

Improving talent management practices in the organization by the tool of competency-based HR functions

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Abstract

Purpose – Organizations invest in competency frameworks and talent programmes, yet the two are mostly run and studied apart. This paper closes that gap. It tests a single model showing how competency-based HR functions (recruitment, training and development, performance appraisal, career development and succession planning) work together to turn employee competencies into lasting talent.

Design/methodology/approach – Primary data were collected from 546 employees across four manufacturing industries in Gujarat, India: Agro and Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and Petrochemical. Responses were recorded on a five-point Likert scale. PLS-SEM was used to test the measurement and structural models, while Importance-Performance Map Analysis (IPMA) showed where action matters most.

Findings – Competencies and competency-based applications significantly shaped Competency-Based HR Functions ($\beta = 0.432$, $R^2 = 0.542$), which in turn significantly predicted Talent Development ($\beta = 0.641$, $R^2 = 0.411$). The message is clear: competency-based HR delivers results when its functions work as one connected system, not as isolated routines. IPMA placed competency-based HR functions high on both importance and performance, while talent retention stood out as the clearest gap.

Practical implications – Manufacturing firms should use competency information across the employee lifecycle, build career paths around competencies and strengthen retention through open, participative competency assessment.

Originality/value – Grounded in the resource-based view and dynamic capabilities theory, the study repositions competency management as a capability-building engine rather than a personnel routine. It offers rare empirical evidence from emerging-economy manufacturing, giving HR scholars, managers and policymakers a tested route from competencies to talent.

Keywords Competency, Competency-based HR functions, Organization, Talent development, Talent management

Paper type Research article

Introduction

In modern knowledge-driven economy, organizations are becoming more aware of the fact that sustainable competitive advantage relies upon the successful management of human competences. As a result, competency-based human resource management has emerged as a strategic approach that focuses on employee knowledge, skills, abilities and behavioural attributes as key determinants of organizational performance (Dubois & Rothwell, 2000; Boyatzis, 2008). Existing literature suggests that competency management enhances recruitment, training, performance appraisal, career development and workforce effectiveness (Saxena, Pathak, & Gujral, 2021). At the same time, managing talent has turned into one of the primary organizational priorities that focus on attracting, developing and



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retaining top-performing employees who can be used to achieve long-term organizational sustainability (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels, 1998; Michaels, Handfield-Jones, & Axelrod, 2001; Wellins, Smith, & Erker, 2008; Sen & Bhattacharya, 2019). With the increasing use of competency-based HR practices, the key issue that comes to mind is the disjointed integration of competency management into larger talent management frameworks. Although past research has separately analysed competency mapping and talent management, little academic attention has been given to the understanding of competency mapping and talent management in terms of structural interrelationship within an integrated organizational framework. This is symptomatic of a bigger structural problem in HRM practices, in that the competency systems are being procedurally operationalized and not strategically. Furthermore, there are still issues related to skill gaps, workforce readiness, leadership continuity and talent retention with the growing investment in competency frameworks. Thus, the key research question arises as to how the functions of competency-based HR can affect the effectiveness of talent management in organizations. This is especially important to the Indian context, specifically in Gujarat state, where manufacturing industries play a significant role towards industrial growth, generation of employment and economic sustainability. The growing reliance on competency-based talent systems to manage workforce capability issues and organizational competitiveness is rising in sectors such as Agro & Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and Petrochemical industries (Bhatt, 2015; Chaturvedi and Bahuguna, 2022). Organizations in these industries heavily invest in training, coaching, mentoring, career management and succession planning to enhance employee flexibility and organizational sustainability (Bennett & Bush, 2009; Axelrod, 2015). Nevertheless, such developmental interventions are often done in isolation and hence restricted in their strategic effects. This implies that there is a need to move away from isolated HR interventions to integrated competency-based talent ecosystems capable of integrating the competences of employees with the future and organizational workforce needs.

The newness of the given study consists in its endeavor to conceptually and empirically conceptualize competency-based HR functions and talent management in a single analysis framework. The available literature has mainly isolated competency management and talent development as two different fields of study, and as such, it has restricted the theoretical clarity as to how they interrelate. This paper re-invigorates competency-based HR practices not only as operational HR processes, but as strategic processes of enabling talent development, workforce sustainability and building organizational capability. By so doing, the study expands the theoretical scope of competency management by placing it within the wider perspectives of talent management and organizational development. To this end, the current study seeks to explore competency-based HR functions that contribute towards talent development practices among employees working in four major manufacturing industries in Gujarat state namely Agro and food processing, oil and gas, pharma and biotechnology and chemical and petrochemical industries. The study also aims to evaluate the knowledge of employees about competency-based HR functions and the applicability of these functions in the selected organizations, critical competencies supporting talent development practices, the relationship between competency and talent development strategies and the performance and importance of competencies, competency-based HR functions and talent development practices among employees in the manufacturing industry. The research comes up with an integrated conceptual model that investigates the relationship between competency-based recruitment, training, performance appraisal, career development, succession planning and talent management effectiveness. Through structural equation modelling (SEM), the study provides alternative explanatory pathways to the development of workforce capability in the contemporary organization. The approach adds to the theoretical understanding of competency-based HR systems as interrelated developmental processes as opposed to single administrative actions. The results of this paper are likely to be of great value to HR practitioners, policymakers, organizational leaders and academic researchers who might be

interested in designing sustainable talent management systems. Strategically, the study substantiates the claim of the impossibility of effective talent management to exist outside of competency-based organizational systems. The study makes a contribution toward the development of competency-based workforce strategies that can be used to increase resilience, employee growth and long-term competitiveness of an organization.

Theory building and hypothesis development

The strategic function of human resource management has progressively transitioned from managing employee-related procedures to enhancing organizational competencies (Storey, Wright, & Ulrich, 2019). This transition is especially significant in contexts marked by technology advancements, evolving skill prerequisites and heightened expectations for labour flexibility. Recent studies suggest that competencies are progressively seen not just as traits for selection, but as assets that can be recognized, evaluated and cultivated within organizational HR frameworks. (Tran *et al.*, 2025). Identification of competencies is also increasingly systematic.

Cao and Zhang (2022) created a competency model for HRM positions using machine learning. Their research exemplifies the use of analytical methods to analyse competency needs and develop competency models for HR careers. The significance of this research lies in shifting competency identification from a subjective practice to a more systematic approach to deepen understanding of the skills needed to fulfil specific jobs (Cao & Zhang, 2022).

Apart from this, empirical studies conducted in India also validate the link between HRM practices and the competencies of the employees. Salman, Saleem, and Ganie (2023) used human capital theory and analysed employees' skills across recruitment and selection, training and development, employee involvement and performance appraisal in a sample of 325 employees from the banking sector. The outcomes exhibited significant positive correlations for different HRM practices but were not uniform across all practices and HRM skills. Theoretically, this is crucial as it shows that HR practices can serve as antecedents for the development of employee competencies and that the developmental significance of individual HR practices needs to be investigated rather than assumed (Salman *et al.*, 2023).

