

# Case Study On Knowledge Management Practices In Indian Manufacturing Organizations - Tata Motors, BHEL And Mahindra And Mahindra\*

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## Abstract

This case study covers the Knowledge Management research paper that explores the clear idea about the knowledge practices that are used in the corporate sector to achieve the strategic advantage over the competitors. The quoted example of the three manufacturing firms TATA MOTORS, BHEL, and M&M have tried to compare the Knowledge practices in these firms, which explores the concept clearer that the competitors can use the same or the different type of knowledge practices to achieve the competitor advantages. In order to help knowledge management goals, an integrated knowledge management system consisting of the knowledge management techniques and technologies are used. The knowledge Management is supported by different techniques and practices which are knowledge content, people skills, technology and strategy based. The technology and techniques supports these factors of knowledge management. The paper discuss different techniques and processes adapted by three Indian organizations and a comparison is made to suggest the guidelines of KM practices to manufacturing Industries.

Keywords : Knowledge management, Strategic advantage, TATA Motors, BHEL, M&M

## 1. Introduction

Knowledge Management is a system to facilitate learning, innovation and sharing to achieve the strategic objectives of an organization. Knowledge

Management comprises a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse, awareness, and learning across the organizations. In addition to this, paper developed by Thomas H. Davenport, David W.DeLong, Michael C .Beers (Successful KM project)[1][4] speaks about the four types of objectives that the companies mainly focuses on: Create knowledge repositories, improve

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knowledge access, enhance knowledge environment and manage knowledge as an asset. To understand how the companies are managing knowledge, authors have studied 31 KM projects in 24 companies. Further they have discussed about the eight factors that can help a company to create, share, and use knowledge effectively. The eight factors include: (a) Link to industry value (b) Technical and organizational infrastructure (c) Standard, flexible knowledge structure (d) Knowledge friendly culture (e) Clear purpose and language (f) Change in motivational practices (g) Multiple channel for knowledge transfer, and ( h) Senior management support. In the light of above insight a Study of KM Practices has been completed on TATA Motors, BHEL and M&M ltd.

### 1.1. Introduction of TATA Motors

Tata Group - India's best known industrial group, with an estimated turnover of US \$ 28.8 billion (equivalent to 3.2 % of India's GDP). Besides its trading house profile the company has stakes in mines, a five star hotel, distributorships, trailer and railway wagon manufacturers and IT ventures; it has customer support facilities for Tata vehicles, design studios for leather, and warehouses dotted across the world[2][4][5][6].

Tata Motors Limited formerly known as TELCO (TATA Engineering and Locomotive Company), is a multinational corporation headquartered in Mumbai, India. It is India's largest passenger automobile and commercial vehicle manufacturing company. Part of the Tata Group, it is one of the world's largest manufacturers of commercial vehicles. The OICA ranked it as the world's 20th largest automaker, based on figures for 2006.

For the creation and sharing of knowledge Tata Motors is using various tools provided to the people with the help of Intranet. Implementation of knowledge management has helped company to achieve various benefits; one of them is the enhanced productivity of the organization. This case study has been developed on the basis of questionnaires filled by the HR representatives of Tata Motors Lucknow.

Tata Motors was established in 1945, when the company began manufacturing locomotives. In 1945 Tata Sons purchased for Rs.25 lakhs the Singhbhum workshop to set up initially the manufacture of steam locomotive boilers and later of complete locomotives and other engineering products. The company manufactured its first commercial vehicle in 1954 in collaboration with Daimler-Benz AG, which ended in 1969. Tata Motors was listed on the NYSE in 2004, and by 2005 it was ranked among the top 10 corporations in India with an annual revenue exceeding INR 320 billion. In 2004, it bought Daewoo's truck manufacturing unit, now known as Tata Daewoo commercial Vehicle, in South Korea. It also, acquired a 21% stake in Hispano Carrocera SA, giving it controlling rights in the company.

