Competency Mapping to Identify High Performers: in Context to IT Professionals

Divya Sharma

Research Scholar, Jai Narain Vyas University, Jodhpur, India

Abstract: *Competency mapping is one of the leading HRM initiatives of identifying the skills necessary for performing in a job. In this study we have focused on identifying the skills for IT professionals and analyzing the effect of those skills on their performance at workplace. This is an exploratory study which utilizes both qualitative and quantitative approach of problem solving. The qualitative research through literature review had helped us in building the foundation for the quantitative assessment. It is a sample survey research where the objectives and hypotheses were designed only after performing thorough review of literature. The statistical assessment of the recorded responses had been done in order to prove our hypotheses which were framed in the beginning. The results and their discussion had helped us in believing more strongly over the application of competency mapping within the industry. This study also laid the path for future researchers and scope of the same in the Indian IT industry.*

**Keywords:** Competency Mapping, Skills, Performance, Competencies, Employee Development.

1. Introduction

We have seen it happen that two motivated individuals with similar educational background, experience and skills does not necessarily perform in a similar way. One quickly turns into a star performer, attaining outstanding results whereas other struggles to achieve the minimum level of performance. Though the answer to this question is not new for human resource system and practices, but it still continues to challenge the organizations today. The brightest and experienced candidate could not always ensure outstanding performance. David McClelland rejected the traditional ideas of measuring IQ and other proxies that were useful to measure intellect. McClelland in 1973 published an article "Testing for competence rather than Intelligence" and abridged a number of studies that showed that aptitude tests did not in-fact predict job performance. Furthermore those tests were also culturally biased and were poor predictor of job performance.

McClelland therefore showcased an alternative to the traditional psychologist tests and labeled it as "competencies." A competency therefore is defined as an underlying characteristic of a person which enables them to deliver superior performance in a given job, role, or situation.

1.1 What Defines Competency?

Competency is well described as capability or ability of a person which make possible for them to deliver superior performance in a given role, job or situation. The iceberg model below shows different level of competencies. The above level of the iceberg is the type of skill which managers demonstrate at workplace. These skills are readily observed and could be altered easily. Whereas the other elements which formulates and largely controls the surface behaviour are social role, self image, traits and motives. These elements are most difficult to detect and are more significant.
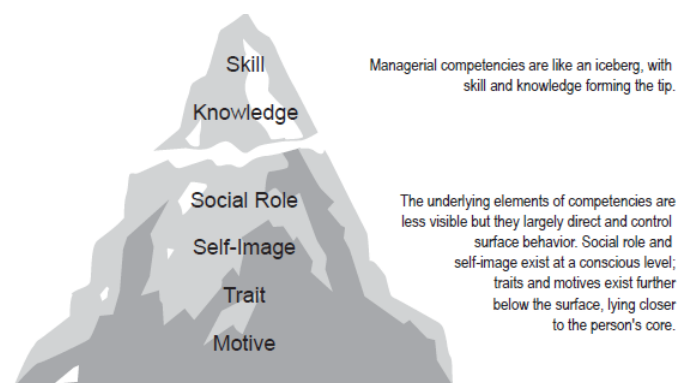
Figure 1: The Iceberg Model and Central and Surface Competencies

It is vital to distinguish the various levels as they have significant implications for human resource planning. In the iceberg model the upper level (skills and knowledge) - are easier to train whereas those below the surface are more complex. As a result, during recruitment it makes sense to hire persons for the competencies present below the surface rather than to train them for those in the short term. However, there is a possibility for such people to hold senior roles and opportunities in near future by planning career paths for them. In addition it is more possible that the exemplary performance is driven by the traits found at the lower level of the iceberg.

The iceberg model above makes ourselves clear that it is the values, mission, personal philosophy, knowledge, competencies, stages of life and career, interest and styles that describes the talent of a person. For job, it is the role responsibilities and tasks which are required to be performed. The culture and climate, structure and systems, the strategic position of the organization and the life stage of the industry formulates the organizational environment.

