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## **PROMINENCE OF KNOWLEDGE MANAGEMENT IN INDIAN BIOTECHNOLOGY TRADE**

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### **Abstract**

*Biotechnology is a field which is utterly dependent on knowledge creation and management of novel innovations which are an outcome of contemporary knowledge. Knowledge management is a prime factor which determines the success or failure of a biotechnology company competing in the global competition. A biotechnology company which manages knowledge judiciously will gain commercial value out of the product developed. India is considered to be a hub of Biotechnology industry. With enumerable Biotechnology companies growing in India, knowledge management in this domain has become a matter of utmost prominence. The present work reports the status and prominence of knowledge management in Indian Biotechnology industry. The researcher used the survey method through questionnaire to collect the responses of Biotechnology employees about the present scenario of knowledge management in Indian Biotechnology trade. The study revealed some very interesting facts about knowledge*

*management in Indian Biotechnology sector. The status of knowledge management was totally dependent on the experience of the companies in the market. The middle level management of these companies were well aware of the pros of knowledge management but were negligent towards the proper implementation of knowledge management in Biotechnology companies. 30.7% of the employees opined that their company is recognizing their knowledge but not under the name of knowledge management. 25.5% of the surveyed respondents were of the opinion that it's every individual's responsibility to manage the knowledge. The employees were also of the opinion that they could acquire the required skills from their colleagues. The study provides an overview and insight about the present scenario of knowledge management in Indian Biotechnology sector. An effective knowledge management model for Indian Biotechnology trade can be thought of as a future research scope.*

### **Keywords**

Knowledge Management, Prominence, India, Biotechnology Trade

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## **1. Introduction**

Man explored the moon which stood as an unforgettable landmark in the history of mankind. The scientific endeavor marked on July 20, 1969, reminds us of the day when man walked on the moon for the first time and stood as the most notable thing in mankind history. To take the extra mile, reach the moon and to explore the moon was a successful scientific programme which would not have been possible without proper planning and knowledge. Knowledge forms the core essence of every scientific endeavor. It is quite surprising to note how people in those days managed extraordinary quantities of knowledge that helped them accomplish the task successfully. Today, we have many technologies that have come into existence in the landscape of our lives, from cordless tools to cellular phones. Managing large amounts of knowledge in the present scenario determines the success or failure of an organization. Knowledge has been and will be the most important tool for scientific discoveries and managing such knowledge is utmost prominent.

In the global competition, a large number of business firms have emerged enormously and compete with one another to stand at the top of the success ladder. There is a constant pressure for these firms to sustain in the competition and serve their customers better. To do so, the business firms keep a constant watch on the market, cut down their cycle times, use minimal

optimal fixed assets, reduce commodity expansion time, improve consumer assistance, legitimize employees, create and send immense quality goods, create knowledge, capture information and share knowledge. Under increasing competitive pressure, several firms have been examining the different ways of managing their intellectual capital. As the pace of world competition quickens, executives notice that their fringe lies in efficiently transferring knowledge across the firm. The rising field of knowledge management addresses the extension action of discovering, organizing, transferring and efficiently using information and expertise within a company. Current market forces and infrastructure changes have elicited an interest in knowledge management.

Knowledge is the theoretical understanding by practical implementation of a subject matter (Anukar Juhari, A.S., 2010). Knowledge acquisition involves complicated psychological feature processes: consciousness, communication, association and reasoning. Knowledge is a core essence of any organization and the knowledge assets help the organization in paving a simpler path for reaching the organizational goals and objectives. Knowledge has become a crown jewel of every business firm and organization. Managing the knowledge assets available in an organization is the major challenge the business firms are facing today. This has diode to the evolution of a brand new branch of management referred to as knowledge management. KM (Irma, F.A. 2015) is a core concept which helps in managing cognitive data. It involves knowledge creation, knowledge sharing, knowledge adoption and knowledge retention practices. Various business industries are adopting the knowledge management practices to stand foremost in the world wide competition (Davenport, S.J, 1996). It is clearly shown that the twenty first century belongs to Biotechnology. It applies new knowledge for the creation of useful products like medicines, vaccines, etc. for human welfare. Biotechnology is gaining increasing ground in India. The frontier technology is finding applications within the field of healthcare, agriculture, horticulture, biopharmaceuticals, environmental protection, food industry etc. Knowledge Management (Pooja Singh, 2017) may be applied to individuals but currently it is being applied to organizations.

