

COMPETENCY MAPPING IN IT INDUSTRY - A ROADMAP FOR FUTURE

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ABSTRACT

Competency mapping is a key human resources management tool in modern business organisations. It becomes all the more important in service industries where the success of the firm depends solely on the competencies and motivations of its employees.

The present paper reflects upon the competency levels of 500 IT employees among different managerial levels. The study shows that the competencies of middle level managers are higher than expected when compared to lower level and higher level management. Also the differences between employees in different levels of management are significant. The gaps in competencies can be reduced by training and communicating.

Keywords : *Competency scores, Job performance skills, Communication skills, Team work, Leadership skills, Personal qualities.*

INTRODUCTION

HR has forever been duly concerned with getting the right person for the right job. This endeavor has necessitated several interventions and one of the most important of these has been Competency-based HR. The effectiveness of an organization depends on its people and particularly its leaders, which calls for closing the gap between the potential of the human resource of an organization and its delivered performance. This has led to significant interest in competency mapping and its subsequent use in performance management, training and development. Competency mapping and management are especially vital in the organizations which are operating in the services sector where human resources are the primary sources of value creation. In such firms, it is pivotal to be continually focused upon the impact of competency mapping and assessment on

crucial aspects of organizations that determine the performance. Hence, it is not surprising to observe the tremendous amount of interest in realistically capturing successful leadership behavior and skills, and mapping them with greater precision to enable organizational learning and efficacy. Managers and particularly HR managers need to understand the real impact of competency mapping on performance, training and development and eventually on all the other HR initiatives.

Competency mapping is a strategic HR framework for monitoring the performance and development of human resources in an organization. It is often observed that the HR function can astutely use this paradigm to align the human resources to the super-ordinate objectives and the larger vision and mission of the organization. This has to be practiced with a



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strong emphasis on linking it with the tangible outcomes associated with employee performance. Competency mapping has been one of the most effective tools of Human Resources Management, especially in the area of performance management, training and development. As work-based competencies have come to define job expectations and enable greater synthesis between jobs, roles and performance, competency mapping has become synonymous with organizational learning. The buzz around competencies has accentuated of late, drawing primarily from the context of the inevitableness of multi-skilling and knowledge management where shared competencies and continuous development ensure organizational learning.

In a highly volatile business environment, it is often the mettle of the people of an organization, particularly of those who design its strategy and are responsible for its action planning, which defines its success. The success of a leader ultimately depends on how well he manages himself, his job and the others. This requires that the entire gamut of competencies ranging from knowledge-level competencies to behavior-level competencies have to be mapped, developed and also successfully employed. The sureness of competency mapping impacting the strategic aspects of managerial scope is obvious. It definitely envelopes the entire gamut of HR activities and creates pre-determined impact which can ensure a highly fruitful efficacy-driven intervention. Evidently, the mandate for competency based culture is a herculean challenge, but if initiated the success is incidental since the value offered is phenomenally rewarding and evident to one and all. Many organizations all across the world have taken to doing the job 'the competency way' and if one is sure that performance is the only visible visage of organizational efficacy then competency driven paradigms could only foster greater precision in ascertaining both the employee and organization efficacy. If the challenge is to sustain competitive advantage then competency-driven organizations

have a better choice of surviving this juggernaut¹.

The key to gain a competitive edge is the ability of the workforce in an organization to maximize the advantage of state-of-the-art technology, superior products, and steady source of capital to enter into the marketplace. A company's technological tools are only as useful as its employer's ability to employ them; they are perceived in terms of how effectively the benefits are communicated (McLagan 1989).