Competency management is strongly related to the wider literature on talent management because talent development involves procedures to identify and improve employee competences (Klett & Wang, 2013; Madhavi & Mehrotra, 2019). The competency of group talent management in knowledge-intensive SMEs in emerging economies was examined by Ghosh, Sengupta, Narayanamurthy, and Ishizaka (2023) through a construct of collective creative self-efficacy. They found competency-related attributes useful for talent management processes and shifted the emphasis from attributes of individual employees to the attributes of a group (Ghosh *et al.*, 2023). Jooss, Collings, McMackin, and Dickmann (2024) argue from a skills-matching perspective, wherein talent management involves matching processes on the external and internal labour markets.

Their qualitative enquiry, based on 34 interviews across 15 organizations, uncovers the role that skills matching can play in strategic agility, particularly in resource fluidity, strategic sensitivity and ongoing learning. Especially for competency-based HRM, such a processual view is crucial because it shifts the focus from identifying talented employees to constantly adjusting the competences of employees to the changing needs of the organization (Jooss *et al.*, 2024). Campion, Schepker, Campion, and Sanchez (2020) provide an important explanation of how competency models can translate strategic priorities into employee behaviour. Their findings indicate that competency models can progressively align employee behavioural schemas with the competencies emphasized by top management, particularly when those competencies are reinforced through performance management.

This supports the view that competency-based human resource practices are not isolated administrative activities but can collectively contribute to the development and alignment of organizational human competences (Campion *et al.*, 2020).

The study of talent development, however, indicates that it should not be restricted to the few with the highest potential ([Association for Talent Development, 2014](#)). [Kaliannan, Darmalingam, Dorasamy, and Abraham \(2023\)](#), in a systematic study, found that inclusive talent development is an under-researched field of the talent-management literature, and they have redefined talent development for individual talent development and organizational success. They also refer to the resource-based view (RBV) as a general theory for sustainable advantage via talent development ([Kaliannan et al., 2023](#)).

The literature on strategy also suggests that human capital should not be seen as an economic asset abstracted from employees' human qualities, as this perspective overlooks the human qualities of employees. [Wright \(2021\)](#) calls for strategic research on human capital that takes into account aspects such as identity, meaning, purpose, community and individual agency. However, the bigger picture of HCT is more applicable to talent development. Talent development is not just about developing technical skills, it is also about enabling individuals to use and continue to develop their skills in organizational settings ([Wright, 2021](#)).

Therefore, the micro-level development logic of the present framework is that organizations invest in recruiting people, in training them, in assessing them, in providing learning opportunities for them, in providing career opportunities and in succession planning because by doing these things they can build the knowledge, skills and competencies within their employees.

Thus, competency-based HR services are various forms of investment in human capital and talent development is the total developmental achievement of such investment ([Wright, 2021](#); [Salman et al., 2023](#)).

The strategic importance of competences and competency-based HR strategies is grounded in the RBV. [Barney \(1991\)](#) suggests that competitive advantage can be maintained through an organization's resources by making them valuable, rare, inimitable and non-substitutable. From an HR perspective, the knowledge, skills, experience and capacities of employees can be strategically valuable assets if they contribute to the firm's value and are not readily available to competitors ([Verworn, Schwarz, & Herstatt, 2009](#)).

The theoretical logic still holds true in contemporary research on talent development. [Kaliannan et al. \(2023\)](#) suggest that the RBV framework helps understand the potential of talent development in ensuring long-term competitive advantage for organizations. A systematic evaluation sees talent development as a process that organizations can apply to enhance skills at the individual level and connect individual skills to the organizational performance ([Kaliannan et al., 2023](#)).

RBV suggests that competencies can be strategically important resources, but the Dynamic Competences theory offers an additional explanation of how organizations adapt and renew resources as environmental demands change. According to [Teece, Pisano, and Shuen \(1997\)](#), dynamic competences are the competences a corporation has to integrate, build and reconfigure its internal and external competencies to face a dynamic environment.

Today, competency-based HRM has expanded to include digital transformation. Digital technologies, AI, analytics and automation are not only changing the skill sets expected from employees, but the processes that are used for identifying, evaluating, building and utilizing talent. In a mixed-method study of Australian HR practitioners, [Nankervis and Cameron \(2023\)](#) found that 90% of HR activities and roles are expected to be affected by the emergence of new technologies, and therefore, new competencies are needed from HR practitioners (see also [Schutte, Barkhuizen, & van der Sluis, 2016](#); [Bhakuni, 2025](#)). From this, they conclude that digital transformation is a matter of technology and human capability ([Nankervis & Cameron, 2023](#)).

There is a growing argument that the need for digital systems is driving demand for digital talent management systems (DTMs) to identify and nurture digital competences.

[Dawson and Agbozo \(2026\)](#) explore the role of artificial intelligence (AI) in talent management and draw linkages between AI and talent management functions, including

planning, recruitment, talent performance management, employees' empowerment, engagement and organizational culture. Their assessment shows that AI is increasingly part of the talent management landscape, not confined to a few standalone HR automation apps (Dawson & Agbozo, 2026).

Brasse *et al.* (2024) offer a data-informed approach to identifying future talent. They emphasize that the future need for labour is evolving due to technological progress, decarbonization and social change. They highlight the importance of systematically identifying emerging skills rather than relying on existing occupational categories (Brasse *et al.*, 2024). Likewise, a systematic review by Mitchell, Shen, and Snell (2022) identifies a trend in future-of-work studies towards an emphasis on workplace change and people-related skills, with greater relevance for flexibility and people-related skills in evolving work settings. These findings suggest that organizations need to see competency development as a continuous, rather than a one-off effort (Mitchell *et al.*, 2022).

The development of competences also has meaning for sustainable human resource management (Sustainable HRM). Sustainable HRM goes beyond short-term organizational performance and focuses not only on the deployment and long-term growth of employees but also on organizational and social sustainability issues. Piwowar-Sulej (2021), based on a hybrid assessment of sustainable HRM research, recommends key HRM functions to consider in sustainable HRM, including recruiting and selection, performance appraisal, training and development, remuneration and HR flows. It is especially interesting because these functions are similar to the competency-based HR functions studied in the current framework (Piwowar-Sulej, 2021).

Ren, Cooke, Stahl, Fan, and Timming (2023) also acknowledge the role of HRM in organizational sustainability through strategic HR practices. They offer multiple theoretical approaches to sustainable HRM, including strategic HRM, institutional theory, stakeholder theory and sustainable career/life-cycle approaches. They believe that the role of their research is to put employee development and sustainable careers on the sustainability agenda and propose that HR systems should help drive organizational performance, while also helping to maintain long-term human resource viability (Ren *et al.*, 2023).

