# A PRACTICAL APPROACH TO COMPETENCY MAPPING

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*Abstract:* Competency Mapping is the process to analyze the competencies of employees working in the organization and to develop and utilize them for the achievement of its objectives. A number of studies have provided theoretical base to the topic but few studies speak in terms the processes with which such competencies are analyzed and practiced. The present study is an attempt to understand the basic process of competency mapping and its application in general. The competency mapping process explains how the organizations can identify the organization's capability in the development of its products and how this process would help the companies to enhance the efficiency of the process and that of existing manpower. This is most effective while used at the beginning of process development and least when used in the end of any particular stage of the development. This can be leveraged to analyze the gaps in competencies and defining a strategy and action plan to bridge the gaps.

**Key Words: Milestones, protocols, SOPs, competencies, critical performance**

## I.CONCEPTUAL FRAMEWORK

Competency is "an underlying characteristic of a person in that it may be a motive, trait or skill aspect of one's self –image or social role or body of knowledge." - Boyatzis (1982).

Productivity, quality, profitability, stability and growth are the objectives which every organization wants to achieve. The development of competencies of the human resources of the organization becomes imperative. The competency development necessitates competency mapping as the employees working in the organization have to perform a number of different tasks or functions and hence, require varied knowledge, attitudes and skills as per the nature of the job they perform. Further, their job profile is constantly changing due to changes in the environment, technology, organizational priorities for goals and objectives, job profiles of their fellow employees including subordinates, peers and superiors, changes, etc. Therefore, competencies of employees need to be assessed and developed for the success of the organization. It will help to build a sound developmental culture where the employees and their bosses can take initiatives, discuss ideas with open mind, resolve conflicts, have faith and trust in each other. It will help in developing more competent people, increasing job satisfaction and team work which will lead to better utilization of the competencies of Human Resources.

T. V. Rao (1986) has rightly explained that 'Human Resource Development is a continuous process to ensure development of the employees' competencies, dynamism, motivation and effectiveness in a systematic and planned manner' and therefore, **Employee Competency Development is the core of Human Resource Development.**

Competencies of the employees need to be developed on continuous basis for their own as well as the development of the organization. The skill set can be of three types:

a)   **Skills Required for Performing Jobs** such as knowledge, attitude and technical, managerial and conceptual skills.

b)   **Skills Required for Meeting Challenges in Jobs** such as change in environment, change in organizational priorities, technological changes etc.

c)   **Skills Required for Meeting other Requirements** such as new challenges, new opportunities, new capabilities, regular feedback etc.

In the light of significance of the competency development both for the employees and the organization, competency mapping has become indispensable. Competency Mapping is a process of identifying competencies required to perform a job, role or a set of tasks at a given point of time. It helps to identify skills that a person possesses for the assigned job and strengths for team work, leadership, and decision-making. Large organizations use this technique to understand how to make best use of each worker or how to combine the strengths of different employees to produce the highest quality work. This type of assessment can be useful to the individuals to help them prepare for a career change or advance in a specific job field. (Solomon, 2013)

The competencies possessed by a person (whether inherent or acquired) help him to attain his own and organizational objectives, he is expected to achieve in a given period of time with utmost efficiency. The objectives of the organizations are subdivided into various parts and attainment of each part is construed as a project. Each project is further divided into targets on a timeline. One such target is called a milestone.

Milestones describe performance levels which the employees are expected to demonstrate for skills, knowledge and behaviours in their domains. They help the employees to improve their competencies at each level of performance. They lead the people and the organizations to desired goals by upgrading their skills, knowledge and behaviour.

The milestones are attained by following certain set of rules and behaviours. They are called protocols. The number of protocols may be one or more than one for a milestone depending upon the involvement of the functions he has to handle.

For each protocol, certain standards are laid down which are called Standard Operating Procedures (SOPs). They are objective statements and each employee is expected to achieve the SOP to attain protocol and milestone. The SOPs require certain level of skills and knowledge for this purpose.

The competency development therefore, becomes inevitable as achievement of SOPs, protocols and milestone is possible only if the employees have desirable level of skills, knowledge and behaviour. Therefore, competency mapping becomes more relevant.