The Competency Paradigm in the Indian IT Industry

Indian IT industry has gained significant importance in Indian economy and its role in employment generation has been stellar. The success of Indian IT industry in terms of delivery and business models has been internationally appreciated. The main strength behind this success has been the intrinsic quality of the software development teams at work in the Indian IT firms. The team orientation, delivery approach, processes and customer focus of the Indian IT firms are regarded to be the crucial elements for the success of the Indian IT firms. However, the Industry is not free from drawbacks. Following are the most prominent of the various problems faced by the management of IT Industry:

1. Many IT companies at present do not have full knowledge of Competency Mapping.
2. Organizations are facing huge complications in finding suitable skilled workers who can help their organization build and sustain competitive advantage.
3. In today's intensively competitive and globalised market place, building and maintaining committed and competent workforce has become a herculean task.
4. There is a lack of well established systems by which skills and distinctive

¹NafisaHabilbhaiKattarwala, Competency Mapping: Creating the successful roadmap for effective leadership, Training and Management, September 2007.

competencies of employees can be assessed.

5. There is a big gap between the factors for success in jobs and work roles within the organization.

The present study attempts to address some of these major issues. Towards this end, the study has attempted to measure the range and strength of the competencies possessed by the managers in the Indian Information Technology companies. Further, the study has also attempted to identify the gaps, if any, existing between the competencies that need to be ideally possessed and actually possessed by the managers. The purpose of such an attempt is to provide a sound basis for building a plausible competency development framework by which the competency gaps are filled and the Indian IT companies achieve a higher status of competency-based HR function.

A general classification of competencies as relevant for the IT industry has been developed for the purposes of setting the backdrop for the present study. For this purpose a list of desirable competencies has been distilled from employer surveys published by eminent national associations, universities and research groups².

1. Technical Skills- utilize computer software & hardware, web and financial resources
2. Communication Skills-oral & written
3. Teamwork Skills- works well with others, flexible, adaptable
4. Leadership Skills-communicate vision, action orientated, influence/motivate others, enthusiastic
5. Personal Qualities-relates well to others, self-confident, tactful, friendly, outgoing, sense of humor, problem-solver, detail-oriented, organized, creative, strategic

²Sources include: a) The National Association of Colleges and Employers (NACE); Michigan State University; b) University of Illinois; c) Hart Research Associates; d) American Society for Training and Development; and e) the U.S. Department of Labor, among others.

planner, risk-taker, entrepreneur

The framework implicit in the above list has been taken for the purposes of guiding the data collection and analysis relevant for the present study.

Literature review

Kumari Anitha and Sita V (2010) empirically investigated the role of competencies for employee development in the Indian IT and Pharma industries. They found that the competencies possessed by the employees had an impact on the organizational success. The study also found that developing and implementing competency based approach was crucial for effective human resource management.

Sharma Ritu and Tewari Ruchi (2013) have explored the relationship between competencies and job performance in firms drawn from inter alia IT industry. For this purpose, they listed a pool of competencies drawn from many important international studies. These competencies were presented to a group of experts and practitioners drawn from five different domains, one of which was the IT industry. The study found that some of the critical competencies – which were assigned highest ranking – need to be prescribed as obligator for the entry level managers in order to ensure that the organizational performance was achieved in an effective and efficient manner.

Ujval Rajadhyaksha (2005) tested a model of techno-managerial competencies based on data gathered from over 250 executives in one of India's largest vehicle manufacturing companies during a consulting assessment exercise conducted within the company. A total of 24 competency items were identified based on discussions with senior managers in the company, 13 of which were technical in nature and the remaining 11, managerial. A panel of experts using a combination of written tests, group discussions, and in-depth interviews conducted the assessment of executives on the listed competencies.