After years of dominating the commercial vehicle market in India, Tata Motors entered the passenger vehicle by launching hatch-back car, the Tata Indica. Indica was the first car indigenously designed in India. A newer version of the car, named Indica V2, was a major improvement over the previous version and quickly became a mass-favorite. A re-badged version of the car, known as City Rover, was sold in the United Kingdom. Tata Motors also successfully exported large quantities of the car to South Africa. The success of Indica in many ways marked the rise of Tata Motors. Tata Motors

has also launched their much awaited Tata Nano, noted for its Rs 100,000 price-tag.

Tata Motors' product range covers passenger cars, multi-utility vehicles as well as light, medium and heavy commercial vehicles for goods and passenger transport. Seven out of 10 medium and heavy commercial vehicles in India bear the most trusted TATA mark. It has plants situated at the various places namely Jamshedpur, Pune, Lucknow, Gujarat and Uttaranchal. Among these Jamshedpur is the oldest plant. At Tata Motors, every effort is made to keep up with changing times. Regular modernization drives namely automation of manufacturing processes and up-gradation of the technological base helps to maximize productivity on the factory shop floor.

## VISION

"To be a world class corporate constantly furthering the interest of all its stakeholders."

## MISSION

**Shareholders :** To constantly create shareholder value by generating returns in excess of Weighted Average Cost of Capital (WACC) during the upturn and at least equal Weighted Average Cost of Capital (WACC) during the down turn of the business cycle.

**Customers :** To strengthen the Tata brand and create lasting relationships with the customers by working closely with business partners to provide superior value of money over the life cycle.

**Employees :** To create a seamless organization that incubates and promotes innovation, excellence and the Tata core values.

**Community :** To proactively participate in reshaping the country's economic growth.

## CORE VALUES

1. Integrity

2. Customer focus

3. Corporate citizenship

4. Passion for engineering

## PURPOSE

To create economic assets for road and transportation for bulk movement of goods and people and participate in managing these over the life of assets in order to create and capture economic value.

Some of the certifications achieved by the company include:

### 1) CMMI

Capability Maturity Model Integration (CMMI) is a process improvement approach that provides organizations with the essential elements of effective processes. It can be used to guide process improvement across a project, a division, or an entire organization. CMMI helps integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for defining processes, and provide a point of reference for appraising current processes. In August 2005, Tata Technologies became India's first automotive Engineering & Design company to offer world class processes, assessed at CMMI Level 5, for projects managed from its Centre for Automotive Engineering & Design (CAE&D) at Hinjawadi in Pune.

### 2) P-CMM

The P-CMM is a maturity framework that describes the key elements of managing and developing the workforce of an organization. It describes an evolutionary improvement path from an ad hoc approach to managing the workforce, to a mature, disciplined development of the knowledge, skills, and motivation of the people that fuels enhanced business performance.

In April 2005, Tata Technologies became India's leading end-to-end automotive engineering and design (E&D) company to be assessed at PCMM Level 5, joining the global elite of 16 companies worldwide who have been assessed at PCMM Level 5.

Tata Motors Lucknow :

Year of commencement : 1991. The manufacturing unit of Tata at Lucknow is the latest manufacturing facility of Tata and is located towards East of Lucknow. Area of the plant is about 600 acres and there are over 1000 employees working.

## 1.2. Introduction of BHEL

BHEL (Bharat Heavy Electricals Ltd.) is a NavRatna Public sector undertaking of Government of India[2][4][5][6]. It is primarily engaged in total solutions to power sector. It has acquired certifications to Quality Management Systems (ISO 9001), Environmental Management Systems (ISO 14001) and Occupational Health & Safety Management Systems (OHSAS 18001) and is also well on its journey towards Total Quality Management. BHEL manufactures and supplies major capital equipment and systems like captive power plants, centrifugal compressors, drive turbines, industrial boilers and auxiliaries, waste heat recovery boilers, gas turbines, pumps, heat exchangers, electric machines, valves, heavy castings and forgings, electrostatic precipitators, ID/FD fans, seamless pipes etc. BHEL plants are located in :