Knowledge management is a hot topic today industry and research world. Knowledge management initiatives will help the companies run efficiently (A. Arun Kumar, V. Shekhar 2017). Knowledge is a framed experience and fluid mix. In organizations daily routine process and will go with knowledge (Davenport and Prusak, 1998). According to krik klasson, knowledge management is the ability to generate and retain a customer from competition. Now

a day's businesses tremendously change from asset centric environment to knowledge centric environment. Their conventional value is also increasing falliably (Amrit Tiwana 1999). Knowledge is readymade source for some developed and developing companies for competitive advantage. In day to day transaction employees face problems due to their lack of knowledge. In this context rich knowledge sharing is important (A. Arun Kumar 2017). Knowledge management (Minah Japang, Caroline, Rostinah and Ainnecia yoga, 2016) can make the difference when it enables the knowledge management applications. Lee (2001) explained importance of trust and knowledge sharing. Active knowledge management systems permit individuals to learn from past decisions both sensible and unhealthy and use for future endeavours too.

Effective knowledge sharing is a crucial issue from performance point of view in the organizations (Peter Sarka, Christine Ipsen, 2017). Pandey and Dutta 2013, explored relationship between knowledge management outcomes and knowledge management infrastructure.

To understand the prominence of knowledge management in Biotechnology industry in India and to evaluate the present scenario of KM, the present study has been taken up.

## **2. Methodology**

### **2.1 Data Collection**

We tested the prominence of biotechnology practices in Indian biotechnology sector through questionnaire method where the responses of the employees of the biotechnology companies located in metro cities in India were collected. Metro cities are major locations of biotechnology companies in India. Hence, metro cities were selected for the study. We identified 10 major companies located in India for this study. Our questionnaire was aimed at prominence of Knowledge Management in Indian biotechnology trade. We required the respondents to have insight into knowledge management status, policies and procedures of KM, attitude of middle level management towards KM and organization culture. We have distributed questionnaires, explained the purpose of the survey and assured the confidentiality of the recipients. After one day, we collected the filled questionnaires from the employees of biotechnology trade. We have distributed 600 questionnaires and received 521 usable returns. In order to conduct reliability test, we finalized 467 usable questionnaires. We have received 108 (77.14%) from Hyderabad,

102 (72.85%) from Bengaluru, 74(74%) from New Delhi, 54(90 %) from Chennai, 86(86%) from Mumbai and 43(71.6%) from Kolkata.

## **2.2 Objectives of the Study**

1. To understand the prominence of knowledge management in Biotechnology industry in India
2. To evaluate the implementation of KM in Biotechnology companies in India

**Table 1: Sample and Response Rate**

<b>City</b>	<b>Samples</b>	<b>Usable Returns</b>	<b>Response Rate</b>
Hyderabad	140	108	77.14 %
Bengaluru	140	102	72.85%
Mumbai	100	86	86.0%
Chennai	60	54	90.0 %
New Delhi	100	74	74.0%
Kolkata	60	43	71.66%

We incorporated one dimension into our empirical analysis. Scope of the current study is limited to biotechnology trade in India only. All the data collected for this study is entered into SPSS 23 and all the analyses were run using the same software. IBM SPSS is considered as one of the best statistical software in social science research. The researcher also used MS-Excel 2007 to edit the tables derived from SPSS output. Excel is also used to draw charts.

**Table 2: Scale Construction**

<b>Questionnaire</b>	<b>Items</b>	<b>Alpha</b>
Prominence of Knowledge Management	(7 items)	0.87

1. What do you know about Knowledge Management?
2. What is current status of Knowledge Management in your organization?
3. What do you think of existing policies and procedure of KM in your organization?
4. What is the attitude of the middle level management towards KM in your organization?
5. What is the effective method of Knowledge Management?
6. How to accelerate and improve the transfer of knowledge to new workers?
7. How did you acquire most of the skills that you use in your job?

