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CHAPTER NO. 1
INTRODUCTION OF STUDY

1.1 INTRODUCTION

Ongoing and insistent economic, social and technological changes have encouraged the need for flexible, skilled workers who can help their organizations succeed and sustain a competitive advantage. Increased manpower cost and competitive environment compelled organizations to ensure and retain competent workforce. Organizations now focus on 'Talent management' rather than human resource management because organizations not manage individuals but their talents. In this knowledge and technology era 'Competence management' is an important research object in the more general area of 'knowledge management'. Competence Management system is often integrated with 'Learning management' systems. The competence management can have an important contribution at an organizational and personal level, as it identifies the key knowledge that an employee or an organization should possess in order to achieve his or its targets.

Competence and skills management have been tightly linked to the efforts of companies to create a setting for the empowerment of their workforce in order to increase competitive advantage, innovation and effectiveness (Houtzagers, 1999). In addition, this is directly related to corporate efforts to influence internal knowledge and initiate consistent knowledge management initiatives (Hellstrom et al., 2000; Ley and Albert, 2003). Recently, Competence Management is a research field attracting efforts to leverage personnel development (Beck, 2003), knowledge sharing (Won and Pipek, 2003), corporate-learning efforts (Hock Meyer et al., 2003).

Now organizations believe in excelling rather than competing. Organizations of the future will have to rely more on their competent employees than any other resource. It is a major factor that determines the success of an organization. Over the past ten years, human resource and organizational development professionals have generated a lot of interest in the notion of competencies as a key element and measure of human performance.

Competencies include the collection of success factors necessary for achieving important results in a specific job or work role in a particular organization. Success factors are combinations of knowledge, skills, and attributes that are described in

terms of specific behaviors, and are demonstrated by superior performers in those jobs or work roles. Attributes include personal characteristics, traits, motives, values or ways of thinking that impact an individual's behavior.

Only employee's hard skill like knowledge and abilities are not sufficient to achieve the desired performance in a particular job, what is additionally needed is employee's soft skills like attitude, mind set values and commitment. Thus, complete human resource is essential to achieve desirable success of organization as well as to have competency of employees. Therefore it is necessary for any organization to develop competency model of employees by considering organizations objectives, strategies and job needs with its functional areas. Competency model help organizations about competency-based human resource management methods of defining and measuring human performance, its impact on individual employee and organization's overall performance. The present study reveals the development of competency model of engineers in engineering industry, Satara and its importance towards overall Human resource and management.

1.2 MANAGEMENT PROBLEM

Most of Engineering organizations have well designed Human resource policies related to recruitment, selection, training, performance appraisal etc. but it has been observed that organizations can't obtain outstanding performance from engineers according to job analysis and job description needs. Employee's performance can't match with the organization's goals and objectives. Organizations do not have proper performance appraisal procedure and competency mapping model. The models are subjective in nature hence organization to organization this system of performance appraisal differs.

The present research insists to develop the ways for competency mapping for said sample which can be used for recruitment, performance appraisal and identifying training needs.

1.3 STATEMENT OF RESEARCH PROBLEM

In any engineering organization engineers are important force to carry out most of the organization's procedures. Presently, most of engineering organizations in Satara do not use competency models for developing organization performance. As competency mapping is one of the important tools of setting standards for improving performance

of employees and progress of organization, it becomes need to study these organizations with competency mapping.

On the basis of the management problem, the statement of research proposal is "A Study of Competency Mapping of Engineers With respect to Engineering Industry in Satara." The statement reveals study of required competencies of engineers according to their functional area, job requirement, development of competency model to gaze the present competencies of engineers and to provide necessary means with respect to Human Resource policies.

1.4 HYPOTHESES

For the present research following hypotheses are set to test.

1. Majority of the engineering organizations are not implementing competency mapping.
2. The organizations which use competency mapping have not rigorous competency mapping.

1.5 OBJECTIVES OF THE STUDY

Researcher has set following objectives for this study.

1. To study the concept of competency mapping.
2. To assess the present competencies of engineers with the help of existing competency mapping in the organizations.
3. To find ways and means to develop competency model for engineers and develop suitable competency model solution for engineers.
4. To provide the necessary means with respect to human resource functions as recruitment, selection, training, performance appraisal etc.