## II. STATEMENT OF THE PROBLEM

Considering the significance of employee competency development in the organizations, the present study has been undertaken. The study seeks to explore the process of competency mapping adopted in various organizations and analyze **various steps** used in competency mapping including the process of identifying milestones (the final set of competencies the company wants its employees to attain), protocols (set of rules and acceptable behavior the employees are expected to follow)  and SOPs i.e. Standard Operating Procedures (Step by Step instructions compiled by the organization to help its employees to perform the assigned tasks with a view to attain efficiency at work, quality output and uniform performance); mapping competencies (process of identifying key competencies for the organization and/ or job and integrate them into various HR processes including job analysis, recruitment, training, performance appraisal etc.); competencies authentication process (validating the competencies with HR processes), assessment of competencies and gap analysis (ascertaining processes to study gaps between the competencies required and competencies possessed) ; risk mitigation (processes for reducing risk); competency building and review mechanism (building competencies in employees and evaluate them in terms of milestones).

## III. OBJECTIVES OF THE STUDY

Keeping in mind the key role of competency development in achieving varied goals of the organization, the study aims to achieve the following objectives:

1. To prepare a roadmap for the process of identification of milestones, protocols and SOPs which an organization should adopt for competency mapping.

2. To suggest the process of mapping employee competencies to be adopted by the organization.

3. To explain method of authentication of employee competencies.

4. To ascertain the approach an organization should follow to make assessment of competencies, gap analysis and risk mitigation.

5. To suggest general of competency building and review mechanism organizations should adopt.

## IV. METHODOLOGY

For the study, primary data has been used. However, at some places, secondary data has also been used. The data relating to employee competency has been collected from the records of various companies, personal interaction with the HR executives, senior officers of the companies and other employees of the organizations.

The analysis has been made by applying charts, tables and diagrams. HR tools have also been applied to arrive at appropriate conclusions.

## V. SCOPE OF THE STUDY

The study on competency mapping provides a scope for the other organizations to apply this technique with some modifications in the requirements of employee competency, protocols and SOPs in their organizations. Hence, the results of the study can be generalized to other organizations as well with modifications.

## VI. SURVEY OF LITERATURE

A number of studies have been made on Competency Mapping which provides insight into the various competencies, models and case studies of different organizations regarding applicability of the approach for competency development in their organizations. Some of these are:

**Solomon [2013]** in his study on Competency mapping has tried to explore the level of Competency prevailing among the executives of public sector. The results of the study show that nearly half of the respondents have moderate level of managerial HR and general competencies.

**Jain V K [2013]**, 'Competency Mapping in Indian Industries - A Case Study' have indicated the level of Attributes, Skills and knowledge possessed by the employees. Analysis of overall scores of the three variables on all parameters showed the level of Managerial Competence of each respondent. Potentials were also identified. Gap Analysis was made on the basis of expected performance on each parameter and actual performance showing the strengths and weaknesses of the respondents.

**Sirisha, Toopalli and Kalyan, Nalla Bala [2019]** in their paper 'A Study on Competency Mapping at BGR Energy in India' discussed different aspects of employee competencies like adaptability, initiative, judgement, Problem solving, Planning and Organization, Leadership Quality, Productivity and Use of Technology to examine the competency level the employees are adopting. They have suggested various strategies for this purpose including problem solving skills of employees, and to conduct entertainment programs, learning seminars and e-learning programs to improve and to reduce the stress, employee's performance based bonuses and to revise the performance appraisal system to incorporate the result of skill analysis and employee job role assessment.

The survey of literature indicates that there are evidences of studies being conducted to study HRD Climate, Competency Mapping, Need Analysis, Employee Skills etc. but little effort has been made to study the how the competency mapping is actually done in the organizations i.e. what parameters are adopted and how the results are extracted and applied for employee development. The present study is an attempt in this direction.

# VII. COMPETENCY MAPPING PROCESS – ANALYSIS AND INTERPRETATION

Every organization that wants to achieve its goals of higher productivity and better quality, increased profitability, better stability, consistent growth and increased organizational effectiveness must pay attention to the development of human resources in a systematic and planned manner.

