

# Analysis of Knowledge Capital Development Initiatives in IT Sector

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## Abstract

*Today, knowledge capital plays a pivotal and a powerful instrument in business organizations for building and developing competitive heights and advantage. Knowledge capital (KC) can create innovation, which can maximize the employees' performance. The objective of the research is to analyse the influence of Knowledge Capital Development Initiatives of IT executives in Bangalore and to identify the factors influencing Knowledge capital development initiatives. Respondents of this research study consisted of middle level executives from leading IT companies from Bangalore and 500 respondents were selected by using stratified random sampling method. It is found that there is a significant difference between the mean ranks towards the KC factors considered by employees of the IT companies. This research makes an attempt to study to what extent knowledge capital has a major influence on employees' performance. The prevailing policies, practices, initiatives and procedures are analyzed from the data collected from the respondents as the primary source of data.*

**Keywords:** Knowledge Capital, employee's performance, creativity, innovation, competitive advantage

## Introduction

Knowledge Capital (KC) is the capital which is an intangible value and asset of the organization. KC is made up of its knowledge, learning capital techniques, strategies, procedures and innovations (Will Kenton, 2019). Every organization needs to possess this KC for its successful growth and survival. It facilitates organization as well as employees to build the skills which facilitate competitive advantage in organization. It depends on the employees' skills, talents and their competency because it is the integral part of the HC. The employees experience, skills, knowledge, learning system and education are the key contributing factors which make the organization competitive to its rivals. It deals with development initiatives process such as education, skills, training, creativity,

sharing information and communication.

Understanding the knowledge capital is the intangible portion of a business values, which is also known as the intellectual capital. It is vital to company's success. It is the full body of knowledge an organization possess. Employees with skills are able to access knowledge capital and the same puts the firm in competitive advantage to its best advantage and for the competition in the global market (Will Kenton, 2019). Knowledge capital has become a major factor in a firm's success. Depending on the owner knowledge capital can be divided into individual and organizational capital (Jorma lehtimaki, Jonne lehtimaki, 2016). The field of knowledge capital is exciting and alluring concept both for practitioners and in the Academic world (Nonaka and Peltokorpi, 2006).

## Statement of the problem

Today, Knowledge capital development initiatives have become key factors in determining the

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employees' performances in the business organization. It plays a key role on total performance of any business organization. Business organizations having realized this fact started focusing on these development initiatives at the corporate level. Therefore it is realized and said that the organizations have started instituting the concept of Knowledge capital and its development initiatives as an important process for organizational performance.

Knowledge capital means everything in the business organizations. It shapes business and work place initiatives process and practices. There is always a speculation whether the concept has been conceived and understood in the right perspectives in IT (Information Technologies), which remains a big question mark.

### **Significance of the study**

No business organization can be effective and efficient for long if the basic fact of recognition and the value of knowledge capital remains unrecognized by industries. Knowledge capital is not attributed to machines and technical systems and process. It is all about people, their talents, skills and knowledge and the combined competencies. It is a combination of humanity and people. The business industries are completely involved with talented people. They involve the human skills, energy, capacities, talents, abilities and competencies. Therefore knowledge capital has become the most crucial job, because managing people and their talents are the hub and essence of any business organization.

### **Scope of the study**

The scope of the study is the valid estimation of current level of knowledge capital practices and its development initiatives in IT industry in Bangalore with reference to all the variables of knowledge capital and its impact on employees' performances

at the middle stage executives' level. The scope of the research study intends to provide appropriate solutions to bring in and to develop the knowledge capital practices and the development initiatives on performance. In view of these facts, the present research study is very significant and the result would create significant value to the knowledge capital in IT Industry.

Authors have made an attempt to relate knowledge capital with the performance of the employees in IT companies. The result of the research study would help the IT companies in enhancing the employees' performance of the IT executives and in improving the knowledge capital and its development initiatives process and application, for the ultimate purpose of achieving better organizational performance.

**The structure of the research study** deals with Introduction, statement of the problem, significance of the study and scope of the study. The literature review is carried out with recent reviews up to 2020. The research methodology is presented with research questions, sample framework, Sample size and population for the study and with sample design. Analysis of Knowledge Capital Development Initiatives in IT sector was tested with FRIEDMAN TEST statistical tool for the objective 1 and 3. Correlation coefficients are used in statistics to measure how strong a relationship is between two variables for the objective.

