM-VC system integrating the aforementioned elements would be a good approach to value chain optimization. Such a system injected with interactivity and innovativeness would enable/facilitate value addition and networking to maintain the needed sustainable competitive basis or advantage. See figure 1 below for an outline of the aforementioned;

Schematically displayed it would revolve around:

\[
A + B + C \rightarrow D
\]

(JIT Oriented)

Well being & Governance

Pre-KM situation with networking & KM tools used

Post KM value enhanced relationships (seamless growth)

Where:

\[
A \rightarrow \text{Is SCM perceived and practiced as on date.}
\]

\[
B \rightarrow \text{Is employee well being and Corporate Governance at present planned/implemented}
\]

\[
C \rightarrow \text{Pre Km Value Chain Based relationship existing in the company over the years of interactions and policies [18]}
\]

With good networking and appropriate KM tools results in:

\[
D \rightarrow \text{Enhanced relationships (with seamless growth) based on a sound professionally oriented Value Chain Based KM system [20]}
\]

A more detailed framework based on discussions, case reviews and reflective thinking is espoused below for suitable adaptations of KM tools.
8. Methodology

A literature review was undertaken for possible existing studies/researches, KM options to use and key driving forces. This was supplemented with data from published sources to assess possible extent of impact of a value chain (VC) based KM framework. It was crucial that the framework/model (Figure 1) be easy to comprehend and yet strategic in outcomes and it is hoped the same is achieved through this paper.

Cases born of detailed discussions with automobile manufacturers (OEMs) either of Malaysian origin or having a strong presence and acceptability in Malaysia were highlighted. The aim was to review their present KM tools used and practices and the degree of strategic outcomes targeted. The relationship status built-up as opined by the top executives (due to KM implementation) was undertaken in the limited time framework available. Efforts to get their feedback on the proposed framework developed by the researchers are being attempted. Though actual effect would be taken up in the next paper, the framework would have created a firm and clear understanding of the situation facing automobile industry today.

The feasibility of automobiles manufacturers adopting and benefitting from the proposed framework or model (Figure 1) would be reviewed in consultation with leading professionals of the area. In reality a survey/research is proposed for the next study with many more manufacturers on a case-oriented basis and if KM tools have been practiced by them, the change in experiences of customers ascertained. However the scope of study of consumer experience mentioned above is too large for this paper and thus outside its purview but would form a good basis for a forthcoming paper.

A diagnostic model would be attempted in the next paper based on experts’ comments. This gives guidelines for specific industries to go the KM way after ascertaining gaps and addressing approaches manners for bridging them so that there it is a planned and positive evolution. This is likely to ensure greater success of the KM tools and practices within a value chain.

9. Limitations of the Study

Due to time and funds constraint the study was limited to;
(a) Kuala Lumpur, Malaysia and neighboring areas only and focused on Malaysian context.
(b) Restricted to exploratory type of study only.
(c) Study was only on Malaysian manufacturers of automobiles and those with strong presence in Malaysia.

(d) Restricted to Case orientation and detailed review with top management executives and discussions with leading key KM experts.
(e) Areas of influence also were restricted to key ones to avoid overbearing nature of the study.

10. Hypothesis

As the study is a case review, no structured hypothesis has been formulated. It is imperative that when objectives are fulfilled the need for hypothesis would emerge for further specific domain related research. Nevertheless some basic issues related to hypothesis are considered below that may affect the outcome of successful implementation of KM tools and needs to be validated/handled;
a) The first hypothesis being validated is that KM tools are vibrant beyond productivity in giving a sustainable competitive advantage.
b) The second hypothesis would validate/confirm feasibility of value chain enhancement.
c) The third hypothesis would validate acceptance of KM system implementation by the top management and the employees.
d) The fourth hypothesis measures issues related to KM tools and VC approaches.

11. Case Reviews

A few cases of automobile companies (Malaysian origin or having a strong presence in Malaysia was reviewed through personal discussion with top management and decision makers around a semi-structured framework.

Discussions with experts indicate that it would be favorable, but difficult to implement. This is because fundamental attitudinal changes on the conservative nature of those involved are deemed essential. They felt that after the initial euphoria of practices, the freshening of the contents (regular updation) crucial for its success gets sadly abandoned. The incentives had to be substantial for adherence to the changes needed (which are not in line with existing culture). Unlike in implementation of ISO series or of six sigma, where compliances were mandatory/obligatory by the authorities, KM tools in contrast, have built-in principles with intentions of being customer oriented (both internal and external).

In detailed discussions in confidence, a couple of manufacturers indicated the proactive initiatives of KM tools as a part of their innovative project (mandatory in their annual reviews). A quick study of these indicated a lot of similarity with the proposal put forward in this paper, except that it was sectoral in nature (i.e. limited) while the proposed framework presented a holistic review of the same. It was also uncovered that the notion of introducing value enhancement through interactivity and innovations
incorporated KM would enhance the acceptability of KM approaches. Alternatively, benchmarking with a similar corporate based companies and success stories internationally introduced so as to encourage employees to “deposit” their experiences and learning.

Preparatory training of awareness and pedagogues like role plays, cases references, and movies of the difference between KM and non KM based companies and success stories internationally may be one of the key factors of acceptability. Alternatively, benchmarking with a similar corporate in the global scenario as to how they have incorporated KM would enhance the acceptability of KM implementation amongst employees and key players.

Further, implementation of these (outlined above) ought to be carried out in a phased manner so as to ride on the success achieved by other departments. Invariably, with such credibility achieved, it will be easy to roll out similar initiatives to other departments as well.

13. Conclusion

The case study has highlighted the importance in KM to garner competitive edge, generating greater value to customers and reducing costs at least within the automobile industry. There needs to be proactive attitudinal change to institutionalize these across an organization, which is a challenge in itself. Companies have been successful albeit in some segments only. No standard tool or system is noted nor have any measuring methods been firmed up as a universal one with regards to KM implementation. Companies may therefore formulate their own style and approach which best fit them.

It is suffice to say that in most cases consumer/employee awareness and acceptance of KM is below average. Hence organizations are now faced with an eminent challenge of education and awareness of advantages of a KM approach within a value chain and perils if ignored. The framework espoused in this paper invariably provides companies with an invaluable tool to assess outcomes and consequently optimize their approaches over time in the spirit of continuous improvement.

Finally, it is hoped that organizations (automobile companies in particular) which may have embarked on a KM initiative within their value chain should now assess effectiveness of their outcomes in the light of discussions highlighted in this paper.

14. Future Research

As this is an exploratory study only, much can be done in reviewing all aspects of the KM within a value chain. A study to note the sectoral influences and the role of each culture and management styles would be appropriate for further research. A cross country comparative study may throw more light on certain factors not tapped in this case oriented research and perhaps even regional based studies. Comparison of benefits amongst various category offerings (within an automobile industry) would also be useful and relevant. Similar initiatives internationally and progress or barriers faced would also make an interesting study in this regard.

The above framework could be studied in silos and also in a holistic manner to ascertain if further refinements are required to the framework.
15. References