- Heavy Electrical Equipment Plant, Haridwar
- Central Foundry Forge Plant, Haridwar
- Heavy Power Equipment Plant, Hyderabad
- High Pressure Boiler Plant, Trichy
- Heavy Electricals Plant, Bhopal
- Component Fabrication Plant, Rudrapur

- Heavy Equipment Repair Plant, Varanasi
- Electrical Machine Repair Plant, Mumbai
- Transformer Plant, Jhansi
- Electronics Division, Bangalore
- Boiler Auxiliaries Plant, Ranipet
- Industrial Valves Plant, Goindwal
- Electro-Porcelains Division, Bangalore
- Insulator Plant, Jagdishpur

BHEL is the largest engineering and manufacturing enterprise in Indian the energy-related/infrastructure sector, today.

BHEL was established more than 40 years ago, ushering in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance. The company has been earning profits continuously since 1971-72 and paying dividends since 1976-77.

This enables BHEL to have a strong customer orientation, to be sensitive to his needs and respond quickly to the changes in the market. The greatest strength of BHEL is its highly skilled and committed 42,600 employees. Every employee is given an equal opportunity to develop himself and grow in his career.

## 1.3. Introduction of M&M

Founded in	: 1945
Headquarters	: India
Key people	: Keshub Mahindra(Chairman) Anand G.Mahindra(VC and MD)
Industry	: Automotive and tractor
Products	: Utility Vehicles Commercial Vehicles Tractors
Revenue	: 6.7 Billion US dollars
Employees	: 65,000

Mahindra is the market leader in multiutility

vehicles in India[2][4][5][6]. The Group has a leading presence in key sectors of the Indian economy, including the financial services (Mahindra & Mahindra Financial Services Ltd, Mahindra Insurance Brokers Ltd., Mahindra Rural Housing Ltd.), trade and logistics (Mahindra Inter-trade Ltd., Mahindra Steel Service Ltd., Mahindra Middle east Electrical Steel Service Centre FZE, Mahindra Logistics) automotive Mahionents (Mahindra Forging, Mahindra Steel Products, Mahindra Cahiosites), ine Cention technology (Tech Mahindra, Bristlecone), and infrastructure development (Mahindra Life spaces, Mahindra Holidays & Resorts India Ltd., Mahindra World City).

Mahindra's Farm Equipment Sector has recently won the Japan Quality Medal, the only tractor company worldwide to be bestowed this honour. It also holds the distinction of being the only tractor company worldwide to win the Deming Prize.

With over 62 years of manufacturing experience, the Mahindra Group has built a strong base in technology, engineering, marketing and distribution which are key to its evolution as a customer-centric organization. It has made strategic acquisitions across the globe including Stokes Forgings (UK), Jeco Holding AG (Germany) and Schoneweiss & Co GmbH (Germany). Its global subsidiaries include Mahindra Europe Srl. based in Italy, Mahindra USA Inc. and Mahindra South Africa. M&M has entered into partnerships with international companies like Renault SA, France, and International Truck and Engine Corporation, USA. Forbes has ranked the Mahindra Group in its Top 200 list of the World's Most Reputable Companies and in the Top 10 list of Most Reputable Indian companies. Mahindra has recently been honoured with the Bombay Chamber Good Corporate Citizen Award for 2006-07.

## Industry Profile

A well developed transport network indicates a well developed economy. For rapid development a well-developed and well-knit transportation system is essential. As India's transport network is developing at a fast pace, Indian Automobile Industry is growing too. Also, the Automobile industry has strong backward and forward linkages and hence provides employment to a large section of the population. Thus the role of Automobile Industry cannot be overlooked in Indian Economy. All kinds of vehicles are produced by the Automobile Industry. India Automobile Industry includes the manufacturing of trucks, buses, passenger cars, defense vehicles, two-wheelers, etc. The industry can be broadly divided into the car manufacturing, two-wheeler manufacturing and heavy vehicle manufacturing units.