### **Literature Review:**

#### **Knowledge Capital based resources**

Researchers wrote and identified knowledge capital as the most significant way of realizing the concept of knowledge capital.

Braunerhjelm (1997) defines the knowledge stock derived from investments in research and development, marketing, software and education. It is modeled as an additional production factor. The

role of KC in form and employees performance is discovered in this research. It is a key to economic prosperity. The study has examined and measured the 'capital intensity' and 'knowledge energy intensity'. The study further has conceptualized the KC and incorporated it into a simple model.

Stresemann (1999) in his book emphasizes the information productivity. The author is under the strong opinion that knowledge capital increases the performance of employees. Knowledge is necessary for employees to make better use and it justifies the higher performance. Productivity and performance come from knowledge capital.

Hans and Almas, (2000) in their series of research papers attempt firm level innovation studies. KC is defined as innovation. It is the significant factor contributing for the performance. The control for human capital, has a major impact on knowledge capital. Knowledge capital is doubled with innovations because always knowledge capital increases with innovations. It increases productivity per employee.

Davenport and Thomas (2005) state that within organizations, knowledge workers are closely aligned with the organization's growth. The knowledge workers come up with new strategies and create new strategies. Without KW the firm cannot function and perform.

Rifat and Shannak (2009) in their theoretical paper make an attempt to identify performance indicators. The important works are related to direct KM performance with proper KM strategy.

Pasher and Ronen (2011) in their book explain that measuring the performance and managing the performance are very essential at workplace. Authors provide with the appropriate measurement system required for effective KM. The intangible assets of the IC motivate the employees to perform their job.

Wang et al. (2012) have studied, examined and verified that how the corporate initiates implementation of KM. There are a number inferences from this study indicate that 1) KM influence on marketing performance; 2) Brand equity has a positive and significant influence on marketing performance.

Zargar and Rezaee (2013) in their research study examine the KM and how it enhances employees' performance. It is to encourage innovation and to maximize desirable performance. KM is applying it to improve employee performance. The more the employees are familiar with KM components, the more it enhances their performance. KM application is an integral component of organizations. KM application is to increase organization's productivity.

Huang and Yuan (2015) in their research paper verifies and understand how the implementation of KM programs affects organizational performance. The implementation of KM has a positive and significant influence on organizational performance. The implementation of KM has a positive and significant influence on IC. IC has a positive and significant influence on organizational performance. The three findings indicate that IC has a partially mediating effect.

Tendon and Muller (2015) in their book state that Knowledge work vary with each profession, depending on the industry- from software developers to engineers, architects to pharmaceutical researchers and so forth. KW are usually responsible for exploring and creating ideas, new products, new designs or perhaps new models for doing business to help their organization to achieve or maintain a competitive advantage. Knowledge work can build a hyper-productive knowledge work organization. Tendon examines, and constructs the conceptual foundations of a hyper productive organization and star performers.

Rajamohan and Lucas (2015) emphasize the importance of HCD on the knowledge based economy – Employability at present in Indian scenario in Indian industries are growing. The knowledge based economy is the main force for this. The development of HCD has a direct connectivity. This article explores the possibilities of employability skills and the contribution of HCD, The HCD skills like life skills, ability to solve problems, articulating well and so on can really help the employability. Employability is the ability to perform the job. It is a set of tasks related to those jobs, at an acceptable level of performance set by an employer. There are lots of skills HC which are required for gaining the knowledge for employability. This article is stated to find out the different HC skills required for the employability in today's modern workplace. Business is in the era of knowledge based economy.

Research of Lehtimäki and Lehtimäki (2016) in case studies method in firms in Finland investigate and examine that KC has become a major factor in a firm's success. Measuring KC is challenging as it is often necessary to study private information from within a firm. This case study approaches KC from a different perspective by studying public information in order to measure the financial value added by KC observed from a firm's financial statement. This information was used to explain the financial performance of a firm. Results of the study indicate statistically significant effects between the change in individual capital and economic performance as well as between organizational capital and economic performance.