## **3. Data Analysis**

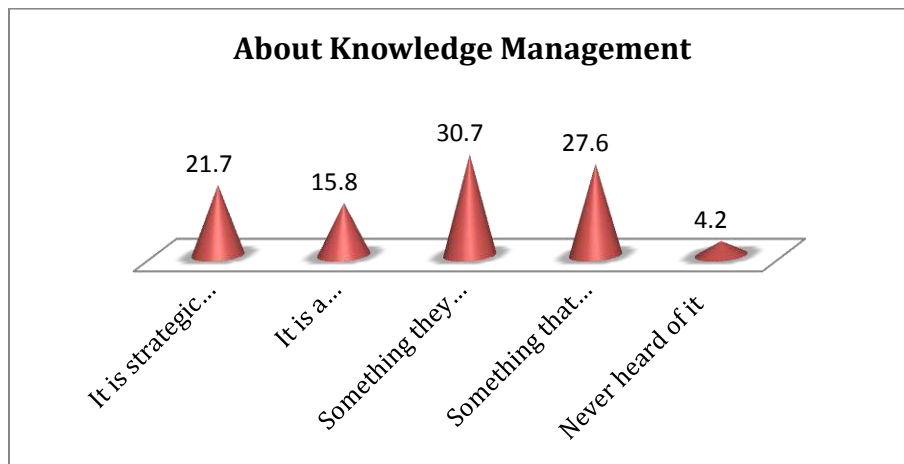
Firstly, we took simple percentage method for analysis.

### 3.1 Distribution of Respondents about Knowledge Management

The information related to respondent’s opinion about knowledge management has been equipped in the ensuing Table 3. The opinion about knowledge management was collected regarding the following attributes: 1) It is a strategic tool used in business 2) It is a management fad 3) Something they are already doing but not under same name 4) Something that could be beneficial for the organization 5) Never heard of it.

**Table 3:** *Distribution of Respondent about Knowledge Management*

Attributes	Count	Percentage
It is strategic tool used in business	99	21.7
It is a management fad	74	15.8
Something they are already doing but not under same name	142	30.7
Something that could be beneficial for the Organization	129	27.6
Never heard of it	23	4.2
Total	467	100.0



**Figure 1:** *Distribution of Respondent about Knowledge Management*

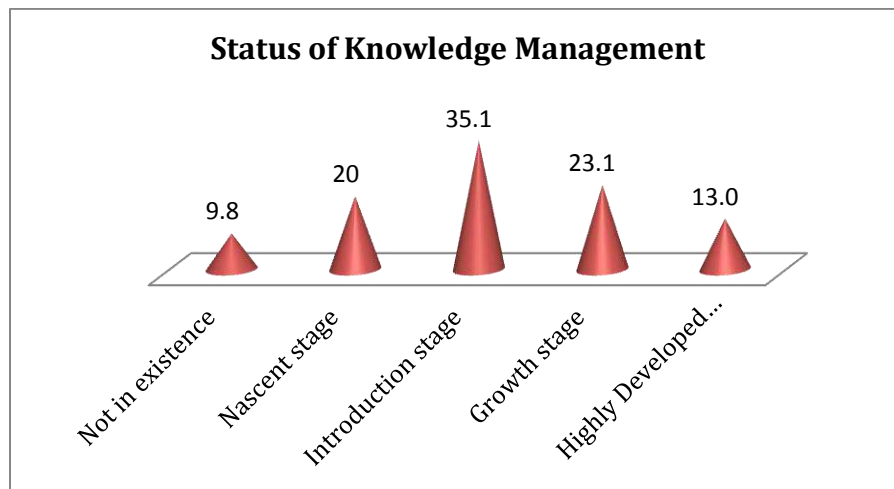
Table 3 & Figure 1 illustrates that 21.7 % of the employees are of an opinion that knowledge management is a strategic tool used in business. 15.8 % opined that knowledge management is a management fad, 30.7 % opined that something they are already doing but not under the same name. 27.6% opined something that could be beneficial for the organization and 4.2% said they never heard of knowledge management.

### 3.2 Opinion of Respondents about Status of Knowledge Management

The opinion of respondents on status of knowledge management is presented in Table 4 was collected in terms of the following opinions : 1) Not in existence 2) Nascent stage 3) Introduction stage 4) Growth stage 5) Highly developed stage.

