

# Sustainable Competitive Advantage through the Knowledge Based Approach: An Empirical Evidence

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## *Extended Abstract*

According to the dictionary meaning knowledge is, “The psychological result of perception and learning and reasoning”. And Sustainable competitive advantage is dependent on building and exploiting core competencies.

Success in today’s global, interconnected economy springs from the fast and efficient exchange of information. Sustainable competitive advantage is no longer rooted in physical assets and financial capital, but in effective channelling of intellectual capital (Seubert, Balaji and Makhija, 2001)

Knowledge management has never been more important than it is today. With countries like China and India competing for a place in the global economy, moving up the value chain with more informed, educated and responsive business strategies is the only recourse.

From the years firms are trying to accumulate the knowledge and to apply it to create & enhance economic value in order to create competitive advantage. According to Nonaka and Takeuchi (1995) fundamental research on both knowledge creation, and applied knowledge management revolve around the interlay of tacit knowledge and explicit knowledge. Tacit knowledge is the knowledge of skills acquired through experiences while the explicit knowledge is the knowledge of rationality.<sup>2</sup>

Because tacit knowledge is difficult to codify, it is passed along to others through direct experience (Polanyi, 1973; Reed & DeFillippi, 1990). Therefore, it is sometimes termed subjective knowledge, personal knowledge, or procedural knowledge.

Tacit knowledge is often more valuable as a source of uniqueness and competitive advantage but it may or may not be observable in use, it may be complex or simple and it may be an element in a system or an independent factor (Winter, 1987). There is an additional complexity that tacit knowledge carried by individuals only reaches its full potential to create economic value when embodied in organizational practices that is when it is more explicit. But this conversion process or flow is neither automatic & easy nor replicated easily (Nonaka and Takeuchi, 1995).

Examples of intangible resources are reputation, brand equity, and—for our purposes the most important of these— human capital. In fact, in any competitive landscape it has been argued that intangible resources are more likely to produce a competitive advantage because they often are truly rare and can be more difficult for competitors to imitate (Black & Boal, 1994; Itami, 1987; Rao, 1994).

In the twenty-first-century landscape, firms must compete in a complex and challenging context that is being transformed by many factors, from globalization, technological development, and increasingly rapid diffusion of new technology, to the development and use of knowledge (Hitt, Keats, & DeMarie, 1998).

This new landscape requires firms to do things differently in order to survive and prosper. Specifically, they must look to new sources of competitive advantage and engage in new forms of competition. This, in turn, requires a clear understanding of the nature of competition and competitive dynamics.

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<sup>2</sup> Nonaka, I and Takeuchi, H. (1995); “The Knowledge Creating Company”, New York; Oxford University Press

KM can be presented as a convergence of ideas promulgated over the past decade, including core competencies and resource-based theories of the firm, 'info-mapping' and information resource management, the 'balanced scorecard' and intangible/intellectual assets, the learning organization and 'communities of practice', total quality management and business process reengineering, the networked organization and the 'boundary less firm' (Corrall, 1998).

Strategic Capabilities refer to those systems or processes that an organization creates to leverage its resources to produce a competitive advantage. In the context of knowledge based resources we have discussed issues relating to the acquisition or development of these resources and ways in which we can carry these resources up to higher levels of analysis. Increasingly, knowledge-based capabilities are recognized as among the most strategically important capabilities for creating a sustainable competitive advantage (Grant 1996; Marsh & Ranft, 1999; Nonaka, 1994; Simonin, 1999). Advocates of a knowledge-based approach to competitive advantage argue that the primary purpose of a firm is to create and apply knowledge (DeCarolis & Deeds, 1999).

Many tacit, non-transferable, complex knowledge assets (Winter, 1987, Teece 1987) have strategic value, yet if they are not measurable and tradable, then how can they be valued? But in spite of this normative emphasis on Knowledge and its management (Grant, 1996); (Gupta and Govindarajan, 2000), few studies and practically none in this part of the world have been done to establish empirical linkage between Knowledge and Business performance or how the knowledge advantage can be sustained and renewed (McEvily and Chakravarthy, 2002).

