



## **COMPETENCY MAPPING FOR MANUFACTURING AND QUALITY CONTROL DEPARTMENT OF MANUFACTURING COMPANY**

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### **Abstract:**

The human capital is most critical resource available with any organization. The Human resources employees bring on table technical and managerial skills to achieve organizational objectives. Thus finding a fit between a person and job is very important for organizations. The current globalization of economy necessitates innovative approaches in managing the work force and finds the right people for right job. out of various HR practices used for finding a person job fit, improving productivity through developing right skill sets and training is a tool called as competency Mapping. The Process of identifying and development of the competencies in organization results into an improved recruiting, performance management as well as reward and recognition systems. Competency mapping is a great development tool for the employee. It assesses the inherent strengths and weakness of the individual and helps him develop himself. It conjointly offers the direction to the coaching machinery with the organization because the coaching programs are higher suited to fulfill the employee's wants. Competency mapping process can serve as a way to integrate human resource practices under the compensation management system. Competency models need to consider exactly how they will be used to support the company's mission and desired strategic outcomes and determine the extent to which competency models will impact and affect the company's human resources into practices.

**Keywords:** Competency, Competency mapping, HR practices, performance management

### **Introduction:**

Human resource management is a management function that helps managers to recruit, select, train and develop employees who are important part of an organisation. HRM brings together people and organisation to achieve common goals. HRM is becoming an increasingly important function of the organisation as it deals with the employees working in the organisation who works towards attaining organisational goals. It is important for organisation to hire right people with right skill sets, in order perform the given job satisfactorily. Hiring a person with wrong skill sets will incur high cost due to inefficient and unproductive workforce. It is becoming increasingly important to identify the required skills for each job in the organisation. This gives rise to need of skill mapping and identifying right skills and attributes.

Duice's Plant is one of the oldest manufacturing companies in India. The current factory was established in 1972. It has three manufacturing lines which produced various Beverages like Cold

drinks, Soft drinks, and Soda. Company has two functional manufacturing lines and produces various brand products in Glass and PET bottles. The current strength of plant includes 40 executives and officers and 199 associates (workmen) working in various departments.

The Indian organisations are becoming more global and expanding their operations geographically. This calls for mapping various jobs with skills to ensure uniform recruiting standards and measures to identify right person for given job. Competency Mapping is a process of identifying key competencies which are nothing but a mix of Skills, Knowledge and attributes required to perform a given job. If the competencies are defined for various roles are defined then it helps in organisations to identify right talent, measure gaps in competencies, identify training needs to develop training programs to improve competence level of employees. All organisations in are trying to achieve high efficiency and effectiveness in order to survive in the highly competitive market place. Companies want to improve their efficiency of their operations and employees skills and knowledge plays important part in this endeavour. Thus identifying competencies become vital for organisations.

Competency mapping is a technique of studying and analysing the skills possessed by the employees working in an organisation. It involves a step by step process of studying and identifying competencies required to perform a given job effectively.

**The Objectives of the study are briefly discussed below:**

- 1) To study and understand what is meant by competency, competency mapping and various methods available for competency mapping.
- 2) Find out key competencies required for manufacturing and quality control department through analysis of their job.
- 3) Develop a functional and leadership competency model to give a simplified competency framework for these executives.
- 4) Recommend various training programs based on these competencies for improved productivity of the executives.

**Theoretical background:**

**Competency:** A Competency can be defined as a key human characteristic required for performing a given job, task or a role successfully with desired efficiency. Competencies are simply a set of attributes which leads to effective performance.

This can apply at organizational, individual, team, occupational and functional level. The key is that effective performance is characterized by inputs (behaviors comprised of knowledge, skills or Attitudes) that lead to desired beneficial outputs.

**Competency Mapping:**

Competency mapping is a process of identifying key competencies for a particular position in an organization and then using it for recruitment, training and development, performance management, succession planning and job evaluation.