Paper ID: SUB152773

2416
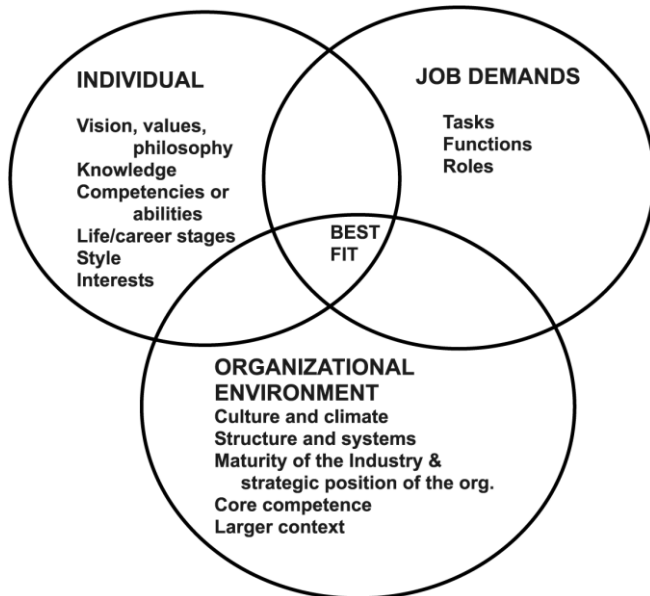
Figure 2: Boyatzis model of effective job performance

The Boyatzis best fit model in Figure: 2 very well describes that maximum performance is believed to occur when the capability of a person is consistent to the job requirements and the organizational environment as well. Company while hiring shall put their focus on increasing the area of the best fit and make the hired resource more effective for the organizational growth.

1.2 Competencies as HR Tool For Performance Management

The motive of managing the performance at workplace is to encourage everyone to elevate their performance, enhance their abilities, improve job satisfaction and attain their full potential to the benefit of the individual and organization as a whole. Performance management is about attainment of results in consistence to organizational expectations. When the competencies are linked to the HR process of performance management then it becomes easier for the organizations to provide feedback to its employees about what they have done and how they have performed. Linking performance with competencies will help the individuals understanding the job expectations and also to enhance their competencies. Also, there is general consensus over the importance of competencies. Some researchers simply states that; competency = performance, but some states that competency alone does not guarantee performance. Rao (2004) in his effective performance equation have mentioned that motivation, support of the organization and the opportunity provided at workplace together with ability leads to effective performance. Individual performance = ability*motivation*organizational support + or − chance factors.

1.3 Competency Management

Organizations that desires to develop a competency approach for their business focus on three main approaches in competency management: competency acquisition, competency development, and; competency deployment. Competency acquisition is the conscious effort to obtain the competencies required for business growth and expansion. Competency development is raising the level of existing employees by the help of development programmes. Competency deployment is when employees are deployed to numerous positions in the company based on their capability and current position. These three approaches help in effective human resource acquirement and utilization.

This research paper focuses on understanding about the skill requirement of Information technology industry and analyzing the presence of those skills among the IT professionals.

2. Review of Literature

Although the notion of competence began with Robert White (1959) who in his classical article for Psychological review proposed a new concept of effectance motivation. Effectance was described as the ability to interact effectively with the environment also competence was defined by him as the ability to interact effectively with the environment. But the idea of competence gained popularity only after the revolutionary article of McClelland in 1973 where he had predicted that the experience and qualification alone are not sufficient indicators of job performance rather the competence which is more reliable and calculated measurement of effective performance at workplace. In 1982 further the Boyatzis carry forwarded the work on competence, since then the competency had become a considerable factor in HR development practices. Boyatzis (1982) defined competency as underlying characteristic which leads to superior job performance. Woodrufee (1992) described competency as person related and work related concept. Similarly, Mitrani (1992) stated that competencies could be motives, self-concepts, attitudes or values, content knowledge or cognitive or behavioral skills. Competency is also termed by Martone (2003) as skills and behaviour needed for success in the individuals.

