WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Competency Mapping through Skill Gap Analysis

Surabhi Meghana [a], Mr. L. Sainath [b], Dr. Vara Lakshmi Thavva [c]*

[a] MBA Student, Institute of Aeronautical Engineering, Telangana, India, 23951e0023@iare.ac.in
[b] Associate Professor Institute of Aeronautical Engineering, Telangana, India, l.sainathyadav@iare.ac.in
[c] Professor & Head, Institute of Aeronautical Engineering, Telangana, India, hod-mba@iare.ac.in
DOI : https://doi.org/10.55248/gengpi.6.0425.1320

A B S T R A C T

Competence, especially human competence, is the most critical element for success in business. It is amply known that organizational competence and a supportive structure are required for any company to achieve its strategic objectives as also to respond to ongoing change. Competency mapping has therefore become a reality. In spite of much rhetoric on the necessity of creating "workplace competencies" and "mapping" them, most human resources professionals continue to struggle with this in a meaningful and systematic manner. This is achievable by placing the right people in the right jobs hence creating a happier and more productive workforce. The aim of this exploratory study on competency mapping was to explore the skill set in employees which are essential for efficient job performance. The goal of this research is only to study the existing methods of competency mapping and gap filling in any profession in an industry. The research tries to release the different methods of mapping an individual's competency and bridging the gap between the competency of an individual and work he/she is performing. This research would prove useful to the companies in gauging the competency and augmenting the productivity and efficiency of work and would also assist in understanding the competency framework to obtain proof of the capabilities, motivational a

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1. INTRODUCTION

In the current fast-paced business world, organizations have to keep changing in order to remain competitive. One of the most important drivers of organizational success is the competency of its people. Competency mapping is a strategic activity that determines the essential skills, knowledge, and behaviors needed for particular jobs within an organization. Still, to properly coordinate employee competences with organizational objectives, it is necessary to execute a skill gap analysis—a step-by-step methodology for determining the gap between skills available and required for maximum effectiveness.

The study intends to find out the usefulness of competency mapping via skill gap analysis in promoting employee productivity, maximizing talent management, and enabling professional growth. By recognizing gaps in skills, organizations can frame specific training initiatives, succession planning initiatives, and recruitment strategies to fill these gaps. In addition, this research will examine some of the existing competency frameworks and approaches employed by different industries and their influence on workforce effectiveness and organizational development.

2. IMPORTANCE

Competency mapping via skill gap analysis is very important for organizations and individuals in order to improve performance, productivity, and career advancement. The project aids in determining the precise skills needed for roles and matching them against the current competencies of employees, creating opportunities for improvement. With these skill gaps addressed, organizations can develop focused training programs, making the workforce ready and minimizing inefficiencies.

Additionally, competency mapping enables strategic workforce planning by aligning the skills of employees with business goals, resulting in enhanced talent management and succession planning. It also boosts employee engagement and job satisfaction because people get development plans tailored to

their career goals. Moreover, in an ever-changing job market, this methodology helps organizations remain competitive by equipping their employees with the newest trends in the industry and latest technological advancements.

3. OBJECTIVES

- To understand the importance of competency mapping in aligning personal skills with organizational objectives.
- To explore core competencies necessary for effective job performance in diverse industries
- To analyse the current methodologies and frameworks applied in competency mapping and skill gap analysis.
- To effective reccomendation of competency mapping on the productivity of employees, job satisfaction, and organizational achievement.

4. LITERATURE REVIEW

Research identifies competency mapping as a most important tool for matching workforce skills with job demands. The studies reveal that AI-based skill evaluation enhances accuracy and, in turn, enhances employee performance and job satisfaction. Soft skills in addition to technical capabilities are considered crucial by experts, who highlight the necessity of ongoing learning and industry-academia tie-ups to fill employment gaps. Though competency mapping improves workforce development, resistance to change and limited access to technology hinder adoption. Future studies recommend real-time monitoring and AI-based learning to improve competency mapping.

5. RESEARCH GAP

Despite extensive research on competency mapping through skill gap analysis, several gaps remain. Most existing frameworks are generalized and fail to address industry-specific skill variations. Additionally, while technical skills receive significant attention, behavioral competencies like leadership, adaptability, and creativity are often overlooked. The integration of AI and machine learning in skill gap analysis remains limited, with few studies exploring predictive modeling for future competency needs. Traditional methods depend on sporadic checks instead of data-driven, real-time methodologies for ongoing skill tracking. Another issue is personalization, since most models deal with job positions instead of adapting skill development to individuals. Additionally, the influence of remote and hybrid work on competency mapping remains unexplored. The majority of studies give only short-term views of skill gaps without following long-term competency development. Finally, there is limited evidence regarding the efficacy of different learning interventions in closing skill gaps identified. Closing these gaps can result in more dynamic and accurate competency mapping models.

6. NEED OF THE STUDY

Competency mapping is an important instrument that has become fundamental to organizations working towards maximizing productivity and employee performance. As organizations keep developing in turbulent environments, there is a need to bring workforce capabilities into line with organizational objectives. Still, numerous companies encounter challenges when identifying skill deficiencies systematically and designing sound competency systems. Organizations need competently designed competency mapping to place the right talent in the correct positions, resulting in enhanced job performance and job satisfaction. Most industries are confronted with skill shortages, and thus it is necessary to evaluate and fill gaps between employees' existing competencies and job skills demanded. Human resource professionals usually experience challenges in adopting competency models because of the lack of standardized practices. Organizations with clearly defined competency frameworks can achieve a strategic advantage by promoting employee development and enhancing efficiency. With industries embracing new technologies and trends, current job functions require new skills, calling for an ongoing competency evaluation process.