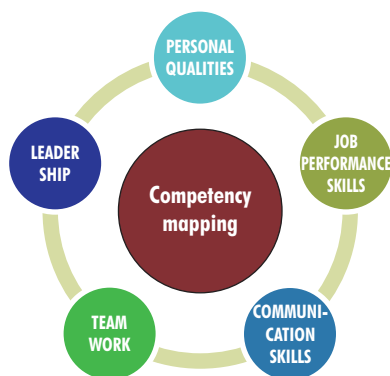
Uddin M.I. et al (2012) studied a set of organizations that had adopted competency mapping and development programmes. The study found that competency mapping serves individual employees who seek gainful employment in a dynamic environment that is conducive for learning and acquiring new skills. They also found that intellectual and emotional challenges are better managed by competent workers. They suggest that competency mapping can be done for workers of all types as well as for those that seek employment aligned to specific skills so that their value for the potential employers is enhanced.

Operational definitions

1. Competency : For the purpose of this study, competency possessed by an employee is taken as the sum of all individual competencies that he possesses. A similar study authored by William S. Frank was published in Denver Business Journal in August 2005³. The methodology used in that study was taken as the base for constructing the expected score of competency for our study.

The competencies that emerged as a result of previous researches, discussions and meetings with managers of different firms are depicted below:

The components relating to these competencies are attached at the end as an annexure:



³William S. Frank ‘These 10 core competencies comprise good leadership’. Retrieved from <http://www.bizjournals.com/denver/stories/2005/08/29/smallb3.html?page=all>

1. Job performance skills
2. Communication skills
3. Team work
4. Leadership skills
5. Personal qualities

There were 50 components altogether. The maximum score that a component could be given was fixed at 10. Hence, the total maximum tally that could be scored by any respondent was 500(50*10).

2. **Gap analysis⁴** is a tool that helps companies to compare actual performance with potential performance. At its core are two questions: "Where are we?" and "Where do we want to be?"

In the present study, the scores of all respondents were compared with the expected scores for all the competencies to find out whether he/she possessed a higher/lower score than the expectation. The gap between the actual and expected score was found out by the formula:

$$\text{Gap} = \text{Actual Score} - \text{Expected score}$$

If Actual Score > Expected Score, the gap is positive.

If Actual Score < Expected Score, the gap is negative.

OBJECTIVES OF THE STUDY:

The current study is undertaken to understand how competency mapping is used to analyze the combination of strengths among different workers to produce the most effective teams and the highest quality of work.

The specific objectives of this research are:

1. To measure the levels of different aspects of competency (namely, Job Performance Skills, Communication Skills, Teamwork, Leadership and Personal Qualities) among different levels of management (Low Level

⁴http://en.wikipedia.org/wiki/Gap_analysis

Management, Middle Level Management, High Level Management);

2. To check the significance of the differences in these competencies between levels of management; and,
3. To gauge the training and development needs as recognized by the employees based on their self assessed competencies.

RESEARCH METHODOLOGY : The research effort is descriptive in character. Data was gathered using a questionnaire administered to the respondents. Basic tools of analysis like classified tables, comparative analysis and measures of central tendency have been employed for the purposes of data analysis.

SAMPLE ISSUES:

This sample is based on Random Sampling Method and is selected from the database of employees of selected 5 IT companies (the names are not revealed as per the firms' request). The sample size taken from the lower level management is 300, the sample size taken from the middle level management is 150, and that of the Top level is 50.

HYPOTHESIS

Hypothesis testing discerns the effect of one factor on another by exploring the relationship's statistical significance. A scientific hypothesis is a proposed explanation of a phenomenon which still has to be rigorously tested. To get a statistical significant result of the objectives, the following null hypotheses were set up.

1. H1: There is no difference in the competency mean scores across levels of management. This hypothesis can be rewritten for all the individual competencies as follows:
 - H1A: There is no difference in the Job Performance Skills means across levels of management.
 - H1B: There is no difference in the

Communication Skills means across levels of management.

- H1C: There is no difference in the Team Work means across levels of management.
- H1D: There is no difference in the Leadership means across levels of management.
- H1E: There is no difference in the Personal Qualities means across levels of management.

