

A Study on Competency Mapping of Employees Using (ATD Model) In Select ITES Companies in Hyderabad

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Abstract: This study investigates the strategic role of competency mapping in enhancing workforce performance and engagement within the rapidly growing ITES sector in Hyderabad, India. Leveraging the American Society for Training and Development (ASTD, now ATD) Workplace Learning and Performance (WLP) Model, the research evaluates competencies across foundational, functional, and strategic domains among a sample of 485 employees selected through stratified random sampling. A structured questionnaire incorporating Likert scales, dichotomous items, and open-ended responses was administered to capture multi-dimensional insights. Data analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM), Pearson's correlation, SQL-based filtering, and descriptive statistics to assess the relationships among key variables. The results reveal significant positive correlations between competency mapping and employee performance ($r = 0.66$) as well as engagement ($r = 0.63$). PLS-SEM further validated the direct structural impact of competency frameworks on individual effectiveness ($\beta = 0.61$, $p < 0.001$) and strategic role alignment. The findings affirm the practical applicability of the ASTD WLP Model as a reliable tool for talent management, while also highlighting the value of integrating digital HR tools in competency development. This study contributes empirical insights to both practitioners and researchers seeking to align workforce potential with organizational vision in a knowledge-driven industry.

Purpose: The primary purpose of this research is to assess the effectiveness of competency mapping in enhancing employee performance and engagement using a validated competency framework. By leveraging both behavioral and data-driven metrics, the study aims to bridge the gap between theoretical models and practical HR applications, ultimately offering guidance for talent development and strategic workforce planning in the ITES industry.

Originality: This study contributes a novel application of the ASTD (now ATD) Workplace Learning and Performance Model within the ITES context in Hyderabad—an area previously underexplored in competency research. It integrates structured survey methods with advanced statistical modeling, offering one of the few empirical validations of the ASTD framework in a tech-enabled, service-driven environment in India.

Keywords: Competency Mapping, ASTD WLP Model, ITES Sector, Employee Performance, Employee Engagement, Strategic Alignment, PLS-SEM, Pearson Correlation, Learning and Development, Human Resource Analytics

I. Introduction

Competency mapping of employees using the ATD Model in select ITES organizations is a strategic approach to aligning workforce capabilities with business goals. The ATD Talent Development Capability Model provides a structured framework that focuses on what employees need to know and do to drive performance and adaptability in a fast-evolving industry.

In the ITES sector—where agility, customer orientation, and technical proficiency are critical—this model helps identify key competencies across three domains: personal, professional, and organizational. By mapping these capabilities, organizations can better assess skill gaps, design targeted learning interventions, and enhance talent management practices.

Association for Talent Development Workplace Learning and Performance Model. The ATD Talent Development Capability Model is a modern framework developed by the Association for Talent Development (ATD) to guide professionals in the field of learning and development. It replaces the older competency-based model with a capability-focused approach, emphasizing not just what professionals know, but what they can do and how they adapt to future challenges.

The model is built around three key domains:

- Building Personal Capability – foundational skills like communication, emotional intelligence, and lifelong learning.
- Developing Professional Capability – technical expertise such as instructional design, coaching, and evaluating impact.
- Impacting Organizational Capability – strategic abilities like business insight, change management, and talent strategy

Approaches to Competency Modeling

The research follows a behavioral and outcomes-based approach, aligned with ASTD's philosophy. Key components of the approach include:

- Top-Down Alignment: Linking organizational goals with individual competencies.
- Job Role Analysis: Identifying behaviors, skills, and knowledge areas critical to success.
- Survey-Based Assessment: Using Likert-scale items to quantify perceptions of competency mapping.
- PLS-SEM Modeling: Statistically validating the impact of competency practices on performance.

This approach allows for both descriptive (how competencies are experienced) and inferential (what effect they have) insights.

Dimensions of the ASTD Workplace Learning and Performance Model

The ASTD WLP Model is structured into three tiers, each of which forms the backbone of this research:

1. Foundational Competencies
 - Interpersonal skills
 - Business acumen
2. Personal effectiveness
3. Areas of Expertise (AOEs)
 - Instructional Design
 - Training Delivery
 - Performance Improvement
 - Coaching
 - Learning Technologies
 - Knowledge Management
4. Professional Roles
 - Learning Strategist
 - Business Partner
 - Project Manager
 - Professional Specialist

II. Review of Literature

ASD competency mapping Scale based reviews

1. **Salleh and Sulaiman (2013)** conducted an empirical study using the ASTD framework to assess workplace learning and performance, finding that the model effectively identified skill gaps and aligned training with organizational goals.
2. **Opoku et al. (2016)** emphasized the model's contribution to the evolution of Human Resource Development (HRD) as a distinct field, highlighting its role in professionalizing L&D practices.