The major Car manufacturers are Hindustan Motors, Maruti Udyog, Fiat India Private Ltd., Ford India Ltd., General Motors India Pvt. Ltd., Honda Siel Cars India Ltd., Hyundai Motors India Ltd., Skoda India Private Ltd., Toyota Kirloskar Motor Ltd., to name a few.

The two-wheeler manufacturing is dominated by companies like TVS, Honda Motorcycle & Scooter India (Pvt.) Ltd., Hero Honda, Yamaha, Bajaj, etc. The heavy motors like buses, trucks, defense vehicles, auto rickshaws and other multi-utility vehicles are manufactured by Tata-Telco, Ashok Leyland, Eicher Motors, Bajaj, Mahindra and Mahindra, etc. The Indian Automobile Market is expected to grow at a CAGR of 9.5 percent amounting to Rs. 13,008 million by 2010. The Commercial Vehicle Segment has been contributing to the automobile market to a great extent.

Many foreign companies have been investing

in the Indian Automobile Market in various ways such as technology transfers, joint ventures, strategic alliances, exports, and financial collaborations. The auto market in India can boast of attractive finance schemes, increasing

Purchasing power and launch of the latest products. Total sales of major car manufacturers in India registered a figure of 0.674 million units at the end of March, 2007. The number of car exports in India was 39,295 units. General Motors, Maruti, and Honda accounted for 60 percent of the market sales at the end of April, 2007

## 2. Discussion

### 2.1. Best KM Practices at TATA MOTORS

1) COMMUNITY OF PRACTICE (COP): The concept of a community of practice (often abbreviated as COP) refers to the process of social learning consisting of shared socio-cultural practices that emerge and evolve when people who have common goals interact as they strive towards their goals. COP refers to communities of practitioners into which newcomers would enter and attempt to acquire the socio-cultural practices of the community. The knowledge that is shared and learned in COP is social capital. People connect at various levels and across departments, both internally and externally of the company or organization, without the constraints of a formal company structure. As people connect with each other they are able to share their expertise and learn from other members. People have tacit knowledge which is not found in a book. For example, one person can share the best way to handle a situation based on his

experiences, which may enable the other person to avoid mistakes and shorten the learning curve. In a CoP, members can openly discuss and brainstorm about a project which can lead to new capabilities. The type of information that is shared and learned in a CoP is boundless.

- 2) KNOWLEDGE GURUCUL : All the plants of Tata Motors use Knowledge Gurukul for knowledge sharing. This can be accessed by intranet as well as by extranet.
- 3) KNOWLEDGE BOOKLET : This helps the employees to solve the difficult problems and can get help for their projects.
- 4) ONLINE KNOWLEDGE SHARING : Knowledge is shared with the help of electronic mails.
- 5) VIBES : This is an electronic portal which can only be accessed with the help of Intranet.
- 6) KAIZEN : This is a quality improvement tool. This contributes to knowledge management since employees here can share the solutions or methods to increase the quality of a product.
- 7) COMPETENCY MAPPING : Employees are accessed by the HR people to know how much they have learned. This further includes appraisal methods.
- 8) SCM : Supply chain management system is helpful for the logistics management and to achieve JIT, and quality improvement.
- 9) 6 SIGMA : It is the quality practice used to achieve the zero defects in the production processes and the production.

10)ERP : System used to bring whole of the organization on the single platform i.e. to make all the departments to work together in an integrated way.

11)MANNUALS : Department manuals have all the information about the working of the departments.

12)REWARDS : Incentives increase the efficiency of workers and also help the company to gain the competitive advantage.

	of email) Vibesa)
Vibes	a) Sharing of the activities going around the company b)Example: sharing of activities like experiences of cricket team winners of the company

### WHY KM IN TATA MOTORS

KM is needed because of the several benefits provided by the same. Following are some of the benefits of using knowledge management at Tata Motors.