This paper tries to find out how the knowledge management (KM) practices of companies can be altered to meet the competitive challenges of the global economy through empirical evidences. The effort also directed to find whether the firm is trying to fully utilize its resources to create strategic capabilities in order to acquire and maintain competitive advantage.

This paper explores through primary data, how companies can practice knowledge management in order to get sustainable competitive advantage.

**Key Words :** Knowledge Management, Competitive Advantage, Strategic Capabilities, Business Performance

## **Introduction**

In the 1990's, the 'knowledge economy' and the 'information society' became the recognized cornerstones of the developed economies. This was reflected in a 1998 world development report stating: *"for countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most important factors determining the standard of living – more than, tools and labour"*. Consequently, knowledge has been heralded as the key nation and company asset but it is difficult to measure, reproduce, diffuse, develop and use efficiently.

One popular approach to understanding competitive dynamics is the resource-based view of the firm. According to this view, the explanation for why some firms ultimately succeed and others fail can be found in understanding their resources and capabilities that is a firm's competitive advantage is built on a set of strategically relevant resources (cf. [Barney, 1991], [Grant, 1991], [Peteraf, 1993]). A firm's resources and capabilities influence both the strategic choices that managers make and the implementation of those chosen strategies. (Priem & Butler, 2001; Barney, 2001).

Organizations have unique characteristics that impact the activities that lead to organizational effectiveness. One important activity is how they manage knowledge. Each stage in the firm's life cycle requires that they emphasize different knowledge managing activities.

In order to understand why managing knowledge effectively is an important source of competitive advantage, we briefly review the organizational knowledge literature and the

knowledge-based view of the firm. We define organizational knowledge as all the tacit and explicit knowledge that individuals possess about products, systems and processes. This includes explicit knowledge codified in manuals, databases and information systems as well as tacit knowledge that are shared collectively in the firm in the form of routines, culture and know-how (Nahapiet & Ghoshal, 1998; Grant, 1996; Nonaka & Takeuchi, 1995).

Firms might consider exploiting that knowledge by converting it into new products and services, which Kogut & Zander (1992) refer to as combinative capabilities. There are three key knowledge processes that are consistently referred to in the literature: knowledge creation; knowledge sharing; and knowledge exploitation.

Among various strategic resources and capabilities, a pivotal role is often assigned to knowledge – as both a resource in itself and an integrating factor that makes other resources and capabilities effective – especially in complex and dynamic environments. Moreover, a firm can be viewed as a mechanism for coordinating individual knowledge ([Grant, 1996a]; [Spender and Grant, 1996]; [Spender, 1996]).

In such a view, actual forms in which strategic capabilities materialize are nothing else than expressions of different knowledge levels [Grant, 1996b]. Capabilities can thus be represented by a hierarchy of knowledge, skills & abilities, ranging from the single-task capabilities required to perform a single functional task to cross-functional capabilities and requiring the complex integration of knowledge of different teams.

### **Knowledge Management as Sustainable Competitive Advantage:**

These days, companies recognise the worth of their intellectual capital and are beginning to account for it in their balance sheets. There is considerable evidence that the intangible component of the value of high technology and service companies far outweighs the tangible value of its physical assets, such as buildings or equipment.

The emergence of the global knowledge economy and the associated demands on business strategy have been well understood since the 1980's when the learning organization concepts became popular. Then, the message was that “the emergence of a knowledge based economy requires a new synthesis of training, education and other forms of communication and learning under the single umbrella of the learning enterprise” [I T Perelman 84]. The learning enterprise was also seen as an intelligent enterprise capable of managing efficiently knowledge based activities, which were shown to be the key to productivity and wealth generation in over 75% of all economic activity.<sup>3</sup>

If knowledge is the key firm resource capable of creating a sustainable competitive advantage, then it is important to examine how firms manage knowledge processes. Firms must be intentional in order to manage knowledge strategically.

Knowledge should be included in the top-level strategy as well as in middle and lower level objectives (Floyd & Wooldridge, 1999). Kogut & Zander (1992) suggest that the primary challenge of the firm is to create and transfer knowledge efficiently within the firm.