Competency mapping plays an important role in choosing, recruiting and holding the right person to the right job. When the competency required for a particular position is mapped, an accurate job profile is created. With the job profile well defined, the entire recruitment process becomes easier. As the skills and qualities for each position in the hierarchy is clearly defined, employee who seek growth are aware of what is expected of them. This enables to align his effort in the direction of the company's requirement. It also brings a degree of transparency to whole process and motivates the employee.

**Who Identifies Competencies?**

The competencies can be identified by one or more of the following category of people:

HR specialists, Job analysts, Psychologists, Industrial Engineers etc. in consultation with Line Managers, Current and Past Role holders, Supervisors/ Managers, Internal Customers, Subordinates

## **Research Methodology:**

### **Need of the Study:**

The current study was done with a focus on manufacturing and quality control departments of the factory with specific focus on manufacturing and quality control executives since they form the largest group of executives working in the factory. Although there is a leadership model is prepared by company at organizational level, the specific competencies are not mapped for various plant roles. These roles are essentially frontline roles which directly impact the productivity and quality function at the plant. These executives are given a function specific training depending on the roles they are doing. These training are more of a generic nature and doesn't target at specific competencies. The selection process of Executives is done through direct interview method. The person is judged on technical and people skills, but the interview assessment doesn't talk about any functional and behavioral competencies specific to the role. Thus there is a clear need of developing a competency framework for these roles.

### **Competency Mapping Process for Plant**

The competency mapping process can be divided in to various sub stages

**Step 1:** The First step involves understanding organizations vision, mission and values to understand the key behaviors the organization is seeking in its employees.

**Step 2:** A job analysis is conducted by requesting individuals to fill a position information questionnaire. Questionnaire asks them to explain what they are doing, and what skills, attitudes and talents they have to own to perform it well. One on one interview also can be used to gather knowledge. The objective is to collect knowledge from workers concerning the key behaviors essential to perform their various work.

**Step 3:** Making use of the results of the understanding of organizational values, job analysis, the required competencies for performing a job are chalked out. The competencies can be divided into core competencies and supporting competencies.

**Step 4:** Once the competencies are identified a competency based job description is prepared. This competency based job description is given to the HR department for their agreement and additions if any. It is developed when completely examining the input from the diagrammatic cluster of staff and reworking it to plain competencies.

**Step 5:** Once we have ability based mostly description, we tend to begin the method of mapping the competencies. The competencies of the actual description become factors for assessment on the performance analysis, achievement and choice. Creating use of competencies will perform a lot of objective evaluations determined by displayed or not displayed behaviors. Feed backs are often given to the participant concerning the competencies that has been assessed and wherever they stand.

**Step 6:** An in depth report is ready of the competencies assessed and conjointly the event set up for the organic process areas. The outcomes of assessment are often used to spot what competencies staff need. Extra development or coaching are often provided to staff. This can facilitate staff in achieving the objectives of the organization

### **Research Design:**

Research design is also called as a blue print of research since it lays down the method and procedures for the collection of required information and its measurement and analysis with a view of assuring a definite significant conclusion at the end of the proposed study. Here for this study, a number of circumstances will entail taking up a descriptive studies when researcher is interested in studying attributes of a class under study. When the researcher is interested in knowing the characteristics of certain groups such as age, occupation, experience etc., a descriptive study is necessary. Descriptive studies as well structured. In this study, descriptive research is used to collect information about the vision and mission, history of the company, the department to which competency mapping is done, about the employees and their job, roles, responsibilities, work etc.

## Discussion:

The primary data for this study was collected through a structured questionnaire for the employees And Interview, Discussion with the managers and HR department. It consist the information of respondents about their job tools, instruments, roles, responsibilities, knowledge, skills they require and the tools, instruments, relationships with superiors, subordinates, customers etc. they handle. The data is also collected in the form of blue prints of the job description of the employees. The data collated from the questionnaires are then collated to get the numerical scores against each role and the respective competencies. The aim here is to identify the top 3 core and supportive competencies for each role.