A competency is a reliable parameter of measuring superior and average performers, or effective and ineffective performance. Also, competency can be described as behaviour pattern that an individual need to bring to a position so as to perform its tasks and function in the deliverance of aspired results or outcomes (Bartram et. al 2002; Woodruffe, 1992). Spencer and Spencer (1993) viewed competency as "an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation" (p. 9). The five types of characteristics identified by them are motives, traits, self concept, knowledge and skills. The first characteristic motive is the driving force that directs the behaviour of an individual towards a direction. Second, traits are steady responses to situation. Third, self concept is the attitude of an individual, his values and self image. Fourth, knowledge is the information that an individual possess in a specific domain. Fifth, skill is the ability to perform mental and physical task. Of all the five characteristics knowledge and skills are those which could be observed easily and could be developed readily through training and experience. Motive, traits and self concept are deeply rooted and are

Volume 4 Issue 3, March 2015
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most difficult to identify and alter. The united Nations Industrial Development Organization (UNIDO, 2002) defines competency as set of skill, knowledge and attributes that allow an individual to execute a task within a specific function or job.

From the extensive range of literature, the definition of competency could be recapitulated as basic characteristic of an individual that is related to superior or average performance based on standard parameters of related job/role. A job competency can be a motive, trait, attribute, knowledge or attitude that allows an individual to perform an activity or task within a specific function of job. The threshold job competencies comprising of skill and knowledge can be easily developed by training whereas behavioral competencies like motive, attitude and traits are difficult to develop. The changes in workforce demography or diversity in workforce had made behavioral competencies equally crucial and as the greatest determinant of individual's performance. Therefore, in order to be most effective at workplace it is nowadays essential to possess and utilize both job as well as behavioral competencies.

2.1 Importance of Competency

The importance of competency has widely been explored. In 1990's a study was conducted by LBA Consulting group focusing on identification of the factors that strongly contributes in organization's excellence. This study was done over those organizations which have either flourished or had failed in a span of last 25 years. The results of the study revealed that in order to be successful six human resource conditions should be met. Those six conditions were a performance oriented culture, low turnover, high employee satisfaction, cadre of skillful replacements, sufficient investment in compensation and in skill development of employees, competency based selection and performance evaluation. (Berger and Berger 2004). Growth of the organization would be possible through its employees and the increased need of competency in near future had been predicted by Mitrani et. al (1992). They also said that the more emphasis would be laid upon the employee competencies. Cummings and Worley (2001) had stated that organizational change is possible only when its employees gain new skills, knowledge and competencies. They further investigated that to effectively implement the change it is important that change agents should impart new learning opportunities to the employees. The society for human resource management 2003 had indicated that in last 30 years the competency management has broadened from a specialized narrow application to a leading technique for framing and improving new aspects of HRM. The Society of HRM further states that as the business world is expanding and evolving it becomes important that these changes are readily adopted by the HR professionals so as to add value to the organization.(Society of Human Resource Management 2003).

From the literature reviewed above it can be summarized that, in last thirty years competency had become a key factor for building up a capable organization. The reason for it is because of robust growth in industry knowledge alone is not sufficient for effective performance. It is the characteristic and behaviour of the individual which could determine his success. People capital had become a valuable asset therefore, competency needs to be focused. The linkage between competency and job performance had better been described by Boyatzis who had managed to frame a relationship between job demands, individual competencies and organizational environment. A diagrammatic representation could be seen in Figure: 2 above. In summary the "job demand" component represents what an individual is expected to perform, "individual competencies" are what all job skills an individual possess, and "organizational environment" reflects the growing opportunities and learning opportunities provided by an organization to an employee. Our study aims at identifying the work opportunities provided and performance shown by the IT professionals at their workplace. Information Technology Professionals need to possess multiple skills so as to perform well in their job. Reasonably, they require having technical skills making them able to work upon the computers, business skills to find reasonable solution to the business problems and also interpersonal skills enabling them to work in a team. (Earl and Skyme, 1992). IT companies nowadays have realized the worth of recruiting individuals which possess both technical as well as non-technical skills. It therefore becomes important to understand the work context of IT professionals and understand how the professionals respond to their work environment in the form of performance.