One of the most common methods of ensuring that the right competencies are acquired by new hires is competency-based recruitment by organizations. Cao and Zhang (2022) point out the need for systematic competence modelling in HR job assessment, and Tran *et al.* (2025) show the potential gap between competency requirements and the competencies people have at work. The results indicate that the skills required for organizational activities should be emphasized when recruiting, instead of traditional qualifications (Cao & Zhang, 2022; Tran *et al.*, 2025).

From the HCT perspective, recruiting is an initial investment choice in the acquisition of human capital. The RBV states that it provides the organization with the potential to utilize valuable human resources. Recruiting is the process of matching the company's needs with an employee's skills, using a modern skills-matching approach (Barney, 1991; Jooss *et al.*, 2024).

However, it is not the same as developing potential when recruiting. It contributes when the competencies required for recruiting are linked to the following training, evaluation, career and succession procedures. The continuity between the acquisition and the development of competencies offers the theoretical basis for the following hypothesis (Jooss *et al.*, 2024; Salman *et al.*, 2023).

Cao and Zhang (2022) show that systematic competence modelling is important in HR-related jobs, and Tran *et al.* (2025) illustrate that the required competencies may exceed those that employees already have. Taken together, these studies suggest that competency identification during the recruitment phase could serve as a basis for creating the competency profile needed by an organization (Cao & Zhang, 2022; Tran *et al.*, 2025). From the RBV perspective, the first strategy for obtaining potentially useful people resources is through recruitment identification. However, recruiting is not developing. The importance of talent development lies in aligning competency requirements set in recruiting with

subsequent development, career and succession processes. This leads to continuity between the acquisition and the development of competencies (Barney, 1991; Jooss *et al.*, 2024).

H1. Competency-based recruitment has a positive effect on talent development processes.

Altuntaş, İnanç, Bolelli, and Boz (2026) propose a competency-based training needs framework that distinguishes competencies from their performance levels. Their analysis shows that training priority should be based on competency gaps, not on the perceived strategic relevance of certain competencies. The competency-based training needs analysis is directly related to strategic workforce development, human capital development and talent development (Altuntaş *et al.*, 2026). Competency-based training fills gaps in human capital knowledge and competencies (McNerney, 1995; Johannessen & Olsen, 2003).

It also offers a way for organizations to replace their capability base as their needs evolve, from a Dynamic Competences perspective (Barney, 1991; Teece *et al.*, 1997). Recent studies in talent development also highlight development as a strategy for developing individual and organizational capacities (Kaliannan *et al.*, 2023).

H2. Training and development within the competence framework positively influence talent development practices.

Das and Rajini (2024) studied a Multi-rater intervention with a 360-degree feedback approach for leadership development in the Infrastructure Environment in India. The intervention focused on multi-rater feedback, a combined assessment and systematic coaching of leadership competencies. The results show that competency-based feedback and coaching can promote individual competency and learning agility (Das & Rajini, 2024). This research is important to the current paradigm because competency assessment can provide information for progress, not just record past performance.

This reasoning is consistent with HCT, as evaluation provides information on employees' current level of human capital and potential areas where additional investment may be needed. It is also in line with RBV, since organizations need to understand the quality and uniqueness of their human resources, and with Dynamic Competences, as feedback provides information that can be used to steer capability renewal (Barney, 1991; Teece *et al.*, 1997).

H3. Competency-based performance appraisal has a good influence on talent development processes.

Career development relates the skills that employers have in the present to those employers will have in the future. Recent research on talent management highlights the importance of internal skills matching, mobility, ongoing learning and flexible deployment over the traditional model of promotion within the hierarchy as the primary route to career progression (Jooss *et al.*, 2024). Their research suggests strategies for the internal labour-market process to increase the fluidity of resources and the ongoing learning of the organization and thereby increase organizational agility.

Complementary evidence is provided by Mintawati *et al.* (2025) when exploring Digital HR, employee empowerment, internal mobility and career development in technology companies. They find that HR-related mechanisms are associated with internal mobility and career development, highlighting the importance of organizational systems providing opportunities for HR's employees to progress in their development and career paths (Mintawati *et al.*, 2025).

H4. Talent development practices are positively related to competency-based career development.

Succession planning is the future-focused aspect of talent development as it ensures employees are ready to fill key positions in the organization (Schreuder & Noorman, 2019). A competency-based succession model focuses on identifying competencies relevant to future

positions (not just current performance or length of service). [Martharine and Santhosh \(2026\)](#) developed and tested a model to identify high-potential employees for succession planning and leadership development that included growth, career, promotable, adaptable and proactive dimensions. The results confirm that the future-oriented attributes are significant in determining leadership readiness ([Martharine & Santhosh, 2026](#)).

In addition, [Garavan, Morley, Cross, Carbery, and Darcy \(2021\)](#) demonstrate that there are implementation challenges for high-potential talent-development programs in terms of organizational goals, values and roles. The study suggests that succession-oriented talent development is not only about finding high-potential employees, but there also needs to be suitable developmental processes in place to prepare identified talent for future tasks ([Garavan et al., 2021](#)).

- H5. The results of this study contribute to the literature by reinforcing the positive effects of competency-based succession planning on talent development.

Research gap

Competencies, skill matching, training, career and talent development and succession planning are highlighted in recent literature. These domains are not completely integrated into a single theory. The second concern is about how HR tasks are handled. There are certain studies that have emerged in recent years that shed light on the development of competencies through training, assessment of competencies through multi-rater feedback, career development through internal mobility and succession planning through the identification of high potentials ([Altuntaş et al., 2026](#); [Das & Rajini, 2024](#); [Mintawati et al., 2025](#); [Martharine & Santhosh, 2026](#)). In most cases, these approaches are not taken as part of a competency-based talent development structure, but as isolated solutions.

Therefore, the theoretical contribution of the proposed paradigm lies in the conceptualization of competency-based HR services as capability-building mechanisms within the organization. Organizations should therefore continuously create and reconfigure their resources, as RBV makes clear the strategic importance of employee competences as a resource. Competency-based recruitment, training and development, performance appraisal, career development and succession planning are mechanisms for acquiring, strengthening, assessing, deploying and preparing human competences for future organizational needs ([Barney, 1991](#); [Teece et al., 1997](#); [Jooss et al., 2024](#)).

Conceptual model developed and used in this research study

The researcher conducted a literature review to achieve the research study's goals. A theoretical structural model was subsequently created and is shown in [Figure 1](#). The model included principles from the Competencies topic area, focusing on Competency-Based HR Practices and Talent Management. The research study's conceptual model aims to create a correlation between competencies, competency-based HR services and talent management inside the organization. Individuals will build technical, professional, managerial and behavioural abilities to enhance their talent acquisition, performance, development and retention, assuring their ongoing employability within the organization. ([Srivastava & Bhatnagar, 2008](#)).