Secondary data consist of information that already exists in Document on company Leadership framework, Study of Roles and Accountabilities of Executives and various articles and material on competency Mapping.

The data is gathered analyzed to identify the core and supporting competencies for these departments. After that the number of levels of each competency is identified and defined according to the work and skills required by those employees. The research is done until finding and defining the competencies into various levels. Assessment of the employee according to these competencies and implementation shall be carried by the company.

- 1. Analyzing Mission and Vision of the Organization:** Company propagates a philosophy of performance with purpose. Company has made 3 dimensions of the behaviors required to be demonstrated by the leaders and individuals like setting the Agenda, Taking others with you, doing it the right way. Thus it can be seen that these dimensions have a linkage with the vision and mission of the company with values like integrity, honesty, collaboration and drive for others. These dimensions support the performance with purpose philosophy of the organization.
- 2. Understanding the operations and process flow:** The quality control function prepares quality check of raw material and finished goods. Both manufacturing and quality function need to work hand in hand in order to ensure that the product is made as per the schedule and conforms to Company quality norms.

### 3. Roles and Responsibilities of the Executives in Production and Quality Control Issue:

Due to constraint of time Shift in Charge Manufacturing, Shift in Charge Quality Control, Manufacturing Officer, Quality Control Officer Roles were considered for job analysis by understanding their roles and responsibilities. After understanding their daily work and roles following table is prepared for each role.

Shift in Charge Manufacturing	Shift in Charge Quality Control	Quality Control Officer	Manufacturing Officer
<b>Roles</b> Manage Shift operations, Lead Manufacturing officers on lines	<b>Roles</b> Manage Shift operations, Lead QC officers on lines	<b>Roles</b> Manage Line operations within given Quality parameters	<b>Roles</b> Manage Manufacturing Line operations
<b>Accountabilities:</b> Communicate production schedules and enable execution by line officers, Lead occupational safety in the plant in shifts, implement key controls and SOPs related to production, Lead line performance improvement in production, Manage 7M circles in production, Drive high quality people processes for officers in shifts in production	<b>Accountabilities:</b> Communicate all quality processes and controls and enable execution to ensure timely startup, Ensure Occupational safety at work in the plant in shifts in activities related to quality, implement key controls and SOPs associated with internal control, perpendicular quality performance improvement and demonstrate improved Quality scores, Drive storage time and inventory activities in quality domain, Drive prime quality people processes for officers in quality department	<b>Accountabilities:</b> Meet routine Quality Control schedules, Record, analyze and report line performance in various quality standard line tags for production area, Lead line activities in quality for production areas, Drive high quality people processes for line in quality of line	<b>Accountabilities:</b> Meet daily production schedules by ensuring availability of line, ensure and packing material, recruit and report line performance into in shift, try run, Lead 7M circle coach, guide and manage associates in production, Drive high quality people processes for associates in the production area

After analysis of various roles and responsibilities, now we can identify various functions and competencies required to carry out these functions by each role. From the above we can list various functions to be carried out by different Roles as follows.

<b>Various Functions carried out in Quality and Production Department</b>	Leading the Team
	Driving Safety Consciousnes
	Usage of data and IT systems
	Working in TPM environment
	Planning and coordinating the line operations
	Executing production plan/manufacturing process
	Ensuring Quality conformance
	Training and coaching others
	Continues Improvement in process

#### 4. Defining the Competencies:

After analysis of various functions and roles, know we can define various competencies which are required to carry out these roles effectively. The competencies are categorized as Core Competencies and Supportive Competencies.