**Table 4:** *Distribution of Status of Knowledge Management*

Attributes	Count	Percentage
Not in existence	36	9.8
Nascent stage	94	20.0
Introduction stage	164	35.1
Growth stage	108	23.1
Highly Developed Stage	65	13.0
Total	467	100.0



**Figure 2:** *Distribution of Status of Knowledge Management*

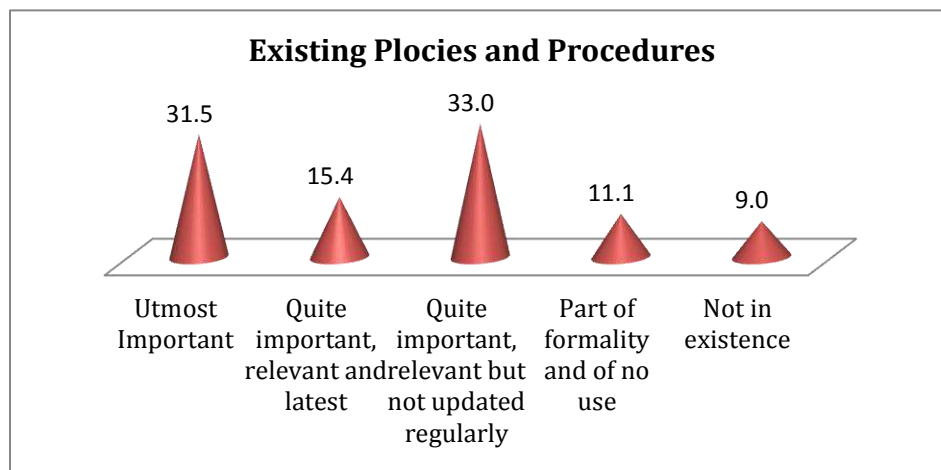
The above table 4 & figure 2 shows 35.1% of biotechnology employees opined that status of knowledge management is in the introduction stage and 13% opined that knowledge management is in a highly developed stage, 23.1 % opined that it is in growth stage. 20.1 % of employees say knowledge management is in nascent stage & 9.8 % opined not in existence stage.

### 3.3 Ideology of Respondents on Knowledge Management Status of Existing Policies and Procedures

The data associated with respondents on knowledge management existing policies and procedures is presented in the following Table 5. The opinion on KM existing policies and procedures were collected in terms of the following factors: 1) Utmost Important 2) Quite important, relevant and latest 3) Quite important, relevant but not updated regularly 4) Part of formality and of no use 5) Not in existence.

**Table 5:** *Distribution of Existing policies and procedures of Knowledge Management*

Attributes	Count	Percentage
Utmost Important	147	31.5
Quite important, relevant and latest	72	15.4
Quite important, relevant but not updated regularly	160	33.0
Part of formality and of no use	52	11.1
Not in existence	36	9.0
Total	467	100.0



**Figure 3:** *Distribution of Existing policies and procedures of Knowledge Management*

Among 467 respondents, 33 % opined that existing policies and procedures of knowledge management are quite important, relevant but not updated regularly. 31.5 % opined that existing policies and procedures are utmost important, 15.4 % opined that they are quite important, relevant and latest. 11.1% opined that they are a part of formality and of no use and 9.0 % opined that knowledge management policies and procedures are not in existence.