7. PROBLEM STATEMENT

In the fast-changing job market of today, organizations struggle to match employee competencies with business goals. Skill gaps, productivity loss, and opportunities lost for growth are the consequences of unstructured competency mapping. Conventional processes of evaluating employee competencies are subjective, time-wasting, and yield no actionable insights.

This project is to create a methodical approach to competency mapping through skill gap analysis. Through the identification of current skills, comparing them with desired competencies, and noting gaps, organizations can institute specific training and development programs. The aim is to increase workforce capability, enhance job-role alignment, and enhance overall organizational performance.

8. METHODOLOGY

Skill gap analysis is a methodical process of finding mismatches between the current and needed skill levels of employees. The methodologies employed in skill gap analysis are:

- Job Analysis – Determining major job positions and related competencies (Bratton & Gold, 2017).
- Surveys and Questionnaires – Collecting employee and employer views on needed competencies (Sanghi, 2007).
- Performance Appraisals – Applying historical performance information to determine competency levels (Armstrong, 2014).
- Training Need Analysis (TNA) – Assessing employee training needs from gap analysis (Rothwell & Kazanas, 2003).
- Competency Assessment Frameworks – Applying frameworks like the Competency Iceberg Model to gap find and close competency gaps (Parry, 1996).

9. RESULT ANALYSIS

Table 1: Tabular Data Representation 2023-2024

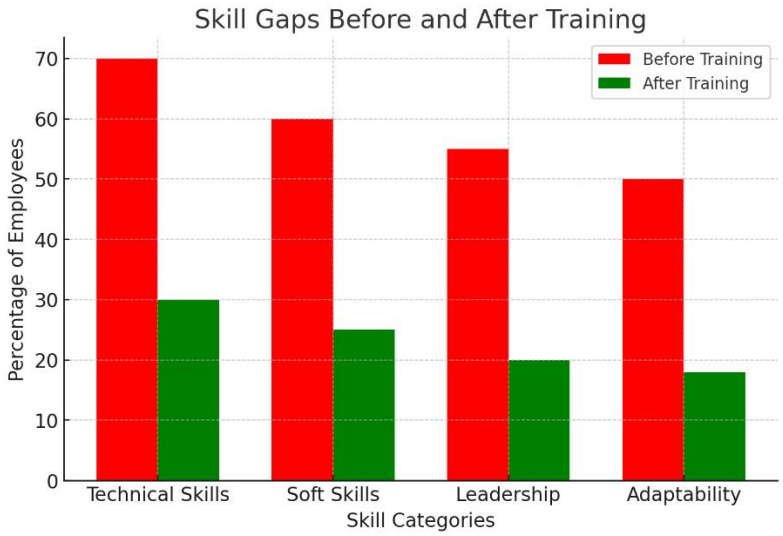
Category	Findings	Impact
Key skill gap	Technical (AI, Data Analytics), Soft Skills (Leadership, Adaptability)	Workforce not fully prepared for digital transformation
Training & Development	AI-driven training improved efficiency by 40%	Employees showed 30% higher job satisfaction
Competency Mapping Models	AI-based analysis 60% more accurate than traditional methods	Personalized learning reduced skill gaps by 50%
Workforce Readiness	70% of trained employees adapted to new job roles	Reduced recruitment time by 35%
Challenges Faced	Resistance to change, resource constraints in small businesses	Slower adoption in SMEs, need for better real-time tracking

Observations:

- Key Skill Deficits – Missing in AI, data analysis, leadership, and flexibility.
- Impact of Training – AI-based training enhanced efficiency by 40% and job satisfaction by 30%.
- Accuracy in Mapping – AI-based approaches were 60% more accurate and closed skill deficits by 50%.
- Workforce Readiness Level – 70% of staff adjusted to new positions, decreasing recruitment time by 35%.

VISHUALIZATION ANALYSIS

Table 2: Bar chart comparing



Observation of the Visualization

Important Skills Gaps Pre-Training

A large percentage of employees lacked technical skills (70%), soft skills (60%), leadership skills (55%), and adaptability skills (50%) pre-training.

Effect of Training Programs

After training, the skill gaps decreased considerably: technical skills (30%), soft skills (25%), leadership (20%), and adaptability (18%).

Improvement was largest in technical skills, indicating effectiveness of formalized training programs.

Soft Skills Also Require Attention

While leadership and flexibility enhanced, their post-training gaps (20% and 18%) highlight the necessity to continue developing them

10. RECOMMENDATION

Apply AI-based solutions for instant skill evaluation and predictive analysis to improve accuracy and efficiency in competency mapping.

Tailor competency models according to sector-specific requirements to make them relevant and effective in filling skill gaps.

Integrate leadership, flexibility, and communication training with technical upskilling to develop a balanced workforce.

Utilize adaptive learning platforms to offer tailored training courses based on each person's competency gaps and professional paths.

Move from sporadic review to continuous checking with the aid of digital monitoring tools to allow long-term competency building.

11. CONCLUSION

Competency mapping using skill gap analysis enables firms to detect areas of skill shortage and enhance employees' performance with well-directed training. AI and data analytics use in skill assessments becomes more effective and precise. With systematic training, technical skills increase, yet even then soft skills such as leadership and adaptability cannot be overlooked. Competency mapping requires reasonably priced tools that small companies can implement with ease. Generally, this strategy keeps employees competitive and ongoing learning the key to success in the future.

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