<input type="checkbox"/> Core Competencies	<input type="checkbox"/> Supportive Competencies
<input type="checkbox"/> Quality Focused	<input type="checkbox"/> Communication
<input type="checkbox"/> Customer Focused	<input type="checkbox"/> Leadership
<input type="checkbox"/> Continual Improvement	<input type="checkbox"/> Problem solving
<input type="checkbox"/> Manufacturing Process Knowledge	<input type="checkbox"/> Team Work
<input type="checkbox"/> Operating SAP systems	<input type="checkbox"/> Analytical Ability and Data orientation

A core competency is a specific Competency that gives a competitive advantage to factor to the business and is seems as imperative to perform the job. It fulfils three key criteria:

1. It provides the customer satisfaction or consumer benefits
2. It is not easy for competitors to imitate and act as entry barrier.
3. It can be leveraged widely by many products and markets.

Other competencies which support these competencies and are required to carry out work efficiently are called as Supportive Competencies.

#### For Plant the Core Competencies are:

##### A. Quality Focused:

This can be defined as continuous focus on quality to ensure that the product meet quality norms 100% of the times. This includes:

- i. Ensuring conformance of product to the specifications and standards through periodic inspections, audits of products and processes.
- ii. Maintenance of quality management system (QMS) in conformance with the technical specifications as specified by the quality system documents.
- iii. Knowledge on various Quality Control Methods
- iv. Use of statistical Process Control

##### B. Customer Focused:

- i. It entails being focused on customers (internal and external). This can be define as all

activities done to fulfill needs of customers.

- ii. Handling customer complaints
- iii. Proactive in communicating Delays
- iv. Responding as per agreed timelines
- v. Maintaining SLAs(Service Level Agreements)
- vi. Maintaining and cherishing harmonious relationship with internal and external stakeholders.

### **C. Continual Improvement:**

Continual Improvement can be defined as an ongoing effort to improve products, services or processes. This can include:

- i. Improvement in products, process, service methods.
- ii. Improving productivity through use of new equipment, machines, tools
- iii. Interact with customers and implement their feedback for process improvement
- iv. Encourage idea generation.
- v. Working in small groups to solve work related problems
- vi. Learn and implement new techniques

### **D. Manufacturing Process Knowledge:**

This can be defined as the knowledge of understanding, planning and controlling the process, product and their specifications and standards. This includes: Product knowledge, Process knowledge, Knowledge of production planning and control

### **E. Operating SAP systems:**

This can be defined as user's knowledge on usage of SAP (an ERP software used in various phases of production) for data entry, reporting and control. This essentially means expertise in use and interaction with ERP system and using it effectively in routine operations.

### **For Plant the Supportive Competencies are:**

#### **A. Communication:**

It is the ability to use verbal, non-verbal means of communication to effectively communicate ideas, thoughts, plans and information. This may include:

- Interaction with customers regarding the standards of products, process, process flow, new product development, complaints, documents and reports.
- Communicate with colleagues, subordinates on plans, training, problems and solutions.
- Communicate changes effectively to the customers and employees
- Use effectively various means of communications including IT systems.

#### **B. Leadership:**

- It is the process through which an individual tries to influence another individual or a group of individuals to accomplish a common goal. This includes:
- Motivate and encourage others to work together, to cooperate and collaborate by developing shared goals and inspire trust.
- Give encouragement through training, motivating and able supervising subordinates to develop their skills and build talent.
- Use appropriate methods of recognition to recognize of each individual's contributions to the success of the organization.
- Act with honesty and integrity.
- Possess intellectual abilities like judgmental ability, knowledge, and good interpersonal communication.
- Making sound decisions under pressure and solve work problems.

#### **C. Problem solving:**

It is the ability to find a workable solution to a problem and an art to understand the kind of question that is posed and the kind of answer that is demanded. This includes:

- Identification problems in machines, tools, process, product, reports etc
- Exhibiting analytical thinking and collating the required inputs to solve the problems,

- Exhibit foresight to identify and defuse conflicts before they occur.
- Provide effective and workable solution to the problem statement.

#### **D. Team Work:**

It is the ability to work and collaborate with a diverse group of people within the work team to achieve a common objective. This includes

- It involves art of influencing, collaborating, supporting and performing with in group of people towards a common goal.
- Treating others with respect.
- Creating a cherishing and inclusive work environment.
- Keeping team's success before individual goals.