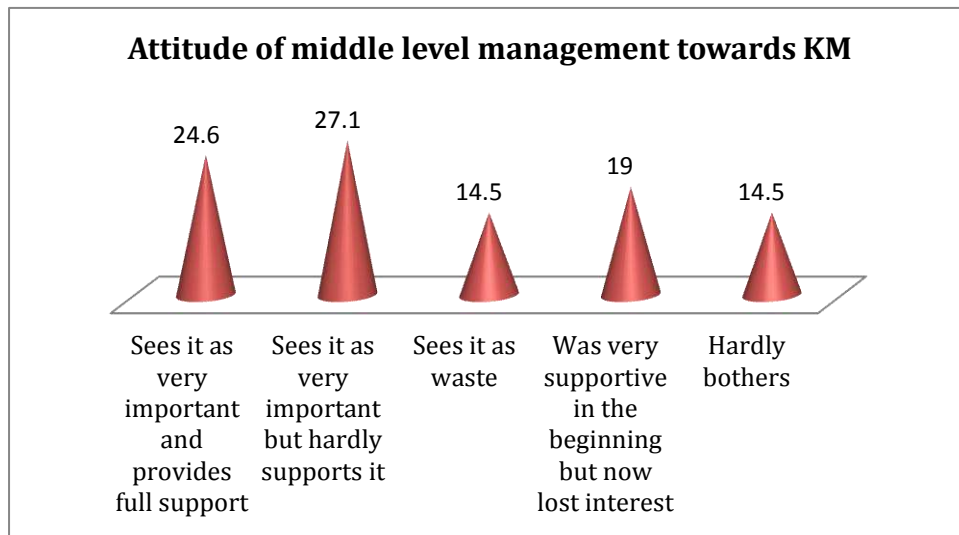


### 3.4 Frame of Thought of Respondents on Attitude of the Middle Level Management towards Knowledge Management

The particulars related to respondents on outlook of the middle level management towards knowledge management are furnished in the following Table 6. The opinion of the respondents was collected in terms of the following attributes: 1) Sees it as very important provides full support 2) Sees it as very important but hardly supports it 3) Sees it as waste 4) Was very supportive in the beginning but now lost interest 5) Hardly bothers.

**Table 6:** Distribution of Attitude of the middle level management towards KM

Attributes	Count	Percentage
Sees it as very important and provides full support	115	24.6
Sees it as very important but hardly supports it	127	27.1
Sees it as waste	68	14.5
Was very supportive in the beginning but now lost interest	89	19.0
Hardly bothers	68	14.5
Total	467	100.0



**Figure 4:** Distribution of Attitude of the middle level management towards KM

Table 6 & figure 4 elaborates the opinions about attitude of the middle level management towards KM. 27.1% of respondents sees it as very important but hardly supports it, 14.5 % sees it as waste and 24.6% sees it as very important and provides full support, 19.0 % were of the

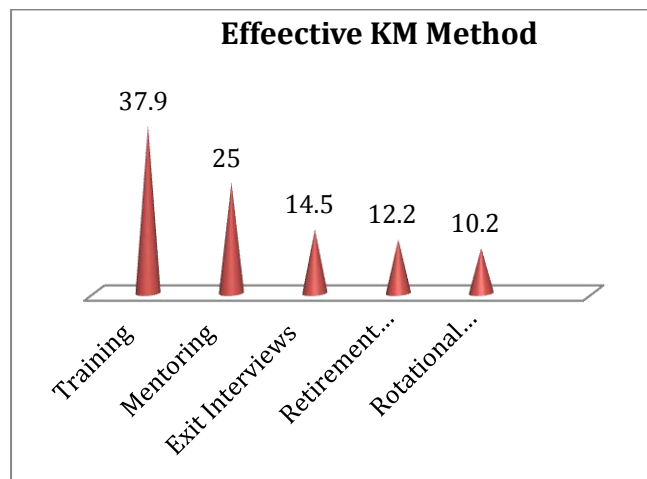
opinion that they were very supportive in the beginning but now lost interest and 14.5 % feel that middle level management hardly bothers accordingly.

### **3.5 Perspective of Respondents on Effective Knowledge Management Method**

The data related to respondents on effective knowledge management method is mentioned in the Table 7. The opinion of the respondents was collected in terms of the following elements: 1) Training 2) Mentoring 3) Exit Interviews 4) Retirement programmes 5) Rotational Assignments.

**Table 7:** *Distribution of respondents on effective method of Knowledge Management*

<b>Attributes</b>	<b>Count</b>	<b>Percentage</b>
Training	177	37.9
Mentoring	117	25.0
Exit Interviews	68	14.5
Retirement Programmes	57	12.2
Rotational Assignments	48	10.2
Total	467	100.0



**Figure 5:** *Distribution of respondents on effective method of Knowledge Management*

Table 7 & figure 5 elaborate the opinions about effective method of knowledge management. 37.9% of respondent’s responses showed that the effective method of KM is

