



COMPETENCY MAPPING IN KNOWLEDGE BASED ORGANIZATIONS

Jimmy Kansal*, Neeti Jain, PK Satyawali, Ashwagosha Ganju
*Snow & Avalanche Study Establishment,
Chandigarh - 160 036, India.
jimmy.kansal@sase.drdo.in

ABSTRACT

The competencies at work lead to significant organizational development that provides knowledge based organisations with a competitive edge. A dynamic and growing organization needs to continually review its structure and systems, creating new roles and responsibilities. The identification of employee potential to ensure the availability of people to do different jobs helps to motivate employees in addition to serving organizational needs. As global business competition shifts from efficiency to innovation and from enlargement of scale to creation of value, management needs are oriented towards the strategic use of human resources. A critical factor related to an organization's long term success, is its ability to measure how well employees perform and to use that information to ensure the tangible results. Awareness of employees about mapping systems and upgradation of process is necessary for overall development of individuals and organization. The present paper discusses in detail the competency mapping at various levels in a knowledge based organization and analyzes the gaps in required skill to improve the level of competency. The investigation was carried out by taking a study on a R&D laboratory based at Chandigarh, India as a model Knowledge Based Organization.

Keywords:

Knowledge based Organisation , Knowledge Evaluation Systems, Training & Development Processes, Performance Management Systems, Current competency level, Rated competency level

1.0 INTRODUCTION

First discussed and assessed by McClelland in the early 1970s, competencies, or individual characteristics, were recognized as significant predictors of employee performance and success, equally as important as an individual's academic aptitude and knowledge content as indicated by tests scores or results [1]. Competency refers to underlying behavioral characteristics of an individual that is causally related to criterion referenced effective and/or superior performance in a job or situation [2]. It briefly describes the motives, traits, self-concept, values, knowledge or skills that a superior performer brings to the Knowledge based Organisation (KBO). Competency required for a particular job depends on many factors. The factors include social culture, nature of the business, business environment, organizational culture, work environment, organizational structure, duties and responsibility, nature of processes and assigned activities, attitude and motive of colleagues, superior and subordinates. Some of these factors may change with time and thus changing competency requirements for the same job position in the organization. The article on 'Testing for Competence Rather than Intelligence' by David McClelland launched the competency movement in industrial psychology. He concluded on the basis of review of studies that traditional academic aptitude and knowledge content tests as well as school grades and credentials did not predict success either in job or life. Competency Mapping is a process of identifying key competencies for a company or Institution and the jobs and functions within it and then using it for job-evaluation, recruitment, training and development, performance management, succession planning, etc. Unlike other resources, human being is the only asset that can appreciate with useful inputs. It is one such asset that adds value to itself with time and, therefore, it is considered as a resource that can be cultivated by the manure of training & development processes. Competencies can provide an organization with value addition.

A major challenge in front of today's HR is Knowledge Replenishment and Competency-based HR has created a paradigm shift to meet and exceed such challenges. In India however

competency development and mapping still remains an unexplored process in most KBOs despite the growing level of awareness. The issue is much more complex than just about finding the right people for the right job, and most HR departments have been struggling to formulate the right framework for their organisation.

Performance is the mantra of today's business organization. People with right abilities are able to perform better. Competencies are the set of such skills and abilities (technical as well as behavioural) which are required for desired level of performance. Right competencies are the key to superior performance. These days most of the business organizations are dealing with a problem of competency mapping, which is basically matching of capacity of an individual that leads to behaviour and the organizational/job requirement. The study is important at this juncture as organizations implementing competency mapping processes expect young resources or would be resources to have detailed idea on this topic.

Each kind of competency has its own purpose, and helps organizations to develop the skills sets that will ultimately help to drive the business strategy and achieve business goals. Skills and knowledge are usually denoted as surface competencies that are visible [2]. These are relatively easy to develop and it is cost effective to train employees to secure these abilities. The competencies of an individual can be represented by way of defining surface competencies, which can be most easily developed. The skills and knowledge of an individual can be updated by way of various training & development programmes. However the core personality of an individual e.g. the traits, motives etc. is very difficult to develop and more so for knowledge workers as they inherently think that they know everything and whatever they do is the right way of doing the things. This is pictorially shown in Fig 1.