LIMITATIONS OF THE STUDY:

1. The information relating to the employees has been given by the employees themselves. They have rated their own behavioral and technical skills. As a result of which some of the information given by the respondents may be biased.
2. The study contains 50 components grouped in 5 competency heads. Studying all 50 components individually is not feasible and would not add much value. Thus, there is a risk of ignoring few very prominent components.
3. The average of every competency forms the basis of analysis of that competency. It is a single value representing a group of components. Thus, the problem of central tendency might adversely affect the results.

Analysis of data

The first step was to get into the depths of descriptive data and understand the differences between different competencies among employees of the selected firms. The next logical step was to understand whether the samples under study came from similar and homogeneous populations, or there were significant differences in the scores between the groups.

Analysis of Variance (ANOVA) was used to test the equality of two or more population (or treatment) means by examining the variances of samples. It allowed us to determine whether the

differences between the samples were simply due to random error (sampling errors) or whether there were systematic differences among the groups

that caused the mean in one group to differ from the mean in another.

The results of the one-way ANOVA Analysis are explained in the following pages

Table 1: Descriptive analysis of competencies-Levels of Management

Competency	Levels of management	N	Mean	Expected scores	Std. Deviation	Minimum	Maximum
	Lower level Management	300	115.79	114	16.445	80	158
	Middle level Management	150	156.18	141	16.031	109	183
	Top level Management	50	87.98	134	14.151	44	107
	Total	500	125.12	124.1	27.185	44	183
Communication Skills score	Lower level Management	300	34.77	38	7.082	22	53
	Middle level Management	150	47.48	46	7.203	25	83
	Top level Management	50	30.18	39	3.049	21	34
	Total	500	38.12	40.5	9.266	21	83
Team Work score	Lower level Management	300	47.04	51	10.944	23	74
	Middle level Management	150	63.60	61	8.110	35	77
	Top level Management	50	39.12	57	7.703	18	50
	Total	500	51.21	54.6	12.981	18	77

Leadership score	Lower level Management	300	39.15	58	8.763	14	59
	Middle level Management	150	88.66	89	9.416	47	101
	Top level Management	50	78.06	92	15.802	46	100
	Total	500	57.89	70.7	25.170	14	101
Personal Qualities score	Lower level Management	300	71.11	88	12.075	45	97
	Middle level Management	150	100.33	101	10.974	60	118
	Top level Management	50	70.30	99	10.410	33	84
	Total	500	79.80	93	17.749	33	118

The descriptive table gives an insight into many important and interesting facts. When we look carefully at the consolidated table, many specifics emerge.

- **In case of Job Performance Skills scores:**

The expected competency required is 124.1, but the real scores are 115 for lower management, 156 for middle management and just 88 for top management. This means that top management people do not possess the expected job performance competency skills. This may be due to the lack of hands on working experience on the shop floor. Also this may be due to the fact that top management people would have been recruited from different domains.

- **In case of communication Skills scores:**

Here too, the expected competency from middle management is high (46) as compared to that from the low and top level management. Also, the actual scores of middle management are greater than expected from them, whereas, the same from low and top management fall short of expectation (38 and 39).

This is a clear indication that middle level managers have very good communication skills

which allows them to take directions from the top and give instructions to the lower level management.

- **In case of Team Work scores:**

The expected competency from middle management is high (61) as compared to that from the low and top level management. Also, the actual scores of middle management are greater than expected from them (63.6), whereas, the same from the lower level and top management falls short of expectation (39).

- **In case of Leadership Skills scores:**

The average scores of middle level management are 88.66 which are almost meeting the expectation. However, these skills are lacking among the low and top level managers.

The lower level management people seem to be lacking leadership skills. Further analysis will help us in understanding the reasons for the same.

- **In case of Personal qualities scores:**

The average scores of middle level management are 100.33 which are almost meeting the expectation. However, these skills are lacking among the low and top level managers.

In summary, we can clearly state that the expectations from the middle level managers is very high for all competencies. Also middle level managers are very high performers as compared to the other levels.