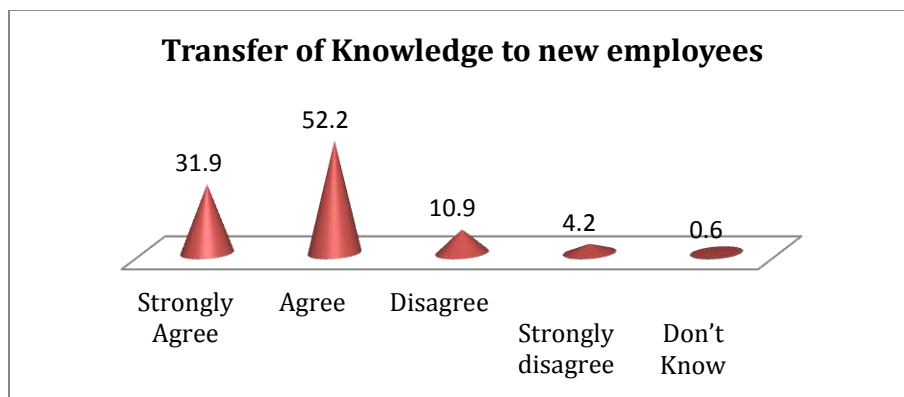
training, 25 % sees it is through mentoring and 14.5% sees it is through exit interviews, 12.2 % were of the opinion that they were through retirement programmes and 10.2 % feel that rotational assignment is the effective KM method accordingly.

### 3.6 Distribution of Respondents on Accelerate and Improve the Transfer of Knowledge to New Employees

The information related to respondents on accelerate and improve the transfer of knowledge to new employees is furnished in the following Table 8. The opinion of the respondents of biotechnology companies was collected in terms of the following components: 1) Strongly agree 2) Agree 3) Disagree 4) Strongly disagree 5) Don't Know.

**Table 8:** Distribution of respondents on transfer of knowledge to new employees

Attributes	Count	Percentage
Strongly Agree	149	31.9
Agree	244	52.2
Disagree	51	10.9
Strongly disagree	20	4.2
Don't Know	03	0.6
Total	467	100.0



**Figure 6:** Distribution of respondents on transfer of knowledge to new employees

Table 8 & figure 6 explains about accelerate and improve the transfer of knowledge to new employees. In this regard, 52.2 % agreed that they were transferring their knowledge to new employees, 31.9 % employees strongly agree that their company was encouraging to accelerate

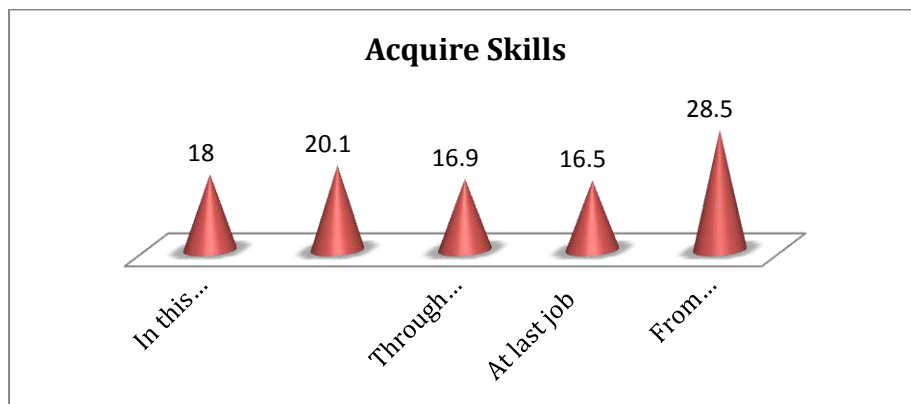
and improve the transfer of knowledge to new employees, 10.9 % disagree, 4.2% strongly disagree and 0.6 % opined don't know.

**3.7. Response of Answerers about Acquiring Skills**

The statistics related to answerers about acquiring skills is given in the following Table 9. The answers of the respondents about acquiring skills were collected in the following outlook: 1) In this organization 2) Through self- learning 3) Through formal training 4) At last job 5) From Colleagues.

**Table 9:** *Distribution of Respondents of Acquiring Skills*

Attributes	Count	Percentage
In this organization	84	18.0
Through self-learning	94	20.1
Through formal training	79	16.9
At last job	77	16.5
From colleagues	133	28.5
Total	467	100.0



**Figure 7:** *Distribution of respondents of acquiring Skills*

Table 9 & figure 7 demonstrate that 28.5% of biotechnology employees are acquiring skills from their colleagues, 20.1 % through self-learning & 18.0% through formal training. A good thing to note is that 16.9 % are acquiring the skills from same organization and 16.5 % acquire the skills from last job.