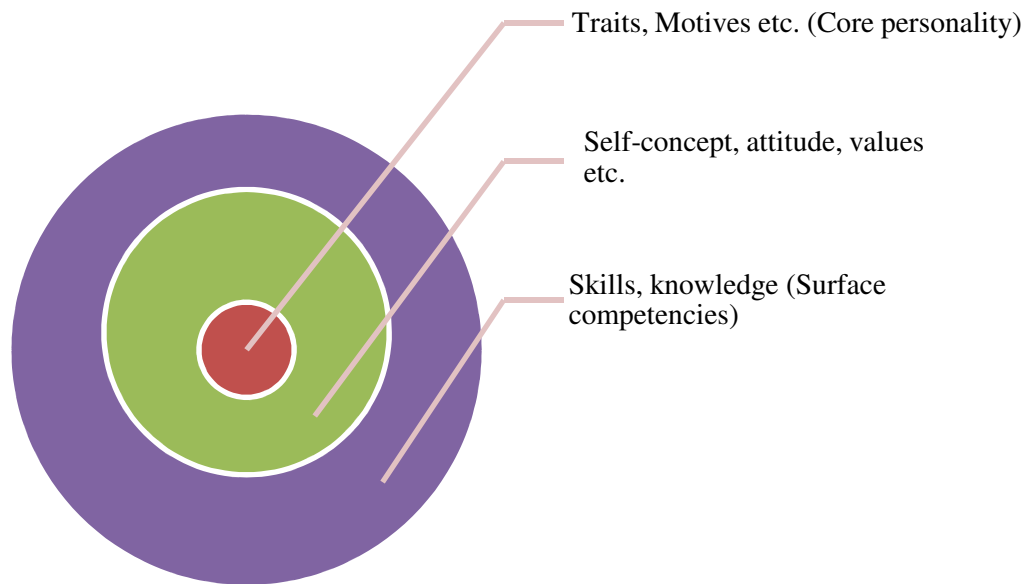


Fig. 1 Core and Surface Competencies

To summarize, a competency is described in terms of key behaviours that enables recognition of that competency at the work place. These behaviours are demonstrated by excellent performers on-the-job much more consistently than average or poor performers. These characteristics generally follow the 80-20 rule in that they include the key behaviours that primarily drive excellent performance. The key behavior indicators for a knowledge worker are ability to know what needs to be done or find out and take steps to get it done, ask questions when not sure of what the problem is or to gain more information, able to identify the underlying or main problem, to show willingness to experiment with new things, to develop a list of decision making guidelines to help arrive at logical solutions etc.

Competency management involves the creation of clear job profiles and includes four types of competencies. Core principles or values are higher-level competencies that are often defined by the Chief Executive Officer or Director in Government R&D Establishments, and are used universally to evaluate and coach every employee in the company. These principles are culture-setting and help shape the company brand, as well [4]. The examples of core values as discussed with the top management in an organisation are high integrity, moral values and development of

technologies for gaining an edge on solving many problem areas. Basically this leads to defining the core competency consisting of a bundle of skills and technologies, that collectively gives the organisation a competitive advantage.

Leadership competencies include defined attributes, skills, behaviors and knowledge that organizations use to assess and develop leaders. These competencies are typically developed by HR executives in association with the Director and other Project Directors. They are typically applied to senior scientists working in an R&D environment to mould them as the role models for their colleagues and sub-ordinates. Functional competencies are job-specific competencies that drive proven high-performance, quality results for a given position. Typically developed through detailed assessments of high performers in certain jobs, organizations build these competencies for critical job functions – and sometimes for many jobs. These tend to require regular maintenance and updates as jobs and the business itself change [4]. In nutshell, Specific competencies which are considered essential to perform any job in the organisation within a defined technical or functional area of work are functional competencies e.g. Finance, data collection, instrument handling etc. Career-path competencies are used within each and every job role and are much more job or role-specific. Once established, employees can maneuver themselves through their careers by building upon these specific competencies e.g. a senior scientist would like to equip himself/ herself with the various tools available in the commercial market to tackle a particular problem and in turn this gets developed into his/her core strength.

2.0 NEED OF COMPETENCY MAPPING IN A KBO

In a Knowledge based organisation, the thrust is on value creation. The KBOs are involved in the creation of intellectual capital. The human resources are educated lot and the individual career progression is of paramount importance. We need competent people to achieve results efficiently and effectively. In a world that is dominated by the service sector in general and KBOs in particular, the importance of human capital cannot be overlooked. We depend on competency of the people to generate a return on investment (ROI) on the use of physical and technological resources. To a large extent, human capital defined as the skill, dexterity and knowledge of the

population has become the critical input in determining economic growth today. KBOs need to systematically pursue competency acquisition and development.