The competency is the underlying characteristic of a person which enables them to deliver their best performance in a given job, role or situation. The study is based on the "**Core Competency Model"** which defines a set of competencies for a specific position and level in the organization if possessed by incumbents is likely to produce desired results.

The present study takes into account the process of identifying employee competencies, making the assessment of such competencies and to understand their effect on performance of the employees and Key Result Areas (KRAs). An attempt has also been made to undertake competence gap analysis and training need identification so as to ensure competency development of the employees.

The process of Competency Mapping and Competency Development is based on certain assumptions:

## ASSUMPTIONS

1. Company would be able to take better decisions regarding the development of a product with regard to
   a. Outsource policy
   b. Develop people within the company
   c. Recruit people in commensurate with required competencies
   d. Better its training strategy
2. The process should help company identify the core competency of various resources
3. Company should be able to understand organization level competency to develop a particular product
4. The process should be easy to understand and implement
5. Employee-wise, protocol-wise competencies directly impact company's capability to develop a product.

The entire process of Competency Mapping has been divided into various parts including:

**Customers** (customer-owners), **Expectations** (assessing competencies, study of gap analysis etc.), **Process** (milestone-wise roadmap, mapping competencies, competency authentication, competency assessment & gap analysis and competency building) and **Performance Tracking** (review process) as discussed below:

## 1. CUSTOMERS

The term customer includes Internal and External customers

**1.1 Internal Customers:** These are defined as the end customer owners. They include:
   i. The Director of the Company
   ii. R&D Head

**1.2 External Customers:** This is an internal process and hence there are no external customers for the same.

## 2. EXPECTATIONS

This Process has been designed to provide a framework in order to:

2.1 Create an end to end product wise milestone map

2.2 Assess Organization's competency to develop any particular product
   a. Employee-wise competency
   b. Protocol-wise competency

2.3 Competence Gap analysis

2.4 Develop strategy and action plan to fill the competency gaps
   a. Recruit
   b. Outsource
   c. Expert hire
   d. Develop within

## 3  PROCESS

To ensure that there is a structured approach followed for competency mapping, a standardized process needs to be followed across the organization as per the table below.

**Table 1: Standardized Process for Competency Mapping**

| No. | Steps | Responsibility Centre |
|---|---|---|
| 3.1 | Milestone-wise roadmap for product development and mapping of protocols to milestones | Production & Quality Department Heads, Project lead |
| 3.2 | Mapping of competencies for product development | Project lead |
| 3.3 | Competency authentication process | Production & Quality Department Heads |
| 3.4 | Competency assessment, gap analysis and risk mitigation | Production & Quality Department Heads, The Director |
| 3.5 | Competency building review, audit and fine tune | The Director, Production & Quality Department Heads |

## 3.1. Milestone-wise Roadmap: Process of Identification of Milestones, Protocols and SOPs

### 3.1..1  Identification of milestone/task, protocol and SOP's

The Production & Quality Department Heads nominates a Project leader for the product identified for development. Post approval from the director, the Project lead forms a core team which will function as his advisory council to prepare the milestone-wise roadmap for product development. **Core Team** is a team that comprises of Head of the Departments and is also called the strategic execution team.

Milestones/tasks are defined by the core team. Each milestone is mapped to a protocol which has multiple SOP's under them.  Resources are then mapped to SOP's. Hence one particular protocol will have multiple resources mapped against it in turn. The target outcome for the milestone is defined.  This is then evaluated by the Project lead before getting it reviewed by the Production and Quality Heads.  A table showing milestone-wise road for product development and mapping of protocols to milestones is shown below:

**Table-2: Milestone-wise roadmap for product development and**

**Mapping of protocols to milestones**

| S. No. | Sub Steps | Done By | Date |
|---|---|---|---|
| 1 | **Identification and of milestone/task, protocol and SOP's** | | |
| 1.1 | Milestone Identification | Core Team | |
| 1.2 | Mapping of each milestone to a protocol which has multiple SOP's under them. | Core Team | |
| 1.3 | Resources are then mapped to SOP's. Hence one particular protocol will have multiple resources mapped against it in turn. | Core Team | |
| 1.4 | Defining desired outcome for the resources w.r.t. milestones | HODs | |
| 1.5 | Evaluation of resources | HODs | |

| 2 | **Categorization of Protocols-On the basis of Competency Required and level of Importance** | Done By | Date |
|---|---|---|---|
| 2.1 | Identification and Classification of protocols into defined categories | Core Team | |
| 2.2 | Mapping Resources as per their capabilities under these categories | Core Team | |