Research methodology

The Gujarat was chosen due to its strong empirical context and its relevance in the context of manufacturing for research of competency-based human resource functions and competency development ([Chavla, 2023](#)). The selection is backed by the size and diversity of the industrial base in the state: the Government of Gujarat's industrial development

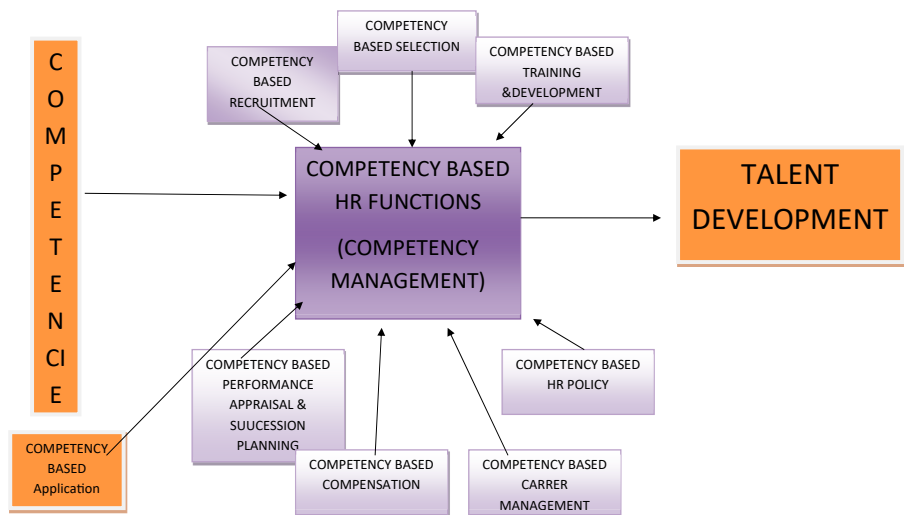


Figure 1. Conceptual model of the research study. Proposed model is adapted and modified from ANITHA KUMARI PINAPATI, “Competence Management as a Tool of Talent Management- A Study of Practices in Indian Organizations”, May, 2011 (Pinapati & Vanka, 2011)

agency lists 239 industrial estates in the state, including industry-specific industrial estates and investment regions, which show the depth and diversity of the industrial ecosystem. According to the government of Gujarat data, manufacturing accounts for around 36% of Gujarat’s Gross State Domestic Product and the state has significant clusters of chemical and petrochemical industry, pharmaceuticals, oil and gas and agro-processing industry. The Gujarat Institute of Disaster Management has stated that Gujarat has a considerable percentage of chemical, petrochemical and pharmaceutical industries, and the number of registered factories went from 35,338 in 2019 to 47,762 in 2024, creating a massive and dynamic industrial workforce environment (Gujarat Institute of Disaster Management, 2025). The features of Gujarat make it an ideal State to study the identification, development, evaluation and utilization of employee competencies in different manufacturing contexts in the work organization. The study, therefore, is limited to the four specific industries mentioned, namely: Agro and Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and Petrochemical industries, not only because they are economically significant but also because they offer enough variation in organizational and workforce requirements, which is relevant to the study’s competency-based approach. Hence, the selection was made within the context of theory relevance and not nationalism, and the findings are supposed to give empirical evidence of the manufacturing ecosystem in Gujarat and analyse the applicability of competency-based human resource practices at this specific industrial context.

Instrument development

The study used primary data collected with the help of structured and non-disguised questionnaire distributed by means of Google Forms. The questionnaire link that was intended to be used in collecting data was: [https://forms.gle/bcAWxu88rEGbJJk8]. The questionnaire was formulated following a wide overview of the HR and talent management literature based on competencies.

According to existing research, one of the greatest methodological constraints of competency management research is the lack of theoretically grounded and empirically

validated measurement scales that are able to measure the multidimensional nature of competency-based HR systems. Thus, the current study cautiously adjusted and altered beforehand validated measurement items from the established scholarly literature to achieve conceptual clarity and contextual relevance. The questionnaire was divided into two large sections. The initial part reflected the demographic details of respondents in terms of their sector, designation, experience and organization background. The second section comprised construct-specific items that assessed Competency-Based HR Functions and Talent Development practices.

Sampling frame, sampling procedure and final sample

The sampling frame has been created based on the database of Annual Survey of Industries 2019–2020 released by the Government of India ([Government of India, Ministry of Statistics and Programme Implementation, 2022](#)). The distribution of the number of factories operated by the state of Gujarat was explored on the basis of industry type and employment size. The study centered on manufacturing organizations with over 100 employees because these organizations were believed to have ample organizational experience with formality in human resource processes and talent development. The study included four manufacturing industry segments, namely Agro and Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and Petrochemical industries. Purposive sampling and proportionate stratified sampling were used. Proportionate stratification was adopted to ensure inclusion of respondents from the four selected manufacturing sectors while purposive sampling was adopted to identify respondents with relevant organizational exposure and experience to competency-based human resource practices and competency-development mechanisms relevant to the objectives of the study. This sector-wise approach was followed for the contextual relevance of the study and not to achieve the status of probability-based representation of Gujarat's entire manufacturing workforce.

G*Power version 3.1.9.7 was used to calculate the minimal sample size ([Erdfelder, Faul, Buchner, & Lang, 2009](#)). The analysis showed that a minimum sample size of 262 respondents is needed with a statistical power of 0.95 and 7 predictors ([Cohen, 1988](#)). The first 548 responses were received. Two answers were discarded during data screening due to issues with the questionnaires being filled in inaccurately and not meeting the data quality requirements to be included in the final analysis.

As a result, 546 valid responses were kept for final analysis. The final usable sample thus far exceeded the minimum sample size requirement and was sufficiently large for the analysis intended, namely the partial least squares structural equation modelling (PLS-SEM). The last sample was split between the four selected manufacturing sectors to ensure sectoral coverage. The industry-based sampling frame and proportionate stratification provide greater coverage for the targeted sectors, but the purposive nature of the sampling procedure does not extend beyond the study population the claims of statistical representativeness. The interpretation of the findings is thus done mainly from the perspective of the selected manufacturing sectors of Gujarat. It is crucial to recognize this difference because sectoral coverage is not the same as probability-based representativeness. The design of the sampling was thus designed to offer empirical evidence that was relevant to the context and not generalizable to all manufacturing employees or manufacturing organizations.