Best Practices	Advantages
COP	a) Problem solving b) Developing new capabilities c) Standardizing practices d) Time savings e) Avoiding mistakes Knowledge Gurucula)
Knowledge Gurucul	a) Enables employees to find out the solution for complex problems b) Enhances productivity
Knowledge booklet	a) Increases the talent of employees b) Creation of new knowledge
Online knowledge sharing	a) Enhances the collaboration within the organization (use

### 2.2 Best KM Practices at BHEL

COP: The concept of a community of practice (often abbreviated as COP) refers to the process of social learning consisting of shared socio cultural practices that emerge and evolve when people who have common goals interact as they strive towards their goals. COP refers to communities of practitioners into which newcomers would enter and attempt to acquire the socio-cultural practices of the community. The knowledge that is shared and learned in communities of practice is social capital. People connect at various levels and across departments, both internally and externally of the company organization, withnd across constraints of a entmal company structure. As people connect with each other they are able to share their expertise and learn from other members. People have tacit knowledge which is not found in a book. Forexample, one person can share the best way to handle a situation based on his experiences, which may enable the other person to avoid mistakes and shorten the learning curve. In a COP, members can openly discuss and brainstorm about a project which can lead to new capabilities. The type of information that is shared and learned in a COP is boundless

INTRANET : Brings all of the company on one platform and it is the best practice for the knowledge sharing.

SCM : supply chain management system is helpful for the logistics management and to achieve JIT, and quality improvement

INVENTORY MANAGEMENT SYSTEM : it is the module for the control of the inventory of the company and to bring it to the zero level.

CRM : customer relationship management this helps to improve the relationship between the customer of the company both in B2B and B2C.

6 SIGMA : It is the quality practice used to achieve the zero defect in the production processes and the

TQM : Total quality management is the one step to improve the quality of the production processes and the production.

MANUALS : Department manuals have all the information about the working of the departments

REWARDS : Incentives increase the efficiency of workers and also help the company to gain the competitive advantage.

### 2.3 Best KM Initiatives at M&M LTD.

Knowledge Management refers to a range of practices and techniques used by organizations to identify, represent and distribute knowledge, know-how, expertise, intellectual capital and other forms of knowledge for leverage, reuse and transfer of knowledge and learning across the organization. Knowledge management programs are typically tied to organizational objectives and are intended to lead to the achievement of specific business outcomes such as improved performance, competitive advantage, or higher levels of innovation. Of recent years Personal Knowledge Management

(PKM) practice has arisen by which individuals apply KM practice to themselves, their role in the organization and their career development, Daily morning prayers are conducted with all workmen & officers for prosperity of nation, factory and individual. Daily standing meetings conducted to apprise

- o Yesterdays performance,
- o Internal & external customer complaints,
- o Warranty Failures,
- o Improvements carried in process &
- o Product highlight directives of top management
- o Appreciate workmen for their remarkable
- o Alertness.
- o Appreciate workmen for their suggestion.
- o Awareness of present market scenario.
- o Training & Knowledge imparted as and when required.

MANAGEMENT INFORMATION SYSTEM for both workmen & management. Implementing concept of VISUAL Factory through display boards like:

- DAILY Activity Board.
  - Measure of Performance Board.
  - Improvement Board.
  - TPM Board.
  - Engine Built Quality Evaluation Board.
  - Suggestion Board.
  - Cleaning m/c parameters control Board
- Quality Audit Test and Daily Pick Up movement are done to monitor outgoing Quality. Working towards Zero Rework Days. The monthly communication at Mahindra could be conducted twice a month.
- The first one being, ESOP activity and a presentation showing the employees actually working out on the ESOPs. This will render the sense of recognition amongst the employees.



- Second monthly communication, being comprised of the recognition of the ingenious drive contribution and the distribution of the prizes and accolades. At both the monthly communication occasions the employees representing each of the dpt. should actually come upon and should speak about their department. Achievements, likewise targets, zero defects etc. A part of the monthly communication could be a journal, every one or two months. This journal will be an open arena for all the employees to share their plans, experiences, skills, or even their talents. A committee should be formed to take care of the monthly journal.