The Identification of milestones, Protocols and SOPs has been discussed in the following diagram where identification of molecule has been taken as milestone, followed by protocols and SOPs.
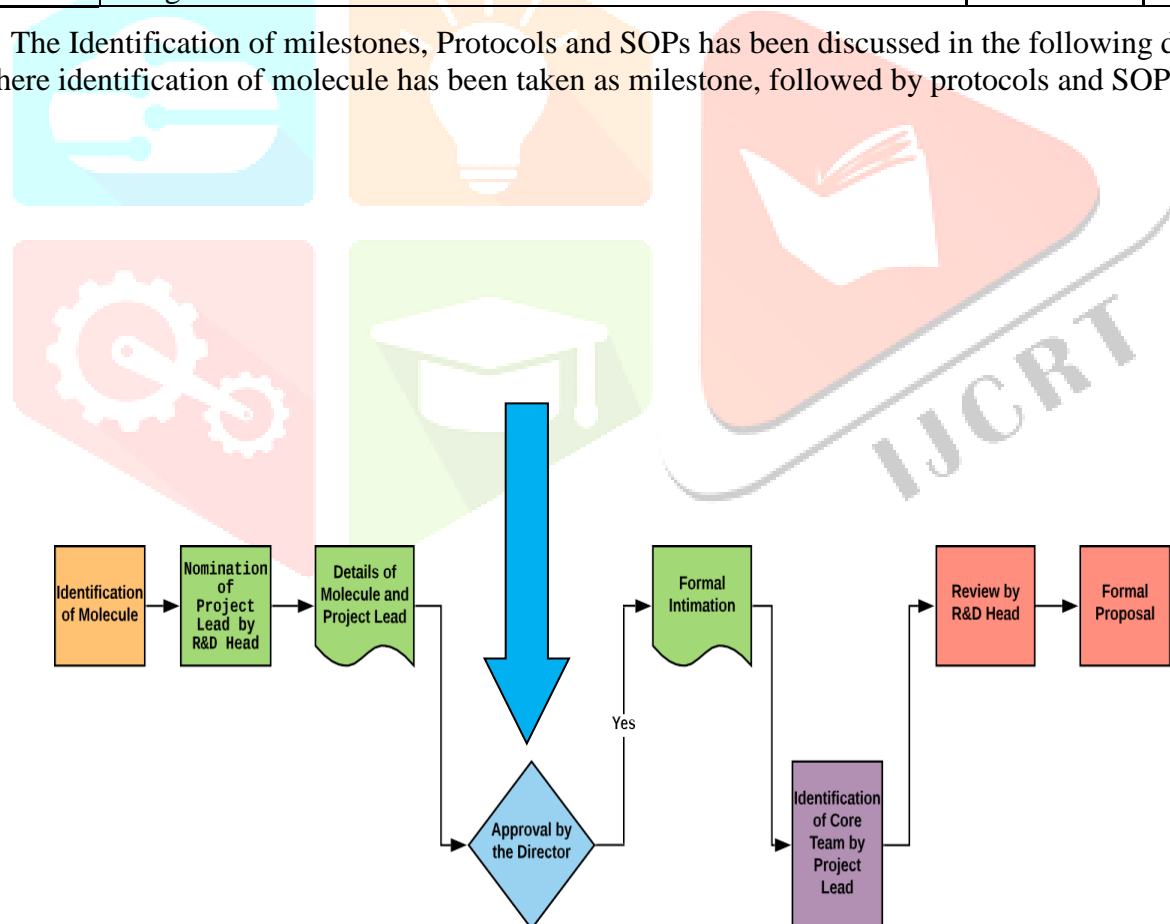


**Figure 1: Identification of Milestones, Protocols and SOPs**

### 3.1..2  Identification of process milestone (Big Block) & mapping to Protocol

The core team defines the Big Blocks or process milestones at a high level for product development once the various milestones, protocols and SOPs are identified. This will be at a high level and there would be various protocols aligned under each of these Big Block process milestones. These milestones are key steps in the development of the particular product.