## **4. Results & Discussions**

Knowledge management is an important tool which determines the success of an organization. Biotechnology sector is one such business arena which requires efficient knowledge management practices to stand out in the global competition. Hence, to understand the present scenario of knowledge management, questionnaires were collected from the employees of Biotechnology sector in India and their responses were thoroughly evaluated to obtain the following interesting observations.

The study clearly showed that the employees of Biotechnology trade in India were aware of the concept of Knowledge management. Maximum number of respondents stated that KM was a part of their everyday job but it was not being implemented under the name of Knowledge management. The respondents were of an opinion that KM is a strategic business tool and if implemented efficiently could be very beneficial to the organization. However, a small percentage of the respondents felt KM to be a management fad and few of them had no idea what KM is. The results were in compliance with the responses obtained for status of knowledge management in Biotechnology industry in India. A large population opined that the KM was in existence in their organization either in nascent, introduction, growth and highly developed stage. However, a few respondents said KM was non-existent in their organization. The respondents working in organizations where KM was non-existent were mostly unaware of the pros of KM and had no idea about KM.

Only a small amount of the population felt that the existing policies and procedures of KM were quite important, relevant and latest. The respondents working with organization where KM is in a highly developed stage could have probably opined that the KM policies and procedures are relevant and latest. However, a large population stated that the KM policies were quite important but not updated regularly. While a smaller population opined that KM policies are just a formality and have no importance while a few opined that the KM policies were not in existence. The organizations which did not have proper KM also did not have proper KM policies and implementation.

The study showed that most of the Biotechnology companies had middle level management who gave importance to KM but hardly supported it and lost interest as time progressed. While a few more respondents opined that their middle level management saw KM as not so important and others were of the opinion that their management hardly bothered.

However, a few respondents probably belonging to companies which have a full fledged KM felt that their middle level management provided full support to KM. The companies however, recognized knowledge as an asset for their company which was evident from the responses of maximum respondents.

The opinions of respondents about organizational culture revealed interesting facts such as nearly equal number of respondents opined that KM is each and everybody's job and organizations restrict knowledge sharing respectively. While nearly equal number of respondents opined that knowledge management is assignment of exclusively few deputed ones and that they have an open, encouraging and supportive organization. A small number of respondents opined that basic values and purpose of their company emphasizes on sharing knowledge. The respondents acquired the required skills from their colleagues first followed by self-learning and formal training. Almost an equal number of respondents were of an opinion that the skills they had were from the same organization and from the last job respectively.

The Knowledge management in Biotechnology sector in India is quite developed in a few companies while in some it is still in the development stage. The companies which have a highly developed KM were implementing KM satisfactorily as evident from the opinions of the respondents. However, there are companies where the KM is in introduction stage, nascent stage or non-existent stage, where KM is not well developed. Employees associated with such organizations were aware of the importance of KM but could not work on its implementation due to support unavailable from their management. KM in Biotechnology sector in India though existent is not well developed. The Biotechnology sector needs to further work on the effective implementation of KM to withstand the competition in the global market.

## **5. Limitations of the Study and Scope for Further Research**

The study is confined only to the Biotechnology sector in India. The present study is restricted to the Biotechnology companies in metro cities of India only. The respondents were selected from only 10 Biotechnology companies.

The development of an effective knowledge management model for Biotechnology industry in India can be thought of as the future scope of the work. The study can also be extended to other industries.

## **6. Conclusion**

Knowledge management is utmost prominent in the Biotechnology sector which focuses on scientific innovations and discoveries. The present study was conducted to understand the current scenario of KM in Biotechnology sector in India. The questionnaire method was followed to obtain the responses of the employees working in Biotechnology industry. The study revealed that KM in Biotechnology trade was not very well developed. The KM needs to be improvised and implemented effectively in Biotechnology trade. Though there were a few companies which were effectively implementing KM and encouraging its employees with their knowledge and knowledge sharing practices, most of the newly established companies with smaller capital are still not aware of KM and its implementation. The study concludes that KM needs to be implemented more efficiently in all the companies in Biotechnology trade in India to help the companies stand at par with the their foreign competitors in the global market.

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