There is a KUDOS BOARD for appreciating the STAR PERFORMERS. The STAR PARFORMERS should be given any recognition or badge to wear for the whole day of monthly communication. It's one of the crucial factors of communication and an impetus to the employees. Recognizing for their achievements in House magazine etc. Points given out at any time for anything, good attendance, helping out a client, etc., and are redeemable for prizes. Inviting the line staff to actively participate in the training and developmental activities. Form a group committee among the staff to carry out various training schedules.

KAIZEN at MAHINDRA & MAHINDRA is conjoined as an effective motivational tool. The employees at all the levels of organization give ideas, under the i4 ingenious drive. And the sincerity of the ideas is identified and they are cross checked for being implemented. And then these ideas are actually implemented on the line of the respective associates. At the monthly communication activity, these ideas are facilitated and the employees as

individuals and the whole i4 teams are awarded for contributing the best kaizen idea. These ideas given and the ones actually implemented also form a part of the employee's performance feedback reports.

Total Productive Maintenance is done by small group activity. 'Small Group Activity' (SGA) is that by working through the team focused continuous improvement process, permanent improvement can be made in workplaces. It was done to improve the company by working toward the "Concept of Zero" to achieve:

- ▶ Zero accidents
- ▶ Zero waste
- ▶ Zero quality defects
- ▶ Zero breakdown

Team Centre Engineering is software which stores all CAD drawings required for product and in Team Centre Enterprise is a PDM (Metaphase) Information lies in this system. Training and development continues to receive serious attention. A well designed and full corporate training calendar ensures regular programs at the units as well as at the Company's Centre at Nasik . The training calendar is prepared based on the feedback from the units as well as training needs analysis derived from its Performance Management System.

### 3. Dealership Assessment

The Dealership Excellence Model is a Non-Prescriptive framework based on Eight Elements. Five of these are 'Enablers' and three are 'Results'. The 'Enabler' Elements cover what the Dealership does. The 'Results' Elements cover what the Dealership achieves. 'Enablers' cause 'Results'. The model which recognizes that there are many approaches to achieving sustainable excellence in all aspects of performance is

based on the Premise that:

*'Excellent results with respect to Performance, Workshop and Customers are achieved through Effective Customer care process, Workshop practice, HR process, Spare parts Management process & Warranty Process'.*

Enablers include HR Process, workshop practices, warranty process, spare part process and customer care process. Results come in form of workshop performance, customer care performance which leads to overall performance. The enablers represent the elements against which to assess an dealers progress towards excellence. Whole dealership assessment is done with help of RADAR (Results, Approach, Deployment, Assessment and Review). The first step of scoring is to use the RADAR Scoring Matrix to allocate a percentage score to each element. This is achieved by considering each of the elements & attributes of the matrix for each of the Elements in the Model. The Scoring Summary sheet is then used to combine the percentage scores awarded to the Elements to give an overall score on a scale of 0 - 1000 points.

### 3.1. Dealership Assessment

A team of assessors, all of whom have undergone training, to ensure a high level of consistency in scoring, will examine the Dealership Activities. The Dealer will be assessed & scored on a scale of 0 - 1000 points, using the Dealership Excellence Model shown below.

- Excellent Results with respect to Customer care performance, Workshop performance & Overall performance are achieved through Effective HR process, Workshop process, Warranty process, Spare parts management process &

Customer care process.

- The Eight boxes in the model correspond to the Criteria, which are used to assess an Dealerships progress towards excellence.
- The Results criteria are concerned with what the Dealership has achieved & is achieving.
- The Enablers Criteria are concerned with how Results are being achieved.