The core team will then map all the protocols to one or the other milestone. This is essential as it would help in deciding the capability of the organization in developing the product as it is in turn directly linked to the competency in the protocol. The following table is an example of process milestone – mapping to protocol as used in the company:

**Table – 3: Mapping to Protocol**

| S. No. | Process Milestone | Milestone/ Task | Protocol |
|---|---|---|---|
| 1 | Clone Development and Characterization | Identification and confirmation of the target gene (Analyzed from Innovator product) | Amino Acid Sequencing of the innovator (comparison with sequences provided in patents) |
| 2. | Clone Development and Characterization | Chemical synthesis of Gene | Codon optimization for expression host system |
| | | | Gene synthesis |
| 3 | Scale up - UPSTREAM | Clone (Cell line) kinetics and evaluation | Growth profile, doubling time |
| | | | Specific Productivity Rate and productivity. |
| | | | Protein accumulation studies |

### 3.1..3  Categorization of milestones

The milestones defined are classified according to two types of matrix.

        a. Known-unknown             b.   Unknown- unknown
        c. Unknown-Known            d.   Known- Known



**Figure-2: Categorization of milestones**

In the above matrix there are four scenarios that can provide and insight into the Organization's position in the market:-

▪ Known-Unknown (K-UN)- This is a scenario when company has capability in certain protocol or product development on a higher level whereas this is a grey area for competitors.

▪ Unknown-Unknown (UN-UN)- This is the case (mostly for new products) when competencies are extremely rare even in the market

▪ Unknown-Known (UN-K)- This is the scenario where company might have to look at the market outside to hire talent which is available there or develop the competency within the organization to move to the known-known quadrant

▪ Known-known (K-K)- This scenario is when company is having the competency that market has and vice versa. This could be the case with many matured products in the market

**Critical, Major, Minor** – Each protocol is categorized into 3 categories based on their importance and competencies required. As shown in the table given below each is categorized into Critical, Major and Minor. This is the role of the core team and the project lead and should be reviewed and approved by Production & Quality Department Heads.

a. Minor: - This is of the lowest severity and any error in this step generally doesn't affect the development process as such. This is not a show-stopper step. But at the same time repetition of errors in this should be avoided as well

b. Major: - These are those milestones which are second in severity level. Errors more than once in this step can derail the development process. The team should ensure that errors are not repeated and corrective actions need to be taken once an error occurs.

c. Critical: - This is a very important step and missing this or any error in this will result in failure of the product development process. This is an inevitable step and extreme care needs to be taken to ensure the smooth running of the same.

**Table – 4: Categorization of Milestones**

| MN | Process Milestone | Milestone/Task | Protocol | Critical/Major/Minor (3,2,1) |
|----|----|----|----|----|
| 1 | | | | CRITICAL |
| 2 | | | | CRITICAL |
| | | | | CRITICAL |
| 3 | | | | MAJOR |
| 4 | | | | MAJOR |
| | | | | MAJOR |
| 5 | | | | MAJOR |
| 6 | | | | MINOR |

## 3.2 Process of Mapping of Employee Competencies for product development

### 3.2..1 Facility wise competency

This is the basic level of competency or preparedness that company needs to have for developing a product. This is the organization's preparedness regarding the infrastructure, equipment etc. This is reviewed and analyzed by the Production & Quality Head with the help of the Head of the Departments as stated below:

**Table – 5: Facility wise competency**

| S. No. | Sub Steps | Done By | Date |
|----|----|----|----|
| **3.2** | **Facility wise competency** | | |
| 3.2.1 | Organization's preparedness w.r.t. infrastructure, equipment etc. | Reviewed and analyzed by Production & Quality Head | |

### 3.2..2 Employee wise competency

Having critical resources is the key to any Organization's success. Developing a product is no different and is heavily dependent on the right kind of resource competency. Each resource will be assessed for their respective competencies in each and every protocol that is required for the development of a product. The assessment is done by the individuals themselves from initial stage. This will then be vetted by the supervisor who will give a rating for each of the resources and this will be the final score for each resource post approval from the HODs. The following table explains step by step procedure of assessment:

**Table – 6: Employee-wise Competency**

| 3.2 | **Employee wise competency** | Done by | Date |
|---|---|---|---|
| 1 | Each resource will be assessed for their respective competencies in each and every protocol that is required for the development of a product. | Individuals themselves | |
| 2 | Final Rating for each resource | Vetted by Supervisor | |
| 3 | The ratings are to be given on a scale of 1 to 5 (5 being the highest). | Supervisor/ HOD | |
| 4 | By the end of this step there will be an accumulated list of employees under each protocol having a rating anywhere between 1 and 5. | Supervisor/ HOD | |
| 5 | Once the ratings are arrived at for each of the resource, then the resources are ranked on the basis of their competencies across protocols. This helps Company to identify the key resources who can fit into various roles as per requirement comes. | Supervisor/ HOD | |
| 6 | A list of employees with a score greater than or equal to 4 can be obtained and this will be the list of employees who are 100% capable of developing the product under consideration provided all the other competencies like facility-wise and protocol-wise competencies are satisfied. | Supervisor/ HOD | |
| 7 | Below given table shows the sample template which shows the number of resources with a score greater than or equal to 3 for the sample product | | |

The ratings are to be given on a scale of 1 to 5 (5 being the highest). Based on core team's rating the final score is arrived at and a resource is given a rating between 1 and 5. The table below shows the scale for the rating.

By the end of this step there will be an accumulated list of employees under each protocol having a rating anywhere between 1 and 5 as given in figure below. Once the ratings are arrived at for each of the resource, then the resources are ranked on the basis of their competencies across protocols. This helps to identify the key resources who can fit into various roles as per requirement comes.

| SN | Assessment Criteria | Weight | Points | Level of Competency |
|---|---|---|---|---|
| 1 | Understanding of Task/ sub-task-Process Steps (Discussion - know- how) | 20% | 1 | Having theoretical knowledge |
| 2 | Input/output of each of process | 40% | 2 | Having theoretical knowledge and the ability to deliver marketable product before joining company |
| 3 | Accuracy - based on company experience | 60% | 3 | Having theoretical knowledge and the ability to deliver marketable product after joining company under supervision |
| 4 | Practical repeat Experience- skill or Observations (Previous/Current) | 80% | 4 | Having theoretical knowledge and the ability to deliver marketable product after joining company - can perform independently, without supervision |
| 5 | Timeline - based on company exp. | 100% | 5 | An expert, who can train other people |

**Figure 3: Determining Level of Competency**

This process also helps in identifying company's capability in developing a certain product within the organization. A list of employees with a score greater than or equal to 4 can be obtained and this will be the list of employees who are 100% capable of developing the product under consideration provided all the other competencies like facility-wise and protocol-wise competencies are satisfied. Below given table shows the sample template which shows the number of resources with a score greater than or equal to 3 for the sample product

| S.No. | Process Milestone | Task Milestone | Protocol | 5 | 4 | 3 | 2 | 1 | 0 | Resource Counts ≥3 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |

**Figure – 4: Template showing number of resources having score ≥ 3**

A similar template for resources with a score greater than or equal to 4 is given below

| S.No. | Process Milestone | Task Milestone | Protocol | 5 | 4 | 3 | 2 | 1 | 0 | Resource Counts≥4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |

**Figure – 5: Template showing number of resources having score ≥ 3**

### 3.2..3  Protocol-wise competency

Protocol wise competency is arrived at for each protocol by calculating the weighted average of the number of resources in each of protocol and the score for the same. This will be carried out by the Project Leader assigned for the particular product for development. The weights are in percentage terms as shown below. The protocol capability score can have a maximum equal to the total number of resources and this will be achieved if all the resources have a rating of 5.

| Weightage (%) | 100 | 80 | 60 | 40 | 20 | 0 | Protocol Capability |
|---|---|---|---|---|---|---|---|
| Resource Rating Scale | | | | | | | |
| No. of Resources in Protocol 1 | | | | | | | |
| No. of Resources in Protocol 2 | | | | | | | |
| And so on ……. | | | | | | | |