3. Statement of Problem

A study by Todd et al.1995 had revealed that IT professionals do not require business skills and it is only the technical skills which make them more competent at workplace. This finding is in contrast to the general perception that IT professionals require both business and technical skills. Therefore, it becomes interesting to explore more on this and diagnose the skills required and utilized in IT industry. Also, it shall be noted that this research was carried in 90's and IT industry since then had expanded a lot. It would be rather interesting to identify what all changes in job requirement had been observed since then. Identification of the relevant skills in this industry would help the prospective IT professionals to have a better insight of this industry and understanding their prospective employer. Therefore, we propose to study further how competency mapping could be used as a tool to identify high performers specifically in IT industry in India.

3.1 Objectives

Every industry has certain standards popularly known as occupational standards of that industry which are either endorsed by the national body or an organization. These standards typically lay down the expectations from a specific job. They specify the understanding, knowledge and skills that are crucial for effective performance. These occupational competencies are often referred as threshold competencies.

- The objective of the study is to identify the various competencies or skills required by an IT professional.

- To understand how the organizational environment had an impact on individual's performance.
- To provide an overview of the required skills in IT industry.

3.2 Hypotheses Statement

The following hypotheses had been formulated and tested in this paper:
H(a)- Organizational environment had significant effect on individual's performance
H(b)-Technical competency had significant effect on individual's performance
H(c)-Business competency had significant effect on individual's performance.

4. Research Methodology

In order to identify the skill requirement of IT professionals a qualitative research was undertaken. This qualitative research was done through literature review, study of job descriptions. Job descriptions of various jobs are available on the websites of the organizations also on various job portals and in through newspapers too we were able to study the job skill requirements of various IT jobs like software developers, java developers, analysts, senior engineers, team leaders. This qualitative research helped in identification of work circumstance, requirement of technical, communication, verbal and reasoning skills. By this skill analysis we developed the questionnaire asking questions to our respondents related to work context, skills and their performance at workplace. The selection of respondents was done through sampling where sample size was determined keeping in mind the statistical sample size determination formula where we considered significance level as 95% and confidence interval of 5.5. The sample size was determined as 317. After determining the sample size we conducted the mail survey via social media and references in few IT companies.

The questionnaire had 13 variables of those we had tested the research hypotheses through ANOVA keeping in mind the dependent and independent variables.

4.1 Sample Profile

Out of 317 respondents there were 238 males and 89 females working in various profiles like IT engineers, developers, Team leaders and managers. Majority of respondents were in the age range of 18-29 years of age. 162 were B.Tech, 131 were post graduates remaining possessed the diploma or any other degree. The industry experience of our respondents varies from 1-35 years with an average experience of 5. 78 years.

5. Results & Discussion

5.1 Testing Hypothesis 1

Ha- Organizational environment has significant effect on individual's performance.

H0- Organizational environment has no significant effect on individual's performance.

For testing the hypothesis 1 that weather the organizational environment has significant effect on individual's performance we had done an analysis of variance. For testing performance against environment the independent variable selected is "Extension of deadline is not required". In IT industry meeting the deadlines is one of the biggest parameter of performance therefore we had selected this variable as independent variable for this variance analysis. The dependent variables sorted were related to organizations efforts in making an individual's progressive growth and which reflects the individual's willingness to perform in that condition. The dependent variables are:

- I usually put in more efforts than required.
- My organization inspires the best in me in the way of job performance.
- My job gives me a chance to challenge my limits.
- We are often motivated to find unusual solution to the problem.