The figures in the model show the maximum number of points that may be given to each of the criterion & the equivalent percentages

Enablers & Results are valued at -  
Enablers - 600 points, Results - 400 points

## 4. Digital Information

- All Applications (& information) running on Servers (approx. 200 nos.) kept at centralised Data Centre in Kandivli.
- This information is accessed from PCs connected in a network called Mahindra Net (approx. 5500 PCs across all plants/offices)
- This information also can be accessed from ANYWHERE ANYTIME through Internet VPN.
- Every IT user is given a User Name & Password (Authentication) for accessing Authorised information as per business requirement.
- HP OpenView Service Desk, the program that helps you manage complex IT infrastructures that are used in today's business-critical processes.

### 4.1 KM WEB Portal

Named as 'Mahindra Connect'. It is a company portal like intranet from which authorized employees can take information. It

basically includes important announcements of the sector, latest news about other companies, forum for various surveys, HR policies, projects, Company's Policies, KM, Circulars, Announcements, link to other sites like Mahindra Bolero, Scorpio, MBT etc. Provides knowledge about problems related to all major products and is online available 24\*7 through intranet. Internet Sites are also present that are mahindra.com, mahindrasrm.com, teammahindra.com etc. MConnect also includes:

- People Corner: In this people upload important information which they want to share with others.
- Live news, newsletters are uploaded on site & blogs.
- Knowledge web: Various files from different plants are uploaded so that people at their locations can view or download for their reference. It also includes official documents, formats, dept manuals etc
- Mahindra Spectrum: consists of internal magazine, old & new issues arise in company.

WHY-WHY ANALYSIS is also a knowledge sharing technique in which problem solving is done by various practices like why-why analysis. For example: There is a machine with a problem "Movement of cylinder slow". Let's do why-why Analysis to find out why it is slow. "Why-Why analysis is not in order, put them in sequence. The column of "Why?", "solution", "Handling" is not in sequence, match them. Write alphabet and no. In the space provided in "Reply column".

Why		Solution		Handling	
A	Why the oil is dirty?	1	Holes on the upper lid of tank	(1)	Purge oil and clean the tank

B	Why movement is poor?	2	Dust is collected	(2)	Close all holes
C	Why dust is collected?	4	Strainer is clogged	(3)	Clean strainer
D	Why was there clogging?		Oil was dirty	(4)	Prevent oil & chip scattering

OPERATIONAL MANUALS are present in form of Management information system is present for all the departments and is available in both hard as well as soft copy. Soft copy is accessible only to dept representative. Defines scope of work & guidelines structure of dept with designation

## 5. Performance Evaluation

SCORECARD has become the pre-eminent strategic tool for the management. Measurable characteristics of products, services, processes, and operations the company uses to track and improve performance. Goals are set for every individual, linked with the business goals- are set at the beginning of the financial year. Score card includes MOP i.e. Measure of performance. MOP is measurable parameter which will indicate progress of GOAL set. Each MOP has a weightage. MOP has different parameters for every department and accordingly in every department MOP responsibilities are allocated to individual. Sum of weightage is 100 %. Level of performance is method to set targets for

MOPs to indicate L2, L3 and L5 level performance E.g. Reduction in variable Cost per vehicle. L2 - 0 %, L3 - 5 %, L5 -10%. Through MOP performance appraisal process is done individually. Firstly MOP is made for company President at broad level. After that these parameters are segregated quantitatively among whole auto sector in Mahindra to achieve those goals.

Primary and secondary sources of knowledge is by way of providing trainings, conducting seminars, on the job trainings and from company portal i.e. Mahindra Connect etc. Cross functional teams help in easy decision making process. People of different dept form a team for getting their work done which helps in good Knowledge sharing outputs and leads to more transparency. CFTs are present for all improvements & better functioning & communication. CFT for Change management i.e. whenever there is any change in line (part change or vendor change or operation location change). In CFT meeting all department representatives are joining & communicate the things in a group. There is engineering note for any change. This is terminology for change.