1.6 IMPORTANCE OF THE STUDY

The present study on competency mapping will benefit engineering industry in following ways:

1. Enhancement of the Business needs - Competency mapping puts emphasis on business needs and competencies required for human resource to accomplish that business needs.

2. Aligning behaviors with business strategies - Competency mapping helps organizations to align specific required behaviors which suit with strategic management system of an organization.

3. Integration of Human Resource system with competencies - Competency model integrates competencies required for specific jobs and establishes the relation between organization's objectives and required competencies.

4. Measurement of Human capital - competency model help human resource management to measure the underlying competencies of employees with standards and to take decisions depending on them like recruitment, training need, promotion etc.

5. Talent retention - competency mapping model shows current potential of human resource, so depending on that management can take decision related to HR planning and employee retention.

6. Employees have a set of objectives to work towards and are clear about how they are expected to perform their jobs.

7. The appraisal and recruitment systems become fairer and more open because of competency model.

8. There is a link between organizational and personal objectives.

9. Processes are measurable and standardized across organizational and geographical boundaries.

1.7 SCOPE OF THE STUDY

The study deals with development of competency model for engineers in engineering industry in M.I.D.C., Satara, Maharashtra, India. The small, medium and large scale units are taken as samples. The study deals with development and assessment of competency model for production engineers with competency mapping concept.

Data is analyzed by using tabulation, percentage, measures of central tendency, coefficient of co-relation by using likert scale.

1.8 LIMITATIONS OF THE STUDY

1. Researcher has done project during the recession period of the engineering industry. Most of the engineering units in the Satara M.I.D.C. are in the lockout stage, so observations may vary according to the life cycle phases of the industry.
2. It is matter of status to revel reality of data obtained from the sample units.

1.9 RESEARCH METHODOLOGY OF THE STUDY

1.9.1 Data Required

Conceptual data related to the competency mapping is need of competency mapping, various dimensions of competencies, organization's objectives and strategies, methodology of developing and implementing competency model, history of competency mapping, etc. Primary data related to opinions of the authorities with performance expectations, job standards and organization's current procedures to match with its objectives and necessary means to improve competencies of production engineers.

1.9.2 Data Source

Both the primary and secondary sources will be used to collect data are as-

Primary data sources

Data is collected with the help of schedule and interviews with authorities. The interviews of people who give extra ordinary performance in engineering field are also be taken as primary data source.

Secondary data sources

Conceptual inputs about meaning of competency, various dimensions of competencies, methodology of developing and implementing competency model, advantages of competency mapping and literature about competency mapping will be collected from journals, published researches, reference books , websites etc.

1.9.3 Instrument

Two structured schedules would be used to collect the data regarding the competency mapping from the samples.

i) The schedules would be executed on strategic business unit head or owner of the organization who are responsible for framing the strategic objectives, vision and mission of the organization.

ii) Schedule for concerned head of production department, engineering head or human resource management head of organization, who are actually implementing procedures with respect to their functional areas.

The structures would be based on different competencies required for production engineers.

1.9.4 Sample Design

Sample units are engineering firms situated in M.I.D.C., Satara. Sample units will be selected by random sampling method and engineering firms are selected by using stratified sampling technique. Stratification would be based on the basis of size of unit i.e. small, medium and large scale. More than 30 % of the engineering units are to be taken as a sample. There are overall 118 engineering units in Satara M.I.D.C.

1.9.5 Data Analysis

Present research is of descriptive type and the data collected will be analyzed by various statistical tools i.e. tabulation, percentage, measures of central tendency, coefficient of co-relation by using Likert scale, etc. Hypothesis will be tested by using z-test and chi-square test procedures.

1.10 REVIEW OF LITERATURE

Despite a growing interest of competency among managers and human resource professionals in recent years, the modern competency movement in industrial-organizational psychology actually dates from the mid1950's and early 1970's.In that regard, John Flanagan's work (1954) and David McClelland's studies (1973) are considered as two landmarks that originally invented the concept of competency.

A Precursor of Competency Modeling: The Work of John Flanagan. (1954)

A seminal article published by John Flanagan in 1954 established Critical Incidents Technique as a precursor to the key methodology and it is used in rigorous competency studies. Based on studies of US Air Force pilot performance, Flanagan concluded that "The principle objective of job analysis procedures should be the determination of critical requirements. These requirements include those which have been demonstrated to have made the difference between success and failure in carrying out an important part of the job assigned in a significant number of instances". From here, critical incidents technique was originally discovered. Critical incidents technique itself can be

defined as a set of procedures for systematically identifying behaviors that contribute to success or failure of individuals or organizations in specific situations.