This paper tries to explore the sustainable competitive advantage created through knowledge management. It has been tried to find out how the organizations can practise Knowledge Management (KM) to get sustainable competitive advantage. It tries to find out whether the firm is fully utilizing its resources to create capabilities in order to acquire and maintain competitive advantage. It also tries to find out whether an organization organizes a mechanism for coordinating individual knowledge.

*I have tried to find out whether KM is an essential element for determination of organizational flexibilities in terms of reorganization and transformation. How is outside association helpful to*

<sup>3</sup> “Services restructure the economy” J B Quinn 92.

*the organization if it is? Does training hold significance in improving the methods of doing things so as to increase the productivity? Does reward to the employees increase their ability to acquire new techniques? Whether management intentionally tries to increase the coordination between the employees?*

Hypothesis: 1)

<u>Null Hypothesis</u>	Outside association is not helpful to the organization.
<u>Alternate Hypothesis</u>	Outside association is helpful to the organization.

Most of the responses are dichotomous i.e. Yes & No. After generating the cross-tabulations the data has been converted in to the following form.

The data obtained from the primary survey is analysed through the Chi-Square Test.

Response	Observed Frequency	Expected Frequency	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
NN	57	49.02	7.98	63.68	1.30
NY	0	7.98	-7.98	63.68	7.98
YN	29	36.98	-7.98	63.68	1.72
YY	14	6.02	7.98	63.68	10.58
Total calculated value of $\chi^2$					21.58

Degree of freedom is  $(n-1)*(c-1) = 1$ .

There are several ways in which an organization can gain the knowledge. One source is the tacit knowledge lying in the organization and the other source is outside associations of the firm. It could be any form be it mergers acquisitions, trade associations, etc. here the effort is done to measure whether it is actually helping the organization from the management's perspective.

We have taken 95% of confidence interval. The degree of freedom is 1, so the book value is much lower than the calculated value of  $\chi^2$  that is 21.58. So the null hypothesis is rejected and the alternate hypothesis is accepted.

This proved that an association is helpful to the organization in management's perspective.

Hypothesis: 2)

<u>Null Hypothesis</u>	Training is not helpful in improving the methods of doing things and hence increasing the productivity level
<u>Alternate Hypothesis</u>	Training is helpful in improving the methods of doing things and hence increasing the productivity level

Training-Change	Observed Frequency	Expected Frequency	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
NN	77	73.15	3.85	14.8225	0.20263
NY	0	3.85	-3.85	14.8225	3.85
YN	18	21.85	-3.85	14.8225	0.67838
YY	5	1.15	3.85	14.8225	12.8891
Total calculated value of $\chi^2$					17.6201

The calculated chi-square value is higher than the book value for 95% confidence level and degree of freedom 1.

This proves that the alternate hypothesis is true. Training is helpful in improving the methods of doing things and hence increasing the productivity level. Even the importance of the training is very high employees are not exposed to the training widely. In this case the knowledge lying cannot be transferred. And better ways cannot be learnt to improve the productivity and quality. This in turn reduces the organizations capability to enhance the level of competitiveness. There are only 5% organizations where training has bought some change out of 18% where training is given to the employees. 77% organizations do not give training to enhance the performance of the employees. It is possible that out of 77% organizations some organizations may not need it or they might be employing some other methods to improve the performance. So it is necessary to know what kind of intentional efforts are done at the organization level to improve the level of agility and adaptability of the employees.

Intentional Efforts Done	Percentage
No	83.0
Yes	17.0
Total	100.0

This table represents the number of organizations where intentional efforts are done. Only 17% of the organization intentionally tries to improve the level of agility and adaptability other organizations are not trying to improve the agility and adaptability of the employees. The ability, to sustain and adapt newer methods to increase productivity, reduces. This makes organization less competitive as it can not adopt more competitive methods of doing things.

Hypothesis: 3)

<u>Null Hypothesis</u>	Reward to the employees does not increase the ability to acquire and master new techniques.
<u>Alternate Hypothesis</u>	Reward to the employees increases the ability to acquire and master new techniques.