Data screening final dataset

The data were collected using structured questions, disguised in Google Forms. The questionnaire comprised demographic questions, as well as construct specific items that assessed competency-based human resource functions and practices for talent development. After collecting the data, the responses were screened for suitability for analysis. Two questionnaires were not filled out properly of the 548 questionnaires received at first. The remaining 546 responses formed the final valid data set for the empirical analysis. This

screening process allowed only data that conformed to the data quality specifications of the study to be analysed. This final sample size ($n = 546$) should be referenced throughout the abstract, methodology, results, tables and conclusion.

Common method bias

The research obtained the data of competencies-related variables, competencies-based HR functions and competencies development practices through one questionnaire and from the same respondents. Therefore, the common method bias was taken into account while interpreting the empirical relationships. The common respondent does not, in itself, signify that method bias has affected the results, but it is a methodological issue that should be noted in a cross-sectional survey design (Kock, 2015). The quality of the measurements was enhanced by several features of the measurement procedure.

The questionnaire has been based on the existing literature of competency management, human resource management and talent development, and the measurement items have been adapted and localized to the manufacturing context of Gujarat. The instrument was assessed for content validity by expert review by academicians and human resource professionals, who have relevant expertise and contextual relevance. The indicator reliability, internal consistency reliability, convergent validity and discriminant validity of the measurement model were then evaluated. The results of the reported tests are good for the internal consistency and convergent validity among the constructs. Discriminant validity was tested according to Fornell–Larcker criterion and a heterotrait–monotrait ratio (Henseler, Ringle, & Sarstedt, 2015), which indicated good distinctions among the constructs. The findings indicate that the constructs were empirically separable in spite of being assessed on a questionnaire. However, there is always the possibility of common method influence as the study used a cross-sectional, one-respondent design. As such, the results are only interpreted as relationships that are found within the context of the study and not as causal effects. Future research can enhance the evidence by utilizing various data sources, multiple time measures of the predictor and/or outcome measures, or both employee and organizational/managerial records.

Methodological rigor of measurement

The instrument to measure was created based on existing literature in competency management, human resource management and talent development. The items were not treated as totally different measures, but some of the items were adapted and modified so that it would be conceptually clear and relevant for manufacturing organizations in Gujarat. The competency-based human resource functions were informed first by Rodriguez, Patel, Bright, Gregory, and Gowing (2002) and Campion *et al.* (2020) and, for the empirical evidence that concerned the relationship between human resource practices and employee competencies, Salman *et al.* (2023) were considered. Based on the Kaliannan *et al.* (2023) authors, the dimensions that were created for talent development were considered. In contemporary talent-management research, the following dimensions related to talent development were considered, in accordance with the authors of Jooss *et al.* (2024), skills development and internal talent movement. The instrument was reviewed by academics and HR professionals who have competency management and talent development experience to enhance content validity and contextual clarity.

The items were then reworded to reflect the manufacturing industry but the core concept of the constructs was not changed. Items were all rated on a 5-point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. Table 1 lists each construct with its dimensions, a sample item, the scale used, and the sources from which the items were adapted. The measurement model had good internal consistency, convergent validity and discriminant validity. The reported Cronbach's alpha values were between 0.768 and 0.905 with composite reliability exceeding the accepted value. Average Variance Extracted values were also in

Table 1. Measurement and scale adoption

Construct	Dimension	Measurement focus	Sample measurement item	Scale	Basis for item development/adoption	Nature of use
<i>Competency-Based Human Resource Functions</i>	<i>Competency-Based Recruitment</i>	Recruitment and selection based on competencies required for organizational roles	“The organization recruits employees based on competency requirements”.	5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree)	Rodriguez et al. (2002) , Campion et al. (2020)	Adapted and contextualized from competency-modelling and integrated human resource practice literature
		Assessment of behavioural and technical competencies during selection	“Selection procedures evaluate behavioural and technical competencies”.	5-point Likert scale	Rodriguez et al. (2002) , Campion et al. (2020)	Adapted/ contextualized
<i>Competency-Based Human Resource Functions</i>	<i>Competency-Based Training and Development</i>	Alignment of training with competency requirements and identified gaps	“Training programs are designed according to competency gaps”.	5-point Likert scale	Salman et al. (2023) , competency-based human resource management literature	Adapted/ contextualized
		Provision of competency-oriented developmental opportunities	“The organization provides competency-oriented developmental programs”.	5-point Likert scale	Salman et al. (2023)	Adapted/ contextualized
<i>Competency-Based Human Resource Functions</i>	<i>Competency-Based Performance Appraisal</i>	Incorporation of employee competencies into performance evaluation	“Performance appraisal systems evaluate employee competencies along with task performance”.	5-point Likert scale	Campion et al. (2020) , Salman et al. (2023)	Adapted/ contextualized
		Integration of competency assessment with employee evaluation	“Competency assessment is integrated into employee evaluation systems”.	5-point Likert scale	Campion et al. (2020) , Salman et al. (2023)	Adapted/ contextualized

(continued)

Table 1. Continued

Construct	Dimension	Measurement focus	Sample measurement item	Scale	Basis for item development/adoption	Nature of use
<i>Competency-Based Human Resource Functions</i>	<i>Competency-Based Career Development</i>	Linking career advancement with competency development	“Career advancement opportunities are linked with employee competency development”.	5-point Likert scale	Jooss et al. (2024) , contemporary talent-management literature	Adapted/ contextualized
		Developmental support for future roles	“Employees receive developmental support for future leadership roles”.	5-point Likert scale	Jooss et al. (2024)	Adapted/ contextualized
<i>Competency-Based Human Resource Functions</i>	<i>Competency-Based Succession Planning</i>	Use of competency assessment in succession planning	“Succession planning is based on competency assessment frameworks”.	5-point Likert scale	Campion et al. (2020) , Jooss et al. (2024)	Adapted/ contextualized
		Identification of future leaders based on competencies	“The organization identifies future leaders through competency evaluation”.	5-point Likert scale	Campion et al. (2020) , Jooss et al. (2024)	Adapted/ contextualized
<i>Talent Development Practices</i>	<i>Employee Capability Development</i>	Opportunities for continuous development of employee knowledge, skills, and competencies	“The organization provides opportunities for enhancing employee skills and competencies”.	5-point Likert scale	Kaliannan et al. (2023)	Adapted/ contextualized
<i>Talent Development Practices</i>	<i>Leadership and Career Growth</i>	Opportunities for leadership development and career growth	“Employees are encouraged to participate in leadership development initiatives”.	5-point Likert scale	Kaliannan et al. (2023) , Jooss et al. (2024)	Adapted/ contextualized

(continued)

Table 1. Continued

Construct	Dimension	Measurement focus	Sample measurement item	Scale	Basis for item development/adoption	Nature of use
<i>Talent Development Practices</i>	<i>Workforce Adaptability</i>	Development of employee capability to respond to changing organizational requirements	“Talent development initiatives improve employee adaptability to organizational changes”.	5-point Likert scale	Jooss et al. (2024)	Adapted/ contextualized
<i>Talent Development Practices</i>	<i>Organizational Support for Development</i>	Organizational support for continuing career and talent development	“The organization supports long-term career growth and talent enhancement”.	5-point Likert scale	Kaliannan et al. (2023)	Adapted/ contextualized

excess to the minimum limit, which indicates convergent validity. Discriminant validity of the constructs was also confirmed using the Fornell–Larcker criterion and heterotrait–monotrait ratio.