The competency mapping is required to reinforce vision, mission and the roadmap. Competency Mapping establishes expectations for performance excellence, resulting in a systematic approach to professional development, improved job satisfaction, and better employee retention. It increases the effectiveness of training and professional development programs by linking them to the success criteria. It provides a common framework and language for discussing how to implement and communicate key strategies. It provides a common understanding of the scope and requirements of a specific role. It provides common, organization-wide standards for career levels that enable employees to move across business boundaries. Competency Mapping identifies performance criteria to improve the accuracy and ease of the hiring and selection process. It provides a clear foundation for dialogue to occur between the manager and employee about performance, development, and career-related issues. It supports a more specific and objective assessment of their strengths and specify targeted areas for professional development [3].

3.0 COMPETENCY MODEL DEVELOPMENT

The detailed research carried out at our establishment led to the need for competency mapping of the individuals to effectively match individual competencies to job requirements, to prioritize competencies by job and track individuals' abilities, to integrate training & development efforts to align with organization development, to identify key positions for which we have no candidates, which in turn helps in carrying out HR planning, to align corporate strategies to each person in the company etc.

The competency model was developed by extensive deliberations within the establishment. The scientists working in various capacities were divided into three levels viz. senior level scientists, middle level scientists and entry level scientists. The competencies per level were derived as per the following table -I

Table 1 : Competencies per Level

Type of Competency	Level		
	Senior level	Middle level	Entry Level
Core Competencies	5	5	5
Leadership Competencies	5	3	2
Behavioral Competencies	4	3	2
Functional Competencies	3	3	5

After formulation of competency per level matrix, the gap analysis was carried out for various competencies at two levels viz. senior level and middle level. The development priority was further evaluated based on the importance to a job for a particular skill and the existing gap. The existing skill level was rated as current competency level (CCL) and the required skill level was termed as Required Competency Level (RCL). The CCL and RCL were categorised into five levels viz. Level-1 for novice, level-2 for learner, level-3 for proficient, level-4 for professional and level-5 for master. The master is the highest level in any skill set, who could act as a coach as well as mentor. The gap was found by

$$\text{Gap} = \text{RCL} - \text{CCL}$$

Further the importance to job was analysed based on its contribution in realizing the mission of the establishment. Development priority of a particular skill set was calculated based on the gap and importance to job. The importance to job was also given in numeric terms with values ranging from 1 to 5 in ascending order from least to highest.

$$\text{Development Index} = \text{Importance to job} \times \text{gap}$$

The whole idea of this exercise was to quantify the skill levels of the scientists working in the establishment. The data served many purposes , which are discussed in the later part of this paper. The data was generated for three different levels of scientists viz. entry level, middle level and senior level scientists.

4.0 RESULTS & DISCUSSIONS

The data was taken from all the senior scientists and averaged out to an integer value to give the current competency level. The required competency level was determined after a brainstorming session with the senior scientists and The Director. The gap analysis thus computed is given in Table 2 for Leadership competencies of the senior scientists.

Table 2 : Gap analysis for senior level scientists / Leadership competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Leadership skills	4	5	5	1	5
Strategic Management	3	4	4	1	4
Quality management	2	4	4	2	8
Technology Management	5	5	5	0	0
R&D Management	4	5	5	1	5
Performance Management	3	5	5	2	10

From the Table 2, it is clear that the senior scientists are well conversant with the Technology Management and needs to enhance their skills in the remaining set of Leadership competencies in the order of priority as reflected in the Development index. The performance management took the priority amongst all as the thrust is on outcome and deliverables.

The set of behavioral competencies required for a scientist, who is working in the cutting edge areas and whose job profile extends to various techno-managerial tasks involves a blend of soft skills, communication skill, decision making skills, problem solving skills and interpersonal relationship.

Table 3 : Gap analysis for senior level scientists / Behavioral competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Soft skills	3	4	4	1	4
Communication skills	3	5	5	2	10
Decision-making skills	4	4	4	0	0
Problem solving skills	4	5	4	1	4
Interpersonal Relationship	4	4	5	0	0

Table 3 reflects the behavioral competencies of senior scientists, it is evident from the above table that the senior scientists meets the required competency level in the decision making and interpersonal relationship but lacked in the communications skills, soft skills and problem solving skills. The development priority was calculated based on the existing gaps and importance to job. The communication skills took the lead in the order of priority and the training & development programs in communication skills were arranged.

The functional competencies were deliberated but it took quite some time to generalize the skill sets required for the scientists because each group of scientists were working in their core technical area. The extensive discussions with the technology and product councils led to the listing of various skill sets related to the functional competencies.