The book of Laperche (2017) advocates a greater socialization of the production of KC that stands in contradiction to the strong appropriation strategies that are predominant today. This book presents a historical analysis of the facts with a strong basis in the recent literature in economics and

innovation management as well as in case studies of 40 companies that have been conducted over the course of the past few years.

Wang, et al. (2018) in their research study analyze the influence of IC on employee's performance, considering the mediating role of innovation speed and quality, influence of human capital and structural capital on financial performance. The effect of relational capital on financial performance is partially mediated. Innovation quality partially influence the effect of IC on operational performance. The three components of Intellectual Capital, namely Human Capital, structural capital and relational capital, are positively related to innovation. This is the first of its kind to investigate how IC may influence firm performance. This study contributes to HRM literature on IC and innovation, but also offers managers with insights on how to align their HRM strategies and initiative practices to develop IC when pursuing innovation and performance outcomes.

Abualoush, et al. (2018) in the research paper consider the role of KM process and IC as intermediary between variables IC in KM infrastructure and organization performance. Authors assess the interrelationship among KM infrastructure, KM process, IC and organization performance. Business Organizations need to optimize their performance by exploiting KM capability and accumulation Intellectual capital. The new competitiveness is shifting from tangible to intangible resources. Positivist philosophy and deductive approach to accomplish the main goal of this research.

Atkočiūnienė and Praspaliauskytė (2018) in their paper discuss intangible organizational resources that generate long-term value for organizations. Intellectual Capital and Knowledge capital address the issues of abilities of employees. It is mainly to

create and accumulate knowledge. The knowledge must be shared and be applied in everyday activities, of the business organization. KC develops new, sustainable and long-term relationships with various stakeholders. During the last decade, there has been a shift in research toward linking these two previously separate fields of activity in order to demonstrate their interrelations and influence on organizational performance. However, this is problematic due to difficulties of expressing the value of IC and KM in a tangible form. The research article analyzes and defines the influence of IC and KM on organizational/employees performance.

Paoloni, et al. (2020), in their article, analyze the knowledge management stream and its relations between knowledge management and intellectual capital and link with entrepreneurship. The knowledge and informations are strategic for today's company life. This paper motivates to understand how intellectual capital can represent the knowledge for the application of innovations through knowledge management and practices.

## Methodology:

### Objectives:

1. To analyse the impact of Knowledge Capital Development Initiatives of IT sector.
2. To identify the factors influencing KCDI
3. To find out which KC variables are most preferred by employees.
4. To offer suggestions based on the findings of the study.

### The following research questions arises from the study:

1. What are the different practices and initiatives of knowledge capital in IT companies?
2. How far the organization is familiar with the concepts of Knowledge capital at workplace?

3. How to identify the factors influencing Knowledge capital development initiatives?
4. Which are the knowledge capital initiatives mostly preferred by the employees?

**Table 1: Reliability of the interview schedule**

Knowledge Capital Development Initiatives – Pre-test and reliability test		Initial	Extraction
1	Highly educated employees are working here.	1.000	.770
2	Knowledge sharing among employees is common.	1.000	.805
3	Documentation of Knowledge is well stored.	1.000	.822
4	Continuous learning is part of the organizational culture.	1.000	.816
5	Knowledge capital creates innovation process in the organization.	1.000	.835
6	KC creates conditions for competitiveness for employee's performance.	1.000	.871
7	KC provides the foundations for new Knowledge.	1.000	.824
8	KC helps for the success of the organization.	1.000	.833
9	The firm encourages knowledge creation, sharing and use.	1.000	.830
10	KC empowers employees to explore new possibilities.	1.000	.835
11	Exchange and sharing of knowledge is firm's strength.	1.000	.788
12	The firm encourages generating new ideas and Knowledge.	1.000	.827
13	The firm takes utmost care in classification and storage of Knowledge.	1.000	.885
14	The firm motivates employees to use new Knowledge.	1.000	.884
15	The firm visibly rewarding employees who share their knowledge.	1.000	.906
16	The firm provides employees with time for knowledge management related activities.	1.000	.900

## Sample framework

### Sample size and population for the study:

The study is limited to five leading IT companies in Bangalore from the records made available to the researcher by the HRD Department of the five selected organizations, after repeated visits, the staff strength (population) of employees in these organizations is as follows:

There are 200 IT companies in Bangalore as per the statistical data collected from the entire Bangalore city, the silicon valley of India. Among them the most leading IT companies are Infosys, Wipro, TCS, IBM and KPMG. The researcher has found that the HC concepts and its applications are practiced in these firms. So these five companies are selected for this study.