Data analysis and interpretation

The results in Table 2 indicate that both the competency sets and competency-based HR functions show positive and statistically significant relationships with Talent Development practices among employees working in Agro & Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and petrochemical industries in Gujarat state. These results suggest that competency-focused HR systems and behavioural competencies have a significant positive impact on workforce capability development and organizational talent sustainability. Nonetheless, the negative relationship that was observed to be weak when applied to Communication Skill ($r = -0.089^{**}$) implies that there may be contextual differences in competency perception and implementation across the manufacturing sectors and thus necessitates more integrated and sector-specific competency development models.

Structural equation modeling (SEM) through analysis using SmartPLS

The current research used PLS-SEM in SmartPLS to empirically test the relationships among Competencies, Competency-Based HR Functions, Competency-Based Applications, Talent Acquisition, Talent Development and Talent Retention. It was believed that the adoption of PLS-SEM was suitable since the study was to test the complex interrelationships between the latent constructs and, at the same time, measure the reliability of measurements, convergent validity, discriminant validity and predictability (Shmueli & Koppius, 2011; Shmueli, Ray, Estrada, & Chatla, 2016) within the proposed conceptual framework (Fornell & Bookstein, 1982; Henseler, Ringle, & Sinkovics, 2009; Nitzl, 2016; Hair & Sarstedt, 2019).

Table 2. Findings of correlation between talent development, various competency sets and competency-based HR functions of selected employees from four key manufacturing sectors of Gujarat state

Sr. no.	Variables Selected sets of competencies	Correlation with talent development
01	Communication Skill	−0.089**
02	Interpersonal Skills & Relationship Building Skill	0.184**
03	Empathy, Influence & Persuasive Ability	0.210**
04	Flexibility	0.226**
05	Learning Orientation	0.218**
06	Organizational Awareness & Information-Seeking Ability	0.189**
07	Creating Own Measures of Excellence & Quality Concern	0.251**
08	Initiative	0.297**
	Overall Correlation of Competency Sets	0.227
	Competency-Based HR Functions	
09	Competency-Based Recruitment	0.335**
10	Competency-Based Selection	0.308**
11	Competency-Based Training & Development	0.325**
12	Competency-Based Performance Appraisal & Succession Planning	0.340**
13	Competency-Based Compensation	0.311**
14	Competency-Based HR Policy	0.338**
15	Competency-Based Career Development	0.356**
	Overall Correlation of Competency-Based HR Functions	0.402

Note(s): Correlation is significant at the 0.01 level (1-tailed)
Correlation is significant at the 0.05 level (1-tailed)

In line with the modern processes of SEM, the analysis was performed in two phases:

- (1) Evaluation of the Measurement Model.
- (2) Test of Construct Reliability and Construct Validity.

The results are shown in [Table 3](#) that most of the reflective indicators had acceptable factor loadings that were above the recommended threshold value of 0.70 ([Hair, Risher, Sarstedt, & Ringle, 2019](#)) and hence adequate indicator reliability and construct representation. Constructs like Learning (0.860), Organizational Awareness and Information Seeker (0.858), Competency-Based Training and Development (0.846) and Flexibility (0.840) demonstrated particularly high loadings meaning that they make a significant contribution to competency and HR-related constructs. Some of these indicators, like Communication Skill (0.024) and Encouraging Creativity, Innovation and Employee-Friendly Policies (0.292), had much lower factor loadings. This implies that the indicators might not be strong indicators of the intended latent constructs in the manufacturing industries chosen. However, these indicators were not dropped based on their theoretical relevance and contextual significance in literature of competency and talent development. [Table 4](#) analyses show that construct reliability and convergent validity assessment had satisfactory findings in all the constructs

Table 3. Reflective indicator loadings of selected constructs

Sr. no.	Selected statements	Competencies	Competency-based HR	TA	TD
01	Communication Skill	0.024			
02	Organizational Awareness & Information Seeker	0.858			
03	Interpersonal Skills & Relationship Building Skill	0.715			
04	Empathy, Influence & Persuasive Ability	0.789			
05	Flexibility	0.840			
06	Learning	0.860			
07	Create Your Own Measure of Excellence & Quality Concern	0.742			
08	Initiative	0.755			
09	Competency-Based Recruitment		0.829		
10	Competency-Based Selection		0.822		
11	Competency-Based Training & Development		0.846		
12	Competency-Based Performance Appraisal & Succession Planning		0.784		
13	Competency-Based Compensation		0.764		
14	Competency-Based HR Policy		0.801		
15	Competency-Based Career Development		0.570		
16	Continuous Competency Improvement Practices Followed for Developing and Sustaining Talented People				0.634
17	Encouraging Creativity, Innovation & Employee-Friendly Policies Leads to Better Talent Development				0.292
18	Employers Regularly Remind the Importance of Skills and Competencies				0.664
19	Critical Skills of Employees are Upgraded Regularly by Employers				0.744
20	Skill Up-gradation and Competency Development is Effective				0.756
21	Upgraded Skills Match the Market Demand				0.801

Table 4. Construct reliability: convergent validity

Selected constructs	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Competencies	0.905	0.914	0.924	0.634
Competency-Based Applications	0.768	0.770	0.896	0.811
Competency-Based HR Functions	0.889	0.893	0.914	0.607
Talent Development	0.877	0.942	0.896	0.594

that were selected. The Alpha values of Cronbach were found to be between 0.768 and 0.905 which exceeds the recommended threshold value of 0.70 and proves internal consistency reliability (George & Mallery, 2003; Taber, 2018). Likewise, the values of Composite Reliability (rho c) of all constructs were more than 0.80, which depicts good construct reliability. Moreover, the values of average variance extracted (AVE) were between 0.594 and 0.811, thus exceeding the minimum acceptable value of 0.50. These results affirm sufficient convergent validity and demonstrate that the constructs chosen explain a significant amount of variance among the indicators of the respective constructs. Table 5 identifies that the Fornell–Larcker criterion was used to measure the discriminant validity among selected constructs. The square root of the AVE of each construct was higher than its inter-construct correlations, thus establishing satisfactory discriminant validity. These results suggest that both constructs possess conceptual specificity and sufficiency in terms of representing the corresponding theoretical domains. Table 6 conducted by the use of the HTMT ratio further establish the discriminant validity of the selected constructs.