Table 2: ANOVA of competencies-Differences among levels of management

Competency		Sum of Squares	df	Mean Square	F	Sig.
Job Performance Skills scores	Between Groups	239810.845	2	119905.423	462.085	.000
	Within Groups	128965.467	497	259.488		
	Total	368776.312	499			
Communication Skills score	Between Groups	19660.362	2	9830.181	210.750	.000
	Within Groups	23181.950	497	46.644		
	Total	42842.312	499			
Team Work score	Between Groups	35560.225	2	17780.113	182.126	.000
	Within Groups	48519.877	497	97.626		
	Total	84080.102	499			
Leadership score	Between Groups	267716.652	2	133858.326	1374.403	.000
	Within Groups	48404.730	497	97.394		
	Total	316121.382	499			
Personal Qualities score	Between Groups	90351.552	2	45175.776	335.874	.000
	Within Groups	66847.640	497	134.502		
	Total	157199.192	499			

The result of ANOVA reflects all the significance values to be less than 0.05. This shows that there is significant difference in the mean values of competencies between different levels of management. This reflects that all the competencies (Job Performance Skills, Communication Skills, Team Work, Leadership and Personal Qualities) are not equally present among employees in different levels of management. There is a significant difference in the competencies based on the roles that they play among people working in different levels of management.

This was well supplemented by the descriptive in the previous table, in which the middle level managers emerged as the super performers as compared to the others.

Thus we can reject the null hypothesis that “There is no difference in the competency mean scores across the different levels of management” and state that there is significant difference in the competency mean scores across levels of management.

This also means that:

- H1A: There is difference in the Job Performance Skills means across levels of management.
- H1B: There is difference in the Communication Skills means across levels of management.
- H1C: There is difference in the Team Work means across levels of management.
- H1D: There is difference in the Leadership means across levels of management.
- H1E: There is difference in the Personal Qualities means across levels of management.

Analysis and discussion

The levels of competencies are different among different levels of management. Training,

talking to individual employees, mentoring and coaching are the few ways in which these differences can be reduced. The specific suggestions are given below.

- The reasons for low job performance need to be further analysed and the root cause analysis has to be made.
- Implement measures to facilitate the work-life balance⁵. This could include flexible working hours and career flexibility.
- Coaching and training must be given to the employees where the need is felt.
- The lowest-level jobs in an organization can often be the most stressful. Front-line employees can become mentally and physically exhausted by the demands of their jobs, steadily decreasing their motivation over time. Maintain a work environment that truly makes employees comfortable, where they can form lasting friendships and enjoy each other's company at work. Happy employees are almost always more productive than dissatisfied employees.⁶
- Implement employee development programs to let lower level employees know there are clear opportunities for career growth. If lower-level employees feel they are stuck in dead-end jobs, there can be nothing for them to strive for. Promise of internal advancement for management positions and other higher-level jobs will allow the employees to set personal career goals. Clear and attainable goals can be highly effective in boosting performance.
- Improve harmony, develop favourable relationship and alleviate relationship conflict among them.

⁵http://www.mckinsey.de/downloads/publikation/women_matter/Women_Matter_1_brochure.pdf

⁶<http://smallbusiness.chron.com/motivate-lowerlevel-employees-11483.html>

- Demonstrate and promote effective communications, using both verbal and nonverbal methods
- Interact effectively with team members of different personality types
- Provide leadership to team members to achieve team goals
- Resolve conflicts constructively within the team and with interfacing organizations
- Recognize and reduce individual stress.
- Define leadership and the leadership role in your facility
- Identify the aspects of an effective and non-effective leader
- Identify those factors that adversely impact the leadership role, and develop methods to minimize the impact of these factors on team functions
- Identify and respond to the needs of individuals using different motivational techniques
- Identify those characteristics of the team (i.e., group objectives and individual and collective abilities) that impact on a person's leadership strategy and control their effect on team output
- Fulfil leadership functions as needs arise within the team.