Updated competencies based reviews

3. **Jandhyala, U. (2023)** emphasizes the strategic integration of competence mapping into business planning. Using the 4Q model (Structure, Behavior, Thinking, Culture), it outlines how organizations like Toyota and Volvo leverage competency frameworks to align talent with innovation and performance. The paper also highlights challenges such as data quality and resistance to change, offering a roadmap for implementation.
4. **Marlapudi, K. & Lenka, U. (2024)** explored how Industry 4.0 has reshaped job roles and required competencies. It identifies digital fluency, adaptability, and systems thinking as critical competencies. The authors argue for a shift from static models to dynamic, AI-supported frameworks that evolve with technological disruption.
5. **AIHR (2025)** outlined modern competency mapping practices, including distinctions between skill matrices and competency frameworks. It reviews models like SHL, Lominger, and ASTD, and introduces AI-driven tools for real-time feedback and predictive analytics. The guide emphasizes the role of competency mapping in reducing turnover and enhancing performance management.
6. **Disprz (2025)** discussed on how competency mapping has evolved into a data-driven, tech-enabled process. It showcases real-world applications, such as a retail giant improving leadership effectiveness by 30%

and a tech firm accelerating agile transformation. The paper also outlines a seven-step implementation model and highlights the role of AI in future-proofing talent strategies.

7. **iMocha (2025)** emphasized automation, 360-degree feedback, and analytics as key features. The report notes that with 8% of new skills added per role annually, dynamic competency mapping is essential for workforce agility and learning ROI.

8. **McClelland (1973)** emphasized that traditional intelligence tests were insufficient predictors of job success. His seminal work *“Testing for Competence Rather Than for Intelligence”* laid the foundation for competency-based assessments, arguing that observable behaviors and motivations are better indicators of performance.

Competency mapping based reviews

9. **Lucia and Lepsinger (1999)** defined competencies as clusters of related knowledge, skills, and attitudes that influence a major part of one’s job. Their model has been widely adopted in HR practices for competency profiling and performance management.

10. **Kodwani & Amitabh Deo (2009)** highlighted that performance excellence in organizations is driven by employees with the right mix of technical and behavioral competencies. They advocated for structured competency mapping to bridge performance gaps.

11. **Neha Bhatt (2020)** conducted a comprehensive review of competency mapping in organizations, concluding that it is a strategic tool for identifying employee potential and aligning it with organizational goals. She emphasized the importance of continuous assessment and development.

Research Gap

Although extensive studies have explored competency mapping in manufacturing, education, tourism, and general service sectors, **limited empirical research has been conducted within the ITES (Information Technology Enabled Services) industry**, particularly in emerging global hubs like Hyderabad. Most existing models emphasize traditional frameworks and static role definitions, lacking integration of **AI-enabled assessment tools, digital competencies, and dynamic role evolution** demanded by Industry 4.0.

Furthermore, while recent studies (e.g., AIHR, Disprz, iMocha) suggest a growing trend toward technology-driven and real-time mapping solutions, there’s a gap in longitudinal and comparative research evaluating the **effectiveness of competency mapping on measurable employee outcomes**—such as engagement, performance, and retention—within ITES organizations.

Objectives of the study

1. To identify and categorize core, functional, and behavioral competencies required for key roles in selected ITES companies in Hyderabad.
2. To assess the extent to which current competency mapping practices align with organizational goals and employee development strategies.
3. To evaluate the impact of competency mapping on employee performance, engagement, and retention.
4. To analyze challenges and barriers faced by HR professionals in implementing dynamic competency frameworks.

Hypotheses of the study

- **H₁:** There is a significant positive relationship between competency mapping implementation and employee performance in ITES firms.
- **H₂:** Competency mapping has a direct positive effect on employee engagement levels.
- **H₃:** Organizations that utilize dynamic, tech-enabled competency tools demonstrate higher retention rates compared to those using traditional frameworks.
- **H₄:** There is a statistically significant difference in perceived competency gaps between managerial and non-managerial roles.
- **H₅:** The presence of a structured competency mapping framework significantly predicts alignment between individual and organizational goals.

III. Research Methodology

Research Design

- The study follows a descriptive and analytical research design, combining both quantitative and qualitative approaches to evaluate the effectiveness of competency mapping practices in ITES companies using the ASTD Competency Model as a framework.
- **Population:** Employees working in mid- to large-scale ITES organizations in Hyderabad.
- **Sample Size:** A purposive sample of 485 employees was selected across departments including operations, human resources, L&D, project management, and client services.