The values of all the HTMT values were lower than the recommended threshold value of 0.85 (Henseler et al., 2015) and as such, indicated that they did not have any multicollinearity issues and that there was sufficient construct differentiation in the measurement model. The results of the measurement model show acceptable reliability of indicators, internal consistency reliability, convergent validity and discriminant validity. These findings demonstrate the methodological soundness of the proposed SEM model and support the appropriateness of the constructs to the study of the relationship between competencies and competency-based HR functions and talent development practices within the manufacturing industries in Gujarat. More significantly, the results support the theoretical argument that competency-oriented organizational systems are interconnected strategic processes that lead to enhancement of workforce competences and long-term sustainability of talent. Figure 2 shows the outer loadings of the lower-level measurement model.

Table 5. Fornell–Larcker criterion for discriminant validity

Selected constructs	Competency-based applications	Competencies	Competency-based HR functions	Talent development
Competencies	0.901			
Competency-Based Applications	0.454	0.796		
Competency-Based HR Functions	0.628	0.628	0.779	
Talent Acquisition	0.412	0.435	0.610	
Talent Development	0.546	0.393	0.641	0.771
Talent Retention	0.349	0.463	0.723	0.513

Table 6. Discriminant validity heterotrait-monotrait ratio (HTMT) of discriminant construct validity

Selected constructs	HTMT ratio
Competencies ↔ Competency-Based Applications	0.508
Competency-Based HR Functions ↔ Competency-Based Applications	0.774
Competency-Based HR Functions ↔ Competencies	0.674
Talent Development ↔ Competency-Based Applications	0.613
Talent Development ↔ Competencies	0.344
Talent Development ↔ Competency-Based HR Functions	0.585
Talent Development ↔ Talent Acquisition	0.449
Talent Retention ↔ Talent Development	0.462

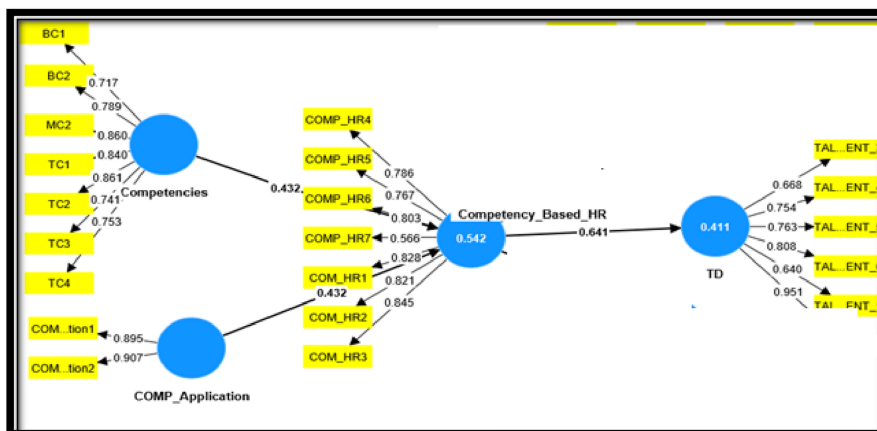


Figure 2. Results of measurement model assessment–lower level model. Source: Authors' own work using SmartPLS 4

With the measurement model found adequate, the next step was to test the structural model, that is, the links between Competencies, Competency Application, Competency-Based HR Functions and Talent Development. Figure 3 shows the outcome of this assessment.

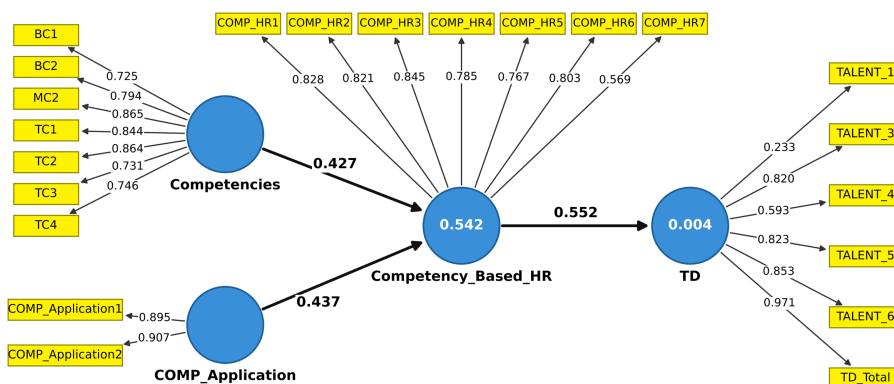


Figure 3. Analysis of structural model assessment. Source: Authors' own work using SmartPLS 4

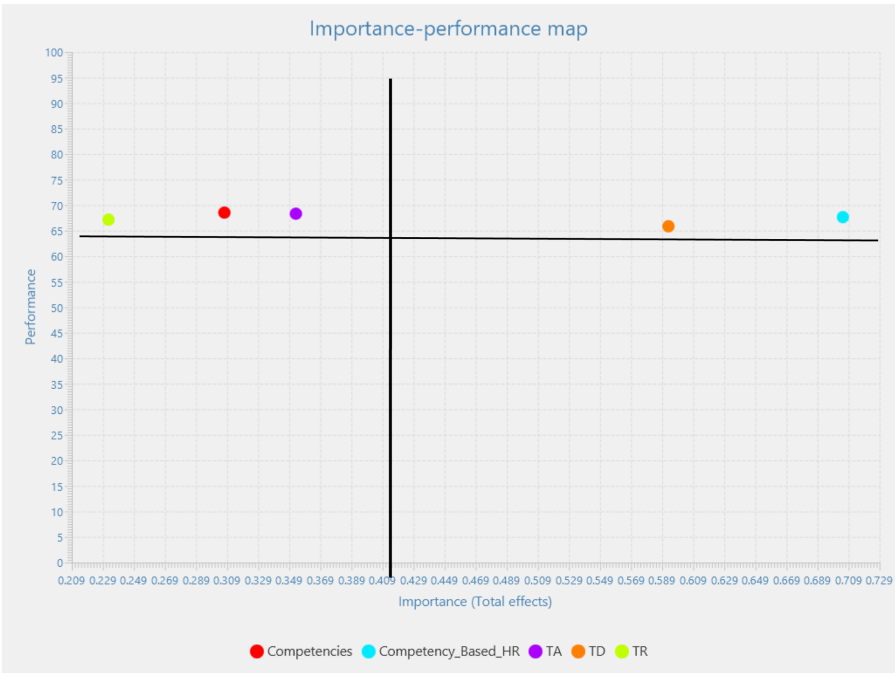


Figure 4. Importance-performance map. Source: Authors’ own work using SmartPLS 4

Exploration of significance-performance map (IPM)