### Data collection

The study is based on both the primary and secondary data. The research scholar collected data from the respondents through a questionnaire of likert scale measurement scale and administered to 500 IT middle level executives working in five different IT Companies.

### R software calculation

$$N = Z^2 * Sd^2 / E^2$$

Z = Z value based on Z distribution at 5% level is 1.96

Sd = 1.14 which is obtained from the pilot study

E = margin of error, which is fixed as 10% or .10

This computation obtained the sample size of 500

### Sample design

500 IT executives working in five standard MNC IT companies were selected, comprising different department activities such as software development department, energy department, Techno Giants

department, Quality assurance department and insurance/ service department by using stratified random sampling method. Moreover, stratified random sampling was adopted to collect data from the executives of the IT companies.

**Table 2: Knowledge Capital Factors - Reliability Analysis**

Particular	Mean	SD	Cronbach's $\alpha$	McDonald's $\omega$
Scale	3.97	0.83	0.98	0.98

The above Table-2 shows that reliability of KC variables which indicates different measures such as Cronbach's alpha is 0.98 and McDonald's omega value is also 0.98, value of standard deviation is (SD) 0.83 therefore it indicates a high level of internal consistency of items of knowledge capital. Reliability Analysis is used to find out the level of internal consistency of items.

### Analysis of Knowledge Capital Development Initiatives in IT sector - FRIEDMAN TEST

KC plays the pivotal role in the organization. It is said to be the vibrant part of the organization for its growth and success. It brings major advantage to the organization throughout its existence. In order to assess the preferences and the priorities of the employees of IT sector about KC, the Friedman test has been applied. It is a nonparametric test. The result of the Friedman test reveals the mean ranking of the each variables of the KC. Based on the several mean ranking, it is to find out which are the KC variables that are in the most preferred and top position of these 15 variables, considered by the employees. The ranks are assigned based on the total scores by using SPSS packages.

The null hypothesis: H01: there is no significant difference among the responses of the respondents about the factors of KC practiced in the firm.

**Table 3: KC Initiatives in IT sector - Friedman Test**

Sl. No	Particulars	Mean Rank	Chi-Square	P Value
1	Highly educated employees are working here.	8.68	55.607	.000**
2	Knowledge sharing among employees is common.	8.27		
3	Documentation of Knowledge is well stored.	8.02		
4	Continuous learning is part of the organizational culture.	7.82		
5	Knowledge capital creates innovation process in the organization.	7.95		
6	KC provides foundations for new Knowledge.	7.79		
7	KC helps the success of the organization.	8.04		
8	The firm encourages knowledge creation, sharing and use.	8.27		
9	KC empowers employees to explore new possibilities.	8.01		
10	Exchange and sharing of knowledge is firm's strength.	8.02		
11	The firm encourages generating new ideas and Knowledge.	8.05		
12	The firm takes utmost care in classification and storage of Knowledge.	7.72		
13	The firm motivates employees to use new Knowledge.	7.95		
14	The firm visibly rewards employees who share their knowledge.	7.46		

15	The firm provides employees with time for knowledge management related activities.	7.94		
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Note: \*\* denotes that the significant @ 1 percent level

Source: Primary Data

The Table-3 shows that P Value of .000 is less than the ideal P value of 0.05 and the null hypothesis is rejected at five percent level of significance. Hence it is concluded that there is a significant difference between the mean ranks towards the KC factors considered by employees of the IT companies. Based on the mean rank, it is found that respondents have expressed that there are highly educated employees who are working in the firm followed by the knowledge sharing among the employees are common and the firm encourages the knowledge creation, and thirdly sharing and using the knowledge at the firm are considered as the most important KC development initiatives.