The ANOVA table for hypothesis 1 is :-

Table 1: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
I usually put in more efforts than required.	35.884	4	8.971	8.757	<.001
My organization inspires the best in me in the way of job performance.	49.694	4	12.42	9.315	<.001
My job gives me a chance to challenge my limits.	42.649	4	10.66	9.521	<.001
We are often motivated to find unusual solution to the problem.	56.762	4	14.19	13.33	<.001

Interpretation

As from the table above we could see that the significance of variables is less than the acceptable limit of .005. Therefore, we accept the alternate hypothesis H(a) and reject the null hypothesis H(0). From the above table it could be inferred that organization environment has a significant effect on the performance of an individual.

5.2 Testing Hypothesis 2

H(b)-Technical competency has significant effect on individual's performance.
H(0)- Technical competency has no significant effect on individual's performance.
In order to make ourselves more clear in knowing weather technical competency had significant impact on individual's performance or not. For testing this hypothesis the independent variable is the same as in Hypothesis 1 and the dependent variables selected are

- I use e-mails in this job regularly,
- I enjoy working with new technology.

The ANOVA table for Hypothesis 2 is as follows:-

Table 2: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
I use e-mails in this job regularly	58.219	4	14.555	11.64	<.001
I enjoy working with new technology.	50.578	4	12.645	15.16	<.001

Interpretation

From the ANOVA table above we could observe that the significance falls within the acceptable range of <=.005. Therefore, we accept the alternate Hypothesis H(b) i.e. Technical competency has significant effect on individual's performance and rejects the null Hypothesis H(0)- Technical competency has no significant effect on individual's performance. This made us infer that technical competencies are not compromised even though the IT industry nowadays is emphasizing on interpersonal skill.

5.3 Testing Hypothesis 3

H(c)-Business competency has significant effect on individual's performance.
H(0)-Business competency has no significant effect on individual's performance.
For analyzing the third hypothesis of this study we again do the analysis of variance against the same independent variable as in H(a) and H(b) for the following dependent variables:
- I have to work indoors in extremely controlled conditions.
- I am required to sit whole day in office.
- My role requires greater communication skill than technical skills.
- I could not become successful in this job without detailed knowledge of the business domain.
The ANOVA table for hypothesis 3 is as follows:-

Table 3: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
I have to work indoors in extremely controlled conditions.	20.304	4	5.076	3.68	0.005
I am required to sit whole day in office.	62.391	4	15.598	11.1	<.001
My role requires greater communication skill than technical skills.	31.995	4	7.999	7.23	<.001
I could not become successful in this job without detailed knowledge of the business domain.	68.17	4	17.042	13	<.001

Inference
From the above ANOVA table 3 we could observe that the level of significance falls within the acceptable range of <=.005. Therefore, it could be inferred that business skills do have a significant impact on an individual's performance in IT industry. We, therefore accept the alternate hypothesis H(c)-Business competency has significant effect on individual's performance and reject the null hypothesis H(0)-Business competency has no significant effect on individual's performance.

5.4 Findings

From the above analysis of variance we got the following findings:

Organizational environment had a positive effect over the performance of the individual employee. IT industries are known for their open and encouraging environment, it could therefore be emphasized that if an organization motivates its employees to solve the problem in a different way, inspires the employees then employees puts I more than the usual efforts in solving the business problems.

No matter how much the IT industry is been projected for giving more importance to interpersonal and other complex skills but the technical competencies are never compromised and it is this technical skill which makes the IT professional more confident and satisfied at his workplace.
Communication, business and interpersonal skills have now been identified as those skills without which even the application of technical skills is not been valued nowadays. It has therefore been proved through statistical tests above that business competencies have significant effect on the employee's performance.