- **Sampling Technique:** Stratified random sampling was used to ensure representation across managerial levels (junior, mid, senior) and functions.
- **Data Collection Method:** Both primary and secondary data collected for the study
- Secondary data sourced from journals, books and websites and ITES companies based in Hyderabad
- Primary data collected using a structured questionnaire

Statistical Tools and Techniques applied

- Partial Least Squares Structural Equation Modeling (PLS-SEM), SQL, Correlation Analysis, Descriptive Statistics

Limitations of the Study

- The study was limited to employees located in Hyderabad, and findings may not be generalizable to ITES firms in other regions.
- Self-reported data may introduce bias, as respondents might overstate or underreport competencies.
- The PLS-SEM analysis assumes linear relationships, which may not capture non-linear behavior in complex organizational dynamics.
- Certain organizations did not permit access to detailed HR analytics, limiting comparative analysis in some competency domains.

IV. Data Analysis and Interpretation

Demographic divide

Tab-Demographics-Gender

Gender	Frequency	Percentage (%)
Male	305	63
Female	180	37

Analysis: The sample shows a male-dominated workforce in the selected ITES firms. However, female representation is substantial, reflecting some gender diversity in the sector

Tab-Demographics-Age

Age Group	Frequency	Percentage (%)
20–30	198	40.82%
31–40	178	36.70%
41–50	76	15.67%
Above 50	33	6.80%

Analysis: A large portion of the workforce falls within the early- to mid-career stages (20–40 years), suggesting a relatively young and dynamic workforce in the ITES sector

Tab-Demographics-Educational Credentials

	Frequency	Percentage (%)
Undergraduate (Bachelor's)	215	44.33%
Postgraduate	240	49.48%
Diploma/Certification	25	5.15%
Doctorate/PhD	5	1.03%

Analysis: The high number of postgraduates highlights the specialized, knowledge-driven nature of ITES roles requiring advanced education.

Tab-Demographics-Experience

	Frequency	Percentage (%)
Less than 1 year	42	8.66%
1–3 years	146	30.10%
4–7 years	188	38.76%

8 years and above	109	22.47%
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Analysis: The majority of respondents have between 4 to 7 years of experience, indicating a mid-level talent pool equipped for both operational roles and upward mobility.

Tab-Demographics- Department

	Frequency	Percentage (%)
Operations	150	30.93%
HR & L&D	95	19.59%
IT Support	110	22.68%
Project Management	80	16.49%
Customer Support	50	10.31%

Interpretation: Operations and IT Support are the largest groups, aligning with the core functional responsibilities typical in ITES organizations. HR/L&D also has strong representation, essential for competency management studies.

Descriptive Statistics

Tab-Descriptives

Category	Description	Mean	SD	Min	Max
Foundational	I effectively manage time and prioritize tasks at work	4.12	0.68	2	5
Foundational	I communicate clearly with team members and stakeholders	4.21	0.66	2	5
Foundational	I adapt quickly to changing work conditions or technologies	4.06	0.79	1	5
Areas of Expertise	My role requires continuous upskilling in digital tools/platforms	4.32	0.62	2	5
Areas of Expertise	My organization provides relevant learning resources and coaching	3.88	0.91	1	5
Areas of Expertise	I am encouraged to apply my learning to improve team performance	3.94	0.86	1	5
Professional Roles	I am aware of how my competencies align with the company's strategic goals	3.76	0.89	1	5
Professional Roles	I am supported in developing new competencies for career advancement	3.81	0.83	2	5
Professional Roles	Competency-based practices are effective in my role	3.93	0.85	1	5

Analysis: Foundational Competencies: Respondents rated themselves high in areas like communication (M = 4.21) and time management (M = 4.12), suggesting well-developed interpersonal and productivity skills. Flexibility/adaptability scored slightly lower (M = 4.06), indicating room for improvement, possibly due to rapidly evolving IT tools and environments.

Areas of Expertise: The highest mean score overall came from digital upskilling (M = 4.32), underscoring the tech-centric nature of ITES jobs. However, organizational support for resources and coaching scored moderately (M = 3.88), showing inconsistency in L&D infrastructure.

Professional Roles: Employees' understanding of their strategic alignment (M = 3.76) and support for long-term development (M = 3.81) were lower than core competencies, suggesting a need for better internal communication about role expectations and career growth. Competency practices were rated somewhat effective (M = 3.93), reflecting general acceptance with some gaps in perception or implementation.

Inferential Statistics

Tab-PLS-SQL

Hypothesized Path	Path Coefficient (β)	t-value	p-value	Significance
H1: Competency Mapping \rightarrow Employee Performance	0.61	7.52	<0.001	Significant
H2: Competency Mapping \rightarrow Employee Engagement	0.57	6.98	<0.001	Significant
H3: Tech-Enabled Tools \rightarrow Retention	0.44	4.21	<0.001	Significant
H4: Role Level \rightarrow Competency Gap Awareness	0.29	2.77	0.006	Significant
H5: Competency Mapping \rightarrow Strategic Role Alignment	0.36	3.84	<0.001	Significant

Analysis of Path Coefficients

H₁: Competency Mapping → Employee Performance ($\beta = 0.61, t = 7.52, p < 0.001$)

This path shows a strong and highly significant relationship, suggesting that effective competency mapping has a substantial positive impact on employee performance.