**Figure 6: Template showing Protocol Capability Score**

### 3.3  Method of Competency Authentication Process

### 3.3..1  Capability verification for various milestones

The milestones can be filtered based on whether they are critical, major or minor for performing company's capability verification for these milestones. This should be done and reviewed by the Production & Quality head and finally by the Director as under:

**Table – 6: Capability Verification for Various Milestones**

| S. No. | Sub Steps | Done By | Date |
|--------|-----------|---------|------|
| 1 | Capability verification for various milestones | Production & Quality head | |
| 2 | The milestones can be filtered based on whether they are critical, major or minor for performing PBL's capability verification for these milestones. | Production & Quality head | |
| 3 | This is basically a combination of measure of Organization's competency employee-wise and protocol-wise. | Production & Quality head | |
| 4 | The analysis done for a set of critical milestones is given below | Production & Quality head | |

This is basically a combination of measure of Organization's competency employee-wise and protocol-wise. The analysis done for a set of critical milestones is given below:

| Critical Milestones | | | | |
|---------------------|---|---|---|---|
| Milestone | Company's capability | Company Non-capability | Average Resource count with greater than or equal to 3 | Average Protocol Capability |
| | | | | |
| | | | | |
| | | | | |

**Figure – 7: Template showing Average Protocol Capability Score**

### 3.3..2  Periodic verification of competency level

The competencies analyzed and arrived at have to be authenticated and this has to be done through periodic review. Competency level can change due to the following factors

1.      Attrition of employees
2.      New  products coming in the market for which competencies required are new
3.      Lack of availability of resources for a particular product development.

Periodic review will be conducted by Production & Quality Heads along with the Project Lead.

### 3.4 Approach towards Competency Assessment and Gap Analysis

Post analyzing the competencies, the data should be then used to conduct a gap analysis of company's capability to develop a product against its lack of competence in the same. This helps in identifying the areas where company needs to build competency and thus mitigate the risk. The gap analysis is done by the Project leader and based on his findings a report is submitted to the R&D head.

### 3.4..1  Risk Mitigation

Based on the findings from gap analysis a strategic plan is prepared by the R&D head for the existing gaps to bridge the gap. These could be achieved through the following 4 ways

1. Develop within
2. Hire resources
3. Outsource
4. Hire experts

Based on the action plan the Product development review document is updated to be submitted to the Director for review of the overall organizational level review.

### 3.5 Competency Building Review Process

This will be a continuous process. Through this the process to map the competency will be reviewed periodically and fine-tuned in so that the results are more accurate and help the organization take strategic decisions for product development more accurately.

A monthly report is submitted to the Director which helps him have a bird's eye view on the various products that are either under development or being considered for development and the status with regard to each of them as far as the following is concerned

1. Employee-wise competency
2. Protocol-wise competency
3. Gaps present
4. Strategic action plan to bridge the gaps present

This will be prepared by each R&D heads and submitted to XYZ person who reports to the Director. It is the duty of this person to collate everything into one sheet and submit the same to the Director for his review and expert comments.

## 4. PERFORMANCE TRACKING

Performance can be tracked in the following manner by R&D Head under the purview of the Director:

1. Reviewing whether the strategic plan laid out to bridge gaps in competencies have delivered good results by evaluating protocol-wise and employee wise competencies periodically
2. Improvement in Organization's preparedness for development of new products in the market as well as the existing ones that are not part of company's product portfolio
3. **Process Execution Plan** consists of steps involved in each process, process deliverables (milestones, protocols, SOPs etc.), approval authority, deadline for completion and reference document as shown in the table given below:
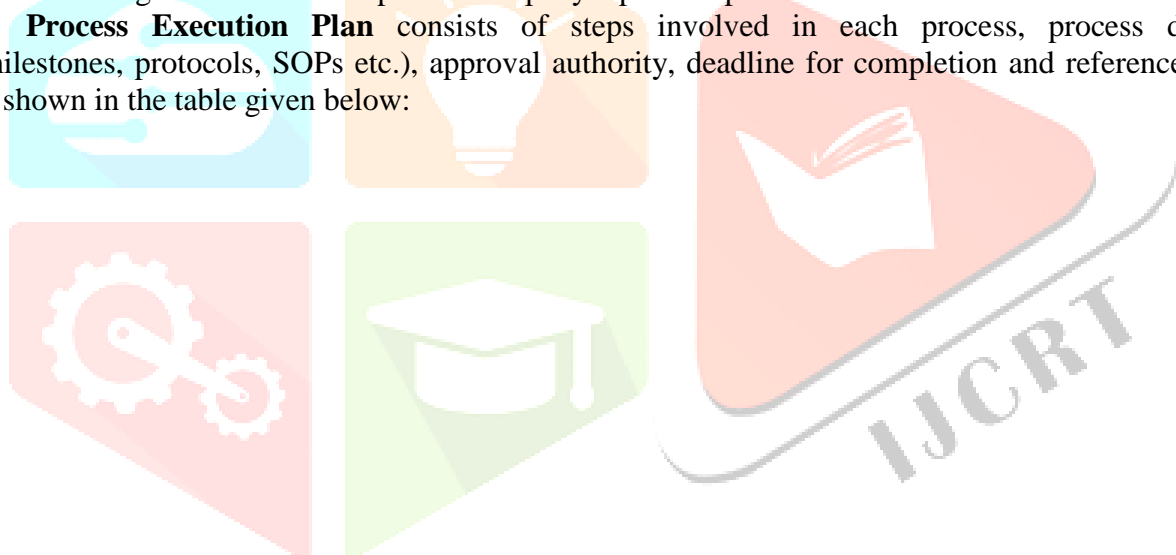
**Table - 7: Process Execution**

| Process Steps | Process Deliverables | Approval Authority | Deadline | Reference Document |
|---|---|---|---|---|
| Identification and of milestone/task, protocol and SOP's | Milestones, Protocols, SOPs | HOD | | Competence Mapping Template |
| Identification of process milestone (Big Block) & mapping to Protocol | Map protocols to milestones | Project Lead | | |
| Categorization of milestones | Milestones categorized as: Critical, Major Minor | HOD | | |
| Facility wise competency | Company's preparedness with regard to equipment in the lab, infrastructure etc. | Director | | |
| Employee wise competency | Assessment of employees based on level of competency. Relative ranking of employees based on score(1to 5) List of employees with $\geq$ 3 List of employees with $\geq$ 4 | Project Lead, HOD | | Employee Scoring Template |
| Protocol-wise competency | Protocol wise competency score | Project Lead, HOD | | Protocol Scoring Template |
| Competency authentication process | Capability verification of critical milestones based on employee-wise and protocol-wise competency Periodic review of the competency level based on employee-wise and protocol-wise competency | Director, HOD | | |
| Competency assessment and gap analysis(and Risk mitigation) | Gap analysis to find out where company is lacking in competency Risk mitigation strategy and action plan | Director | | Action Plan Template |
| Competency building review process | Organization level monthly report to the Director showcasing Employee-wise competency Protocol-wise competency Gaps present Strategic action plan to bridge the gaps present | | | Product Development Review Template |

5. **RISKS** involved in the process of competency mapping is:

    1. Accuracy of the ratings given by employees
    2. Lack of awareness of the resource's capability among core team members
    3. Lack of complete knowledge regarding the competencies required for development of a particular product

## VIII. CONCLUSIONS

The competency mapping process given above highlights various stages of competency mapping. The process of identification of milestones, protocols and SOPs, mapping employee competencies, the method of authentication of employee competencies, approach to make assessment of competencies, gap analysis and risk mitigation, competency building and review mechanism in a systematic manner for competency mapping give an insight to the researchers and the organizations as to how they should proceed with competency mapping process in their organizations.

This Competency Model is also useful to translate Company's Vision, Values & Goals into expected employee behavior and provides inputs for Recruitment and Staffing; Competency based Training Programs; Performance Evaluation and Developmental Plans; Talent Management & Succession Planning and Improving Employee Engagement and Retention.

Based on the above discussion, the companies can develop their own competency model with some modifications due to different nature of products, processes and outcome variables.

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