Conclusion

When companies set specific goals and evaluate employees on how well they meet or exceed their goals, then the results speak for

themselves. Today's corporate world demands sustainability in strategic growth, retaining and expanding market share, attracting, managing and nurturing talent, and delivering high quality performance to all concerned stakeholders. Improvement is the rule of the game today. You simply cannot afford to maintain the status quo—whether it is your company's bottom line or productive service quality or employees' way of executing their work.

Competency mapping is therefore, a process of identifying key competencies for an organization and/or a job and incorporating those competencies throughout the various processes (job evaluation, training, recruitment) of the organization. Use of a competency mapping model creates a difference in performance. It has multiple benefits. The missing links can then be taken care of by organizing training programs. If a core competency in an individual is below what seniors expect, it is really a matter of concern. Personality tests may reveal some other competencies which an individual might not have displayed so far. This can prove beneficial for the company, as training would further enhance these competencies.

The competency framework forms the bedrock for all HR applications. As a result of competency mapping, all the HR processes like talent induction, management development, appraisal and training yield much better results.

A1	Competency to work with present skills and knowledge.	9	7	7
A2	Knowledge on Computer engineering elements like software, their implementation, and their testing procedures.	6	8	9
A3	Knowledge about different processes and various protocols in the area of work & importance.	5	8	9
A4	follow the departmental / work level the various procedures, work instructions given	9	8	7
A5	Knowledge on Quality Control tools & techniques.	6	8	8

A6	Constant up gradation of knowledge on software, with training and developments programs.	6	9	9
A7	Knowledge on cost control activities.	5	10	8
A8	Knowledge about company policies, vision, mission, objectives & core values.	6	8	10
A9	Ability to plan & distribute the work.	7	10	8
A10	Ability to analyze and solve the problems during designing, implementation, testing, & to take corrective & preventive actions during the process.	9	10	8
A11	Ability to tackle sudden critical problems in the software or	8	8	7
A12	Ability to implement time management philosophy in complying with work as per the needs of the company / manager.	9	10	9
A13	Excited about the job and look forward for new assignments.	8	9	9
A14	Provide training to peers in the work place about the work procedures and newer methods of doing a work.	6	10	9
A15	Technical knowledge leading to productivity	8	9	8
A16	Ability to adapt to the Change Management at various places of work and with people.	7	9	9
A	TOTAL	114	141	134
B - Communication Skills				
B1	Good Listening abilities.	8	9	9
B2	Understanding instructions/responses from Team Members & Superiors.	10	9	6
B3	Ability to explain the suggestions/activities/queries/problems effectively.	6	9	9
B4	Writing skills (Written communication to peer group/subordinates/superiors)	7	10	9
B5	Sharing the needed information with the people concerned.	7	9	6
B	TOTAL	38	46	39
C - Team Work				
C1	Coordinate & Cooperate with team members to achieve the team objectives.	8	8	7
C2	Coordinate with other teams.	7	10	8

	E - Personal Qualities			
E1	Disciplined & self motivated	8	8	8
E2	Delegate the activities to team members & monitoring the progress.	6	9	8
E3	Learn from the mistakes & improve the management aspects.	7	7	7
E4	Maintain good relation with peers, subordinates & superiors.	7	10	9
E5	Adhere to the management directions & making others to understand them.	8	9	9
E6	Positive body language.	8	9	9
E7	Creative & innovative with idea generation	8	9	9
E8	Continuously learn from superiors/subordinates.	8	8	8
E9	Maintain Politeness during conversation.	8	7	7
E10	Facilitate & develop creative & innovative work culture.	6	8	7
E11	Upgrade personal intellectual skills for the development of the work/organization.	7	8	9
E12	Ability to deal with the cross cultural adjustments with subordinates / peers / superiors.	7	9	9
E	TOTAL	88	101	99

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