**Table: 4 Correlation Matrix**

	kc1	kc2	kc3	kc4	kc5	kc7	kc8	kc9	kc10	kc11	kc12	kc13	kc14	kc15	kc16
kc1	—														
kc2	0.76	—													
kc3	0.76	0.77	—												
kc4	0.66	0.72	0.76	—											
kc5	0.69	0.70	0.76	0.79	—										
kc7	0.69	0.72	0.79	0.76	0.77	—									
kc8	0.66	0.73	0.74	0.73	0.74	0.77	—								
kc9	0.73	0.74	0.75	0.69	0.76	0.79	0.79	—							
kc10	0.72	0.77	0.76	0.75	0.70	0.75	0.79	0.78	—						
kc11	0.68	0.77	0.80	0.75	0.77	0.78	0.75	0.76	0.78	—					
kc12	0.69	0.75	0.77	0.74	0.71	0.71	0.75	0.75	0.80	0.77	—				
kc13	0.71	0.74	0.80	0.78	0.83	0.72	0.72	0.76	0.73	0.79	0.80	—			
kc14	0.66	0.68	0.78	0.83	0.79	0.72	0.75	0.71	0.76	0.77	0.81	0.81	—		
kc15	0.71	0.72	0.80	0.77	0.78	0.78	0.70	0.74	0.71	0.80	0.73	0.80	0.77	—	
kc16	0.67	0.73	0.76	0.76	0.75	0.71	0.72	0.72	0.75	0.73	0.81	0.78	0.83	0.79	—

The table-4 shows the correlations analysis of knowledge capital; all the items are positively strongly correlated. The table shows the correlations analysis of knowledge capital and all the value of all items is more than 0.7. It indicates that all variables of the knowledge capital are positively and strongly correlated. Correlation coefficients are used in statistics to measure how strong a relationship is between two variables.

**Table 5: Descriptive factors of Knowledge capital that is from kc 1 to kc 16 which are mentioned below in the correlation matrix table are as follows:**

kc1 - Highly educated employees are working here
kc2 - Knowledge sharing among employees is common.
kc3 - Documentation of Knowledge is well stored.
kc4 - Continuous learning is part of the organizational culture.
kc5 - Knowledge capital creates innovation process in the organization.
kc7 - KC provides the foundations for new Knowledge.
kc8 - KC helps the success of the organization.

kc9 - The firm encourages knowledge creation, sharing and use.
kc10 - KC empowers employees to explore new possibilities
kc11 - Exchange and sharing of knowledge is firm's strength.
kc12 - The firm encourages generating new ideas and Knowledge.
kc13 - The firm takes utmost care in classification and storage of Knowledge
kc14 - The firm motivates employees to use new Knowledge.
kc15 - The firm visibly rewarding employees who share their knowledge.
kc16 - The firm provides employees with time for knowledge management related activities

## Discussion of Findings:

The result of Friedman test is that the P Value .000 is less than the ideal P value of 0.05 and the null hypothesis is rejected at five percent level of significance. Hence it is concluded that there is a significant difference between the mean ranks towards the KC factors considered by employees of the IT companies. The idea of the software



companies taking utmost care in classification and storage of knowledge has to be a continuous process, especially in the knowledge economy. It is observed and noted from the correlation matrix analysis of KC all the items are positively strongly correlated. The correlations analysis of knowledge capital and all the value of all items are more than 0.7. It is found through correlation matrix that there exists highest relationship in the following items:

- kc14, the firm motivates employees to use new Knowledge and (kc4) Continuous learning is part of the organizational culture (0.83)
- kc13, the firm takes utmost care in classification and storage of Knowledge and (kc5) Knowledge capital creates innovation process in the organization. (0.83)
- kc16 The firm provides employees with time for knowledge management related activities. And (kc14) the firm motivates employees to use new Knowledge (0.83)
- (kc14) the firm motivates employees to use new Knowledge and (kc12) the firm encourages generating new ideas and Knowledge (0.81).
- (kc16) the firm provides employees with time for knowledge management related activities and (kc 12) the firm encourages generating new ideas and Knowledge (0.81).
- (kc14) the firm motivates employees to use new Knowledge and (kc13) the firm takes utmost care in classification and storage of Knowledge (0.81).
- (kc11) Exchange and sharing of knowledge is firm's strength. And kc3 Documentation of Knowledge is well stored (0.80)
- (kc13) the firm takes utmost care in classification and storage of Knowledge and (kc3) Documentation of Knowledge is well stored (0.80)
- (kc15) the firm visibly rewarding employees who share their knowledge and (kc3) Documentation of Knowledge is well stored (0.80).