Training-Change	Observed Frequency	Expected Frequency	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
NN	58	25	33	1089.00	43.56
NY	42	75	-33	1089.00	14.52
Total calculated value of $\chi^2$					58.08

The calculated value of chi-square is 58.08, which is much higher than the book value at 95% confidence and with degree of freedom = 1. This proves the alternate hypothesis which states that reward to the employees increases the ability to acquire and master new techniques. Employees get motivated to learn new ways, new techniques of doing things.

This will increase the ability of the employee as well organizations ability to manage changes required to enhance competitiveness.

But the total number rewarded very few. It is needed to know the efforts done at the organizational level to increase the level of expertise. Below mentioned table indicates the percentages of the organizations effort.

Effort Done to Improve the level of Expertise	Percent
No	84.0
Yes	16.0
Total	100.0

The total percentage of organizations willing to improve the level of expertise is very less. The table given below indicated the organizations where intentional efforts are done to improve the level of expertise and the rewards given when ability increases.

	Responses	level of expertise		Total
		No	Yes	
Change	No	84	11	95
	Yes	0	5	5
Total		84	16	100

There are only 5% of the organizations intentionally trying to improve the level of expertise and gives reward to the employees when they successfully learn it. This is very less in number. All the organizations who are trying to incorporate the change, also rewards to increase the expertise. The organizations who do not practise so, might not need it due to less competition, routine work, etc.

Hypothesis: 4)

<u>Null Hypothesis</u>	Management's efforts directed to increase the coordination and integration, does not increase the level of coordination and integration between employee-employee and employee-management.
<u>Alternate Hypothesis</u>	Management's efforts directed to increase the coordination and integration, increases the level of coordination and integration between employee-employee and employee-management.

Efforts for coordination & Integration	Coordination level	Observed Frequency	Expected Frequency	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
No	Bad	21	15.64	-5.36	28.73	1.37
	Average	44	38.76	-5.24	27.46	0.62
	Good	2	8.16	6.16	37.95	18.97
	Very good	1	5.44	4.44	19.71	19.71
Yes	Bad	2	7.36	5.36	28.73	14.36
	Average	13	18.24	5.24	27.46	2.11
	Good	10	3.84	-6.16	37.95	3.79
	Very good	7	2.56	-4.44	19.71	2.82
Total calculated value of $\chi^2$						63.77

The calculated value of chi-square is 63.77, which is much higher than the book value at 95% confidence and with degree of freedom = 1. This proves the alternate hypothesis which states that Management's efforts directed to increase the coordination and integration, increases the level of coordination and integration between employee-employee and employee-management

This analysis shows that coordination and integration is good in the organizations which intentionally put in the efforts to do so. Organizations who do not practise it have less level of coordination and integration which may be harmful.

Intentional efforts done by the management to increase the level of coordination also focuses indirectly towards KM. If the coordination at various hierarchy level increases it affects the knowledge sharing which helps and organization to increase the adaptability and sustainability. The increased coordination and integration helps to increase the productivity as employees learn from each other and from different hierarchy levels.

Hypothesis: 5)

<u>Null Hypothesis</u>	Those who consider KM as an essential tool do not make provisions for reorganizing and transformation at all levels of the organization.
<u>Alternate Hypothesis</u>	Those who consider KM as an essential tool make provisions for reorganizing and transformation at all levels of the organization.

Training-Change	Observed Frequency	Expected Frequency	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 / f_e$
NN	77	68.73	8.27	68.39	1.00
NY	2	10.27	-8.27	68.39	6.66
YN	10	18.27	-8.27	68.39	3.74
YY	11	2.73	8.27	68.39	25.05
Total calculated value of $\chi^2$					36.45

The importance of KM is not widely accepted, and hence the basic principles of it are not followed. There are very less organizations that has accepted and implemented KM. The calculated value of chi-square is 36.45, which is much higher than the book value at 95% confidence and with degree of freedom = 1.

This proves the alternate hypothesis that those who consider KM as an essential tool make provisions for reorganizing and transformation at all levels of the organization. KM helps an organization to be competitive and for that an organization has to develop the capabilities which, matches with the rapid change in the market. For that organizations also need to change themselves very rapidly.

Organizations have to develop capabilities in term of people, infrastructure, intellectual capital, etc.

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