5.5 Recommendations/Suggestions

Competency mapping shall be used as a tool for measuring the employee's effectiveness in order to manage the HR function more effectively. The organizations could maintain a skill pool where through interview and observation of their best performers it could be identified and recorded what all skills are required for a specific job.

6. Conclusion

In this study conducted we were able to get a valuable insight on the various kinds of skills necessary for an IT professional. In this study we have realized our objectives stated in the earlier section and have proved them statistically that organizational environment has a significant impact on the performance of the individual, also technical as well as business skills both holds a significant importance in terms of employee performance and satisfaction observed at workplace. Whenever, we think of measuring the impact of certain factor over another the most reliable approach is the exploratory and statistical approach of problem solving. Through this exploratory study we are able to make ourselves conceptually clearer and had determined the various types of skill requirement for IT professional and its effect on their performance as well.

7. Scope for Further Research

The future researchers could study this work and on the basis of this a comparative analysis of the IT professional at various organizational level could be undertaken. Also, as this study is limited to a very small sample size because of the researcher's limitations a broad research separated geographically with more profound sample size shall be able to give more generalized and universally acceptable results.

Paper ID: SUB152773

2420

References

[1] McClelland, D.C., "Testing for competence rather than intelligence", *American Psychologist*, XXVIII,(1), pp. 1-40, 1973.

[2] Boyatzis, R., "*The Competent Manager: A Model for Effective Performance",* New York: John Wiley & Sons, pp 46-48, 1982

[3] Earl M. & Skyrme D., (1992), "Hybrid managers – What do we know about them?", *Journal of Information Systems*, II, pp 69-187, 1992.

[4] Mitrani A., Dalziel M., & Fitt D., "*Competency Based Human Resource Management*", HayGroup, 1992.

[5] Woodruffe C., "What is Meant by Competency?", In: Sparrow, P.R., Boam, R., Eds. "*Designing and Achieving Competency*", McGraw-Hill International.UK., 1992.

[6] Spencer, L. and Spencer, S., "*Competence at Work: Models for Superior Performance*", John Wiley & Sons, Inc, New York, pp 9, 1993.

[7] Todd P., McKeen, J., and Gallupe R., "The evolution of IS job skills: A content analysis of IS job advertisements from 1970 to 1990", *MIS Quarterly*, XIX, pp 1-27, 1995.

[8] Cummings T., and Worley C., "*Organization Development and Change*", Ohio: South–Western College Publishing, 2001.

[9] Bartram D., Robertson, I. T. and Callinan M., "Introduction: A Framework for Examining Organizational Effectiveness", In I.T. Robertson, M. Callinan, & D. Bartram (Eds.), "*Organizational Effectiveness: The Role of Psychology*", pp. 1-12. Chichester, UK: Wiley, 2002.

[10] United Nations Industrial Development Organization,UNIDO Competencies, 2002. [Online]. Available http://www.unido.org. [Accessed: February 12, 2015].

[11] Martone D., "A guide to developing a competency-based performance management system", *Employment Relations Today*, XXX, (3), pp 23-32, 2003.

[12] Society for Human Resource Management. "Competency Overview", 2003, [Online]. Available:,http://www.Competencies%20Overview.htm. [Accessed: February 12, 2015].

[13] Berger, L., and Berger, D., "*The Talent Management Handbook. Creating Organizational Excellence by Identifying, Developing, and Promoting Your Best People*", New York: Mcgraw-Hill, 2004.

[14] Rao T.V., "*Performance Management and Appraisal Systems*", Sage Response Books, New Delhi, pp 6, 9, 2004.

[15] Kogan M., "*Performance Management- Key Strategies and Practical Guidelines*", Kogan page, London, 2006.

Author Profile

Divya Sharma received the MBA degree in 2007, Qualified National Eligibility Test conducted by University Grant Commission, India in Dec 2013 and is currently a research scholar in Jai Narain Vyas University, Jodhpur (Rajasthan), India. Has six years of profound teaching experience and one year of corporate experience.