#### **E. Analytical Ability and Data orientation:**

This can be defined as working with complex data to analyze it to give meaningful information with the help of various statistical tools. This includes

- Ability to record, maintain and analyze process related data.
- Prepare reports, graphs and control charts to depict numerical data.
- Ability to use data analysis for process and quality control.

### **5. Mapping the competencies with the functions of the department and identify the core and supporting competencies.**

This is done by identifying the competencies of every person by understanding their each responsibility within the job description. This was done as following-

- Preparation of a questionnaire to note down response of employees.
- They were asked to rate the competencies required on a scale of 1 to 4.  
1 – Beginner                      2 - Doer                      3 - Expert                      4 - Master
- Each employee were also asked to rate their judgment on competencies required by other functions to take cross functional view.
- Then top 3 core competencies are selected for each role with other three as supportive competencies.
- A role and competency table is prepared to map the competencies against each role.

#### **Findings:**

- During the study it is observed that the Competency Mapping is an important tool which can be used to define job description, performance measures, training and development need of an employee.
- Although the concept of Competency Mapping is in vogue now for over 50 years and there is awareness amongst managers about the competency framework but it is not effectively used while carrying out recruitment and selection of employees. If used properly a competency map can be used to develop various types of selection tools.
- In the current study the data collected through the questionnaires is calculated and later plotted to identify Core and Supportive Competencies. Top three core and Supportive competencies are selected to develop a Competency Map for various roles discussed as above.

#### **Suggestions:**

It is suggested that this competency model can be explained to all employees performing the roles discussed above. This will help them to develop their own skills to enhance productivity. This competency map can also be used to develop various performance management tools like BARS or 360 degree feedback. This map can also be used for effective recruitment and selection of employees for the above given roles. These competencies identified can be used to develop training programs which shall be useful for employees in manufacturing and quality control department.

**Conclusion:**

It can be concluded that efficient and skilled employees are key factors in success of every organisation. If the employees are competent which means that they possess desired competencies then it shall result into an excellent performance on the job and better financial and operating results for any organisation. Thus Competency Mapping process is recommended to be completed for all the unique roles in the organisation. Once defined, the competencies can be explained to the managers performing the job and training shall be imparted to cover gaps if any. A good competency mapping process will help in preparing job descriptions of each role and also gives measures of employee performance. These can be developed as tools for Competency Based Recruitment, to run assessment and development centres. A competency map can also be used to design a reward system which is based on sound foundation of competency levels of any employee thus reducing bias into performance management, recruitment and promotion process. It is evident that this project of "Competency mapping for Manufacturing and Quality Control Department" will help the plant to understand the process and use the tool for effective recruitment, selection and training of their employees.

**References:**

1. K. Aswathappa: "Human Resource Management" 5<sup>th</sup> Edition, Tata Mc Graw-Hill companies, New Delhi, 2008
2. Seema Sangvi, "A Hand book of Competency Mapping", 2004
3. Article - "The Art and Science of Competency Mapping"- by T.V. Rao
4. Milind kotwal (2008), model and method for competency mapping and assessment
5. R. Palan (2006) competency mapping – A practitioner's guide
6. Anisha, N. (2012). Competency Mapping of Employees. International Journal of Advancements in Research & Technology, 1(5), 1-7
7. P.Suguna, T.TamilSelviMay (2013).Competency Mapping –A Drive for Garment Firms in Tirupur District. International Journal of Scientific and Research Publications, Volume 3, Issue 5
8. Celia, B.R. & Karthick, M. (2012). Competency Mapping of Employees in the Power Sector with Special Reference to Chennai. ZENITH International Journal of Multidisciplinary Research, 2(1), pp. 307-320
9. S. Balaji & D. Vimala (2012): "A Study On Competency Mapping In Adecco Service Organizations, Chennai", Asia Pacific Journal of Marketing & Management Review Vol.1 No. 9.
10. <http://www.citehr.com>