Flanagan's work, while not strictly about competencies, was important because it laid the foundation for a new approach to examining what people do. In a later form, the critical incidents technique would re-emerge to focus around significant behavioral events that distinguish between excellent and fully-successful performers.

It is Flanagan's critical incidents technique that sixteen years later inspired David McClelland to discover and develop the term of "competency".

The Concept of Competency: The Work of David McClelland. (1973)

The movement was originally pushed by dissatisfaction among researchers about the value of personality traits tests in predicting job performance. For instance, Ghiselli (1966) and Mischel (1968) found that testable personality traits have little correlations with job performance, and consequently research on these variables was of questionable value.

Simultaneously, an increasing number of studies were published which showed that traditional academic aptitude and knowledge content test, as well as school grades and credentials did not predict job performance; and were often biased against women and persons from lower socioeconomic strata.

These findings led McClelland (1973) to conduct research in order to identify "competency" variables which did predict job performance and which were not biased by sex or socioeconomic factors.

The most important of these principles were-

A) Use of criterion sample: compare people who are clearly successful in jobs with less successful persons to identify those characteristics with success.

B) Identification of operant thoughts (knowledge) and behaviors causally related to these successful outcomes. That is, competency measures should involve open-ended situations in which individual has to generate behavior.

By using Flanagan's critical incident method and behavioral event interview to distinguish successful and unsuccessful performers, McClelland attempted to identify characteristics which differed between the two samples, generally behavior shown by superior performers and not shown by average performers.

The essence of McClelland's radical departure in approach to job analysis is that where traditional job analysis looks at elements of the jobs, competency assessment

studies the people who do the job well, and defines the job in terms of the characteristics and behaviors of these people.

Competency Modeling Matures: The Work of Richard Boyatzis. (1982)

Boyatzis wrote the first empirically-based and fully-researched book on competency model developments. It was with Boyatzis that job competency came to be widely understood to mean an underlying characteristic of a person that leads or causes superior or effective performance. Boyatzis was explicit in describing the importance of clearly-defined competency as reflected in specific behavior and clearly defined performance outcomes when he wrote "the important point is that specific actions cause, or lead to, the specified results. Certain characteristics or abilities of the person enable him or her to demonstrate the appropriate specific actions" (Boyatzis, 1982, p. 12).

As founding developer of competency modeling in the United States, Boyatzis grounded competency interventions on documented behavioral indicators that caused or influenced effective job performance. Boyatzis, like Flanagan, stressed the importance of systematic analysis in collecting and analyzing examples of the actual performance of individuals doing the work. The method for documenting the actual performance was collected through the behavioral event interview (BEI), an intensive face-to-face interview that involves soliciting critical incidents from performers and documenting what the performers think and do during the incidents (BEI technique will be explained further in Appendix section).

Dreyfus on Competency Development- (1986)

Dreyfus introduced nomenclature for the levels of competence in competency development. The contributing reasoning of such a language of levels of competency may be seen in their paper on Calculative Rationality titled, "From Socrates to Expert Systems: The Limits and Dangers of Calculative Rationality". The five levels proposed by Dreyfus were-

1. Novice: Rule-based behavior, strongly limited and inflexible
2. Experienced Beginner: Incorporates aspects of the situation
3. Practitioner: Acting consciously from long-term goals and plans

4. Knowledgeable practitioner: Sees the situation as a whole and acts from personal conviction
5. Expert: Has an intuitive understanding of the situation and zooms in on the central aspects

The process of competency development is a lifelong series of doing and reflecting. As competencies apply to careers as well as jobs, lifelong competency development is linked with personal development as a management concept. And it requires a special environment, where the rules are necessary in order to introduce novices, but people at a more advanced level of competency will systematically break the rules if the situation requires it. This environment is synonymously described using terms such as learning organization, knowledge creation, self-organizing and empowerment.

Within a specific organization or professional community, professional competency is frequently valued. They are usually the same competencies that must be demonstrated in a job interview. But today there is another way of looking at it that there are general areas of occupational competency required to retain a post, or earn a promotion. For all organizations and communities there is a set of primary tasks that competent people have to contribute to all the time. For a university student, for example, the primary tasks could be handling theory, handling methods, handling the information of the assignment etc.