After getting the responses filled by different HR Managers of Tata Motors the outcomes are :

- 1) Tools being used for KM by Tata Motors: Knowledge Capturing Template Intranet portals, Manuals, Team Based working, Job Rotations
- 2) Knowledge repositories: Under Verticals like, Manufacturing, Cost, Quality, HR, Customer Care.
- 3) Main knowledge practices: Knowledge through Learning Books, Manthan Sessions

K-Guru portal, Corporate intranet, Community of Practices (CoP), Technology Experts

- 4) Organization structure: Matrix
- 5) KM has helped in gaining following advantages: Enhanced productivity, increased innovation by the employees, addressing the communication gacommute organization, Helpful in staff attraction/retention.
- 6) The new recruits get acquainted with the organization through formal Induction program.
- 7) Rules or code of conduct or ethical practices followed at Tata are called as "Tata Code of Conduct".

## 6. Conclusions

Although the nature of industry is different in these companies in terms of product mix, technology, work environment, values and approaches towards work performance, goals etc., the nature of implementation KM practices in these companies is almost similar. KM practices such as COP, knowledge portal, IT support for KM practices, incentives and rewards, culture of appreciation and recognition etc. are the common features in KM implementation in these companies.

COP has appeared as the most common feature in KM Practices in all three different companies. Practicing COP has helped in problem solving and in evolving new ways of effective work performance that has lead to innovative products and services in quick time. COP has helped these companies to achieve higher levels of

creativity and innovation that has strengthened the competitive edge of these companies in their respective segments. COP is also supportive in developing the mutual trust, harmony and cohesiveness among employees which is very essential element for knowledge sharing.

Knowledge portal in these companies has enabled employees to share, enrich, disseminate, and create new knowledge among them. Such IT based portals also safeguard the critical knowledge assets from misuse and theft both from inside as well as outside the organization. The benefits of KM practices at individual organization can also be extended to their suppliers and customers with the help of these portals.

Use of IT enabled services & technologies for knowledge acquisition, sharing and use provide these companies the desired level of accuracy and consistency in their decision making at different levels of hierarchy. IT based technologies help in eliminating the effects of redundancy in the system, thereby reducing the levels of confusion and doubts in information processing.

The studied companies use incentives and rewards to induce and promote the work-culture to support the company wide implementation of KM practices, and providing motivation for better performance by adopting KM practices. Also supportive culture of appreciation and recognition encourages and enable the employees at different levels of hierarchy to practice KM in their daily work life and thereby achieving higher levels of improvement and advancement in their individual and group performances.

It can be concluded that the KM implementation in Indian manufacturing industries has helped in improving and achieving higher levels of performances both at operational as well as corporate levels. The analysis of KM Practices at three major leaders in Indian manufacturing industries has revealed encouraging results about growing importance of KM implementation.

The benefits which can be derived from the KM Practices are Implementation of KM results in sharing the best practices, KM is helpful in the enhanced productivity of the company, KM helps in the increased innovation by the employees, KM helps in enhanced collaboration within the organization, KM is also helpful in addressing the communication gap in the organization, Online learning and knowledge sharing to capture ideas and turn them into action. More and more programs and various competitions should be conducted so as to increase the interaction among employees such that knowledge sharing can be improved. Knowledge practices being used by Tata Motors, BHEL, M&M has helped them a lot to grow in the manufacturing sector. Portal, Corporate intranet, Community of Practices (CoP) has helped not only employees to share the best practices but this has also helped them to understand the changing needs of customers. The KM practices in these companies can be summarize.

FACTORS	BHEL	TATA MOTORS	M&M
	K-Portal	K-Gurukul	M-Connect
CRM	Regular feedback/no dealership portal	CRM portal/regular feedback	Dealership portal
TQM	yes	yes	yes
6-Sigma	6-Sigma	6-Sigma	3-Sigma
KAIZEN	no	yes	yes
Inventory management system	yes	yes	yes
Logistics	Own logistic	3rdparty	Inbound logistics
ERP	No	yes	yes

The above practices may be adapted by different manufacturing organizations either with the same processes or with subject to similar nature of organizations.

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