Table 4 : Gap analysis for senior level scientists / Functional competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Core Technical areas	3	4	3	1	3
Project Management	3	4	4	1	4
Analytical ability	3	3	3	0	0
Design skills	3	3	3	0	0
Mathematical modeling	2	2	1	0	0
IT skills	3	4	5	1	5

The gap in the core technical skills reflects that the senior functionaries are not keeping themselves updated with the cutting edge technologies and it is a matter of serious concern. Targetted trainings & development interventions are proposed to fill this gap. The project management in an R&D environment is a challenging task because of the uncertainties involved. It is however proposed to fill the existing gaps in the IT skills and Project management by training & development programmes.

On similar lines, the development priority for various competency levels was calculated for middle level scientists:

Table 5 : Gap analysis for Middle level scientists / Leadership competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Leadership skills	2	3	4	1	4
Strategic Management	1	2	3	1	3
Quality management	3	3	4	0	0
Technology Management	3	3	5	0	0
R&D Management	2	2	4	0	0
Performance Management	2	3	5	1	5

Table 5 reflects that middle level manager has excellent skill levels in the arena of quality management, technology management and R&D management. However the middle level scientists lack the skills related to Performance management, strategic management and also leadership. Trainings were arranged to fill the existing gaps in the order of priority as per development index.

Table 6 : Gap analysis for Middle level scientists / Behavioral competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Soft skills	1	3	4	2	8
Communication skills	2	4	5	2	10
Decision-making skills	2	2	4	0	0
Problem solving skills	2	3	4	1	4
Interpersonal Relationship	3	3	5	0	0

Table 6 reflects the behavioral competencies of middle level scientists, it is evident from the above table that the middle level scientists meet the required competency level in the decision making and interpersonal relationship but lacked in the communications skills, soft skills and

problem solving skills. The development priority was calculated based on the existing gaps and importance to job. The communication skills took the lead in the order of priority and the training & development programs in communication skills were arranged.

Table 7 : Gap analysis for Middle level scientists / Functional competencies

Competency	CCL	RCL	Importance to Job	Gap	Development Priority
Core Technical areas	3	4	5	1	5
Project Management	2	3	3	1	3
Analytical ability	3	3	4	0	0
Design skills	3	3	4	0	0
Mathematical modelling	2	3	4	1	4
IT skills	4	4	5	0	0

Middle level scientists are updated in analytical skills, design skills and IT skills. A gap was observed for the rated competency levels in the skills related to core technical areas, project management and mathematical modelling. The probable reason for this could be that the scientists have occupied the middle management seat and there is a need to expose the scientists with the integrated Project management aspects.

5.0 CONCLUSION

The findings of this investigation has implications for all the three levels of scientists. The competency mapping has not only enhanced the effectiveness of the organization, but has also played a vital role in the individual career progression. The leadership and behavioural competencies are a focus for the top management. The set of behavioral competencies required for a scientist, who is working in the cutting edge areas and whose job profile extends to various techno-managerial tasks involves a blend of soft skills, communication skill, decision making skills, problem solving skills and interpersonal relationship. Competency mapping has helped us

in HR planning and creation of an HR information system. The job descriptions to handle complex projects have become more clear and the formulation of the qualitative requirements for potential recruitment is drawn based on the skill levels required. Competency mapping has also helped in identification of the gaps to carry out the Training Need Identification, thereby making the training & development programmes more effective. The competencies required have become a vital input in carrying out the Focussed training enabled in improvement of specific functional competencies. Competency mapping has also helped in framing an integrated performance management system with high performance standards, collection and proper analysis of factual data against the set standards, conduct of objective feedback meetings and direction with regard to specific areas of improvement. To summarize, we strongly feel that all KBOs must carry out the exercise of mapping the competencies of their human resources, which could be linked to all the areas of HR viz. Performance management, career progression, succession planning, reward management, recruitment & selection, training & development.

REFERENCES

- [1] Michelle R. Ennis. "Competency Models: A Review of the Literature and The Leadership of the Employment and Training Administration." 2008
- [2] Palan R. "Competency Management - A Practitioner's Guide."
- [3] Kaur Jaideep, Kumar Vikas. "Competency Mapping : A Gap Analysis." International Journal of Human Resource Management and Research, Vol 2, Issue 1, March 2012
- [4] Kim Lamourex. "Competency Management - Gateway to an Integrated talent strategy." Bersin & Associates Research report 2008