The four general areas of competency are-

1. Meaning Competency: The person assessed must be able to identify with the purpose of the organization or community and act from the preferred future in accordance with the values of the organization or community.
2. Relation Competency: The ability to create and nurture connections to the stakeholders of the primary tasks must be shown.
3. Learning Competency: The person assessed must be able to create and look for situations that make it possible to experiment with the set of solutions that make it possible to complete the primary tasks and reflect on the experience.
4. Change Competency: The person assessed must be able to act in new ways when it will promote the purpose of the organization or community and make the preferred future come to life.

Goleman view on Emotional Intelligence Competencies- (2002)

Goleman's Research on the importance of "Emotional intelligence" to organization success is starting to identify a number of emotional intelligence competencies. In particular, Daniel Goleman's work describes four categories of emotional intelligence: Self-Awareness, Self-Management, Social Awareness and Relationship Management.

Michael Zwell-Creating a Culture of Competence-(2000)

Research is ongoing about the nature of competencies that are important for success across many organizations. There are number of sources that describe some very common personal functioning competencies found to be important for employees at all levels across organizations. One good quote in this area is from Michael Zwell (2000, pgs. 53-55), the author of 'Creating A Culture of Competence' when he says, "From the body of competency research to date, a basic set of 6 competencies would differentiate the top quartile of performers from the rest in most positions in an organization: Initiative, Influence, Results Orientation, Teamwork, Service Orientation and Concern for Quality."

Various views of competencies

A competency may be described as a combination of skill, attitudes and behavior that an individual or organizations competent at, that is, the ability to deliver; perform (a set of tasks with relative ease and with a high level of predictability in terms of quality and timeliness) (Spencer, 1993). Competencies are important, as they help to communicate what an individual stands for or what the expectation is (Ernest, 1989). The proper and careful use of competencies is important as it will help increase clarity in the system, bring transparency and build trust by avoiding multiple interpretations of the competence concept, both by the employees and the organizations.

The various views of competency management systems

(McClelland, 1973), defined competence measurement as a tool for distinguishing superior performer from average performer. (Ernest, 1989) presented the competence as a statement which describes the integrated demonstration of a cluster of related skills and attitudes that are observable and measurable necessary to perform a job independently at prescribed proficiency level. (King, Kenneth, 1997) described the

competency as an overt and measurable performance in terms of quality, quantity, time, cost or a combination of any of these, for which action or performance oriented verbs are to be used in writing competency statements. (Dranganidis, Mentazas, 2007) identified competency as a combination of the tacit and explicit knowledge, behavior and skills that give somebody the potential for effectiveness in task performance.

1.11 CHAPTERIZATION

The present research titled as, "A Study of Competency Mapping of Engineers With respect to Engineering Industry in Satara." Consist of five chapters as-

Chapter no. 1 - Introduction of Study

This chapter consists of introduction of the study, management Problem, statement of the research problem, hypotheses, objectives of study, scope of study, importance and research methodology of the study.

Chapter no. 2- Profile of Engineering Industry

This chapter includes historical development of the engineering industry, structure of engineering sector in India, key growth drivers of Indian engineering sector, opportunities and prospects of Indian engineering industry, contribution of engineering industry in Indian economy, engineering industries in Maharashtra, industrial profile of the Satara district, government policies and initiatives towards engineering industry.

Chapter no. 3 - Conceptual Background

Chapter no. 3 includes introduction, history of competency mapping, basic concepts, meaning , definitions, broad categories of competency, behavioral indicators of competency, basic need of competency mapping, persons including in competency mapping, methods used for competency mapping, competency mapping model building, competency mapping implementation areas, data collection methods of competency mapping, advantages of competency mapping and conclusion.

Chapter no. 4 - Analysis and Interpretation of Data

This chapter deals with the data collected from two structured schedules by taking interviews of the strategic business unit head, owner and human resource or production department head. The data is analyzed by using percentage, measures of central tendency, coefficient of co-relation by using Likert scale and hypotheses are tested by suitable test procedures.

Chapter no. 5 - Findings, Suggestions and Conclusion

This chapter deals with major findings which are obtained from analysis of data and provide some suggestions and conclusion based on the findings.