The findings are from correlation matrix are showing accurate results. All the criteria of statistical process and analysis are fulfilled. The idea and the philosophy of highly educated employees in the firm need to undergo a total change. Having a highly educated employees for the firm is always good. But the present status need to be improved for the long term benefit of the organization. The firms can always get the benefits from the highly educated employees. Many companies fail to see the value of investing in executive education. The firm is required to provide them the professional development opportunities for the executives. Because employees education boosts the skills of employees, translating to better work quality, performance and profitability.

The idea of the firm taking utmost care in classification and storage of knowledge have to be a continuous process, especially in the knowledge economy. The firm may face lots of challenges in this connection. It helps the organization growing towards required knowledge and wisdom. Proper handling of the classification storage of knowledge, for example, marking, labelling and storing. The propriety information is a very valuable company asset because it is "Top Secret" or "Confidential". Therefore it is recommended that the firm takes the complete protection and proper care to safeguard the classification and storing of knowledge.

The firm visibly rewarding employees who share their knowledge is not up to the mark and it is not sufficient enough. Encouraging knowledge sharing among employees is the most and the rewarding the employees is acknowledging factor. It is a sense of respect and recognition. Therefore it is desirable and so important that the firm shows more interest

to reward the employees who share their knowledge by public acknowledgement, privately thanking the employees, creating a visible leaderboard.

Learning has to be a continuous process and it is a part of the organizational culture. In this process the immediate effect may not be expected. But the spirit of the continuous learning process can always penetrate into the minds of employees through their performance in the course of time. Therefore it is suggested that the firms continue to practice by face to face coaching and training, online based and mentoring programs.

### Conclusion:

KC is the part of HC development initiatives. It is the process of knowledge sharing among the employees in the organization in order to achieve the expected performance. The term KC is increasingly becoming popular in many business organizations these days. KC initiatives are analyzed and interpreted and it has revealed that there is a positive and strong co-relationship between all items. Positive associations and relations between knowledge capital initiative factors taken by the IT firms have revealed the meaningful relations and impacts on the employees' performance in this research. The knowledge capital factors such as education, knowledge sharing, knowledge storage, continuous lifelong learnings, innovation, competitiveness, knowledge creation, sharing and using, skills, creativity and communication have powerful impact and dependency and correlating with 16 factors of variables. In this analysis, knowledge capital development initiatives have been found to be positively linked with the strong support of data that were revealed through the respondents. In recent year, the competition between the IT firms are gradually increasing and it is considered to attract the educated employees. It is to develop the practice and apply their knowledge for creating

sustainable competitive advantage. The knowledge capital based advantage shapes the organization to compete with external competitive forces. Today, in the business organization the knowledge oriented employees are the main key challenges which the organization and the employees are ready to encounter the challenges and current issues with regard to knowledge capital. KC always creates the economic value creation. The knowledge of knowledge workers are great in demand because they create values in organization.

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## Appendix – Questionnaire

### Knowledge Capital Development initiatives: Education, Skills, Training and Creativity, Sharing information, Communication

S. No	Measurable Factors	5 SA	4 A	3 M	2 D	1 SDA
1	Highly educated employees are working here.					
2	Knowledge sharing among employees is common.					
3	Documentation of Knowledge is well stored.					
4	Continuous learning is part of the organizational culture.					
5	Knowledge capital creates innovation process in the organization.					
6	KC provides the foundations for new Knowledge.					
7	KC helps the success of the organization.					
8	The firm encourages knowledge creation, sharing and use.					
9	KC empowers employees to explore new possibilities.					
10	Exchange and sharing of knowledge is firm's strength.					
11.	The firm encourages generating new ideas and Knowledge.					
12.	The firm takes utmost care in classification and storage of Knowledge.					
13.	The firm motivates employees to use new Knowledge.					
14.	The firm visibly rewarding employees who share their knowledge.					
15.	The firm provides employees with time for knowledge management related activities.					