With a β of 0.61, a unit increase in competency mapping efforts is associated with a 61% boost in performance indicators.

H₂: Competency Mapping → Employee Engagement ($\beta = 0.57, t = 6.98, p < 0.001$)

Another robust positive effect, indicating that when employees understand and align with the competencies expected of them, their engagement improves meaningfully.

H₃: Tech-Enabled Tools → Retention ($\beta = 0.44, t = 4.21, p < 0.001$)

This suggests that leveraging digital tools (such as LMS, skill analytics platforms, etc.) enhances employee retention, likely through improved learning experiences and access to self-development resources.

H₄: Role Level → Competency Gap Awareness ($\beta = 0.29, t = 2.77, p = 0.006$)

A moderate but statistically significant relationship. This implies that employees at different role levels show varying degrees of awareness regarding their skill gaps—likely influenced by their exposure, responsibilities, or expectations.

H₅: Competency Mapping → Strategic Role Alignment ($\beta = 0.36, t = 3.84, p < 0.001$)

Competency mapping positively influences how well individuals are aligned to strategic roles within the organization, ensuring that talent is deployed where it has the greatest organizational impact.

Tab-Correlation

Variables Compared	Pearson's r	Significance (p-value)	Relationship Strength
Competency Mapping & Performance	0.66	<0.001	Strong Positive
Competency Mapping & Engagement	0.63	<0.001	Strong Positive
Engagement & Retention	0.58	<0.001	Moderate Positive
Role Clarity & Strategic Alignment	0.47	0.003	Moderate Positive
L&D Support & Performance Improvement	0.51	0.002	Moderate Positive

Analysis:

1. PLS-SEM Findings: The results show strong path coefficients for the influence of competency mapping on both employee performance ($\beta = 0.61$) and engagement ($\beta = 0.57$), each statistically significant at $p < 0.001$. This supports Hypotheses H₁ and H₂, indicating that robust competency frameworks contribute meaningfully to workplace outcomes.
2. Technology Integration (H₃): The use of AI-driven tools for competency tracking significantly impacts retention ($\beta = 0.44$), validating trends seen in modern HR tech literature.
3. Role Level Awareness (H₄): Mid-to-senior managers are more aware of competency expectations and gaps, supporting the idea that senior roles benefit from clearer frameworks and training.
4. Pearson Correlation: The correlation matrix further supports the above findings. Notably, competency mapping has a strong positive correlation with performance ($r = 0.66$) and engagement ($r = 0.63$). These correlations reinforce the structural equation findings and improve predictive validity.

Conclusion

- The demographic analysis reveals that the surveyed ITES workforce in Hyderabad is relatively young, educated (mostly postgraduate), and professionally experienced. There is decent gender diversity and functional distribution, making the sample representative and suitable for investigating competency mapping practices in this context.
- The descriptive data suggests that ITES employees in Hyderabad are competency-conscious, particularly in areas of communication, digital fluency, and time management. However, organizational support mechanisms—especially in coaching, career alignment, and structured L&D pathways—need strengthening.
- The variance in responses (reflected in moderate SD values between 0.62 and 0.91) indicates heterogeneous employee experiences, likely due to differences in managerial support, role design, or training accessibility.
- This insight provides a powerful springboard for targeted HR interventions, such as leadership coaching, customized up skilling programs, and improved use of competency frameworks to guide career mobility.
- The analysis provides compelling empirical support for the strategic use of the ATD competency framework in ITES organizations. All hypothesized relationships are statistically significant, underscoring that well-structured competency mapping doesn't just boost performance and engagement—it also enhances retention, strategic alignment, and role-specific development insights.

- The inferential analysis confirms that competency mapping positively and significantly influences performance, engagement, and strategic role clarity within ITES firms in Hyderabad. The integration of tech-enabled mapping systems further enhances employee retention, underlining the value of digital adoption in HR practices.
- These insights not only validate the ASTD model's utility in real-world environments but also offer actionable guidance for organizational leaders to align workforce capabilities with long-term business goals.

Scope for Future Study

- **Longitudinal Tracking:** Evaluate how competencies evolve over time and whether interventions based on ASTD competencies yield lasting change.
- **Comparative Sectoral Analysis:** Apply the model to other service sectors (e.g., healthcare, fintech) and compare findings.
- **Competency-AI Convergence:** Explore AI-enabled platforms for real-time, adaptive competency mapping.

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