As Figure 4 shows, competency-based HR functions proved to be the most important of all the chosen constructs and, at the same time, they had a rather high level of performance. This implies that the most significant organizational processes that contribute to Talent Development and workforce sustainability are competency-oriented HR systems, including competency-based recruitment, training and development, performance appraisal, career development and HR policy frameworks. The fact that this construct falls within the high-importance and high-performance zone of the Gujarat manufacturing industries implies that organizations in the Gujarat manufacturing industries are increasingly aware of the strategic capability-building competences of competency-based HR systems instead of just administrative HR functions. Equally, both Talent Development (TD) and Talent Acquisition (TA) were also relatively high in importance and strong in performance values. This is indicative that organizations have increasingly been investing in well structured workforce development systems, competency-based hiring practices and employee capability enhancement mechanisms to reinforce organizational competitiveness and workforce adaptability. The good performance of Talent Development further shows that manufacturing organizations are currently focusing more on learning opportunities, competency development and skill up-gradation initiatives to respond to the changing industrial and technological needs. Talent Retention (TR) was found to have a moderate significance and a relatively steady level of performance. This result indicates that although organizations have engaged in fairly effective practices in employee retention, the retention practices still may need greater integration with competency-based career progression and developmental pathways. When the competency improvement is directly linked with career development, leadership and long term growth of organizations, employees are more likely to remain dedicated to organizations.

Findings

Results are solid in support of the proposed competency-based human resource framework and establish its applicability in talent development in the selected manufacturing sectors in Gujarat. The predominantly positive and statistically significant correlations suggest that competency-based human resource practices are closely linked with higher levels of competency-based human resource practices in terms of talent development.

The findings thus confirmed the main premise that recruitment, training and development, performance evaluation, career development and succession planning need not be administrative functions in isolation, but can be integrated processes for building and maintaining the organizational talent pool. This is in line with [Campion et al. \(2020\)](#), who show that when competency expectations are incorporated into the organizational processes, competency models can translate organizational strategic priorities into employee behaviour. The measurement model also offers empirical support for the understanding of the proposed relationships. The mean values of most indicators are satisfactory for factor loadings and the reliability, convergent validity and discriminant validity values reported show a good representation of the constructs. The use of both the Fornell–Larcker criterion and the heterotrait–monotrait ratio provides additional support for construct distinctiveness. Therefore, the overall measurement structure is suitable for the proposed competency and talent-development framework for the manufacturing context studied.

One major lesson that is learned from the relatively weak communication skill contribution is that the skill is important, but not as critical as the other factors. This outcome should not be seen as a deficiency, but it should be taken as a chance to enhance the competency-based human resource system by increasing the transparency of communication and involving employees. In a competency-based system, it is important that employees are clear about what competencies are required of them, how competencies are measured, what development support is available to them to fill competencies and the connection between competency development and career opportunities. This clarity can be enhanced through greater transparency and greater involvement in competency assessment and development through participative processes. In this regard, the discovery indicates that more communication, a more participative and transparent model, can improve the effectiveness of HR competencies and their role in talent development.

This interpretation is especially applicable to the strategic role of competency models [Campion et al. \(2020\)](#) found. They found that competency models can be used to continuously link employee understanding and behaviour to the strategic goals of an organization if the competency expectations can be supported by organizational systems. This reasoning further indicates that communication can be an important enabler for this alignment, as is suggested by the findings in the present study.

If the competency expectations are clearly communicated and employees are involved in competency related processes, the competency framework can be made more meaningful for employees and more linked to the organizational goals.

The Importance-Performance Map ([Figure 4](#)) offers additional support for the strategic relevance of HR practices based on competencies. Competency-Based Human Resource Functions are placed in a high-importance and high-performance. They are identified as one of the strengths in the proposed framework. This implies competency-based recruitment, competency-based training and development, competency-based appraisal, career development and succession planning collectively are important organizational processes that are related to talent development. This finding implies that Gujarat's manufacturing companies have a crucial base to build a more integrated capacity building system.

This is further bolstered by the relative weights of Talent Development and Talent Acquisition, which are high in importance and also high in performance. The findings suggest that it is important that the organization acquires certain capacities and then builds on these capacities. The findings thus lend themselves to the idea of a continuum, linking competency-based recruitment to the mechanisms that can be used to strengthen and deploy employees' competences from training and career development, performance management and succession processes. This is in

line with Jooss *et al.* (2024), who argue organizations should match and build their employee capacities to meet evolving needs, highlighting the role of dynamic skills matching.

Talent Retention is relatively low in importance and performance which may be seen as an opportunity to build a better link between talent development and employee development over time. This does not mean that there is no retention, but rather there is opportunity to better align retention with a competency-based career path, leadership development and future role opportunities. Competency development can be more closely linked with longer-term talent sustainability when employees understand the link between competency development and career progression and future organizational opportunities.

A similar opportunity to enhance the competency framework exists for the other relatively low-loading indicator for fostering creativity, innovation and employee-friendly policies. Higher and lower empirical contributions of this indicator could stem from the varying experiences of innovation and employee-oriented practices in the different manufacturing industries considered. This result does not undermine the overall framework but rather underscores the need for the development of competency models which are comprehensive, but at the same time flexible enough to take into account the diversity of occupational roles and sectoral contexts.

Conclusion

This study makes a contribution to the understanding of competency-based HRM by providing a better understanding of the importance of recognizing the competences of employees as evolvable organizational resources rather than as personal characteristics. The research draws on human resource activities typically examined individually and examines competency-based recruiting, training and development, performance appraisal, career progression and succession planning within a single framework. The findings indicate that the relevance of competence management at the strategic level lies in the continuity that organizations create between the required competences, the developed competences of the employees and the competencies required for future organizational positions. The study also connects the concepts of competency-based human resource management and talent development in the industry. The empirical evidence from the selected industrial sectors of Gujarat shows that it is necessary to have a unified competency framework to understand the worker capacity development in the selected industrial sectors. This contextual input is important because the conditions for competence are shaped by the conditions in organizations and industries and so cannot be considered to be the same in all sectors and contexts. Another conclusion is that the effectiveness of competence-based human resource systems depends not only on the presence of formal competence practices, but also on the “perception” and the “interpretation” of competence activities by the employees. The findings highlight the importance of being open, engaged and growth-oriented when using competence systems as valuable tools for employees. This provides an essential element to organizations seeking to move beyond evaluation to long-term capacity building. Based on the research, it is concluded that competency-based human resource management is a strategic way to foster organizational talent; however, its effectiveness depends on the context and is subject to continuous development.

The research, therefore, provides a foundation for further research into competency development in different industries, corporate levels and changing technological environments, as well as research into issues of long-term organizational flexibility and talent retention through competency-based structures.

Implications

Theoretical implications

The research makes three key theoretical contributions. Firstly, it puts on the picture an integrated human resource management model for human resource competency development

that is composed of the processes of recruiting, training and development, performance assessment, career advancement and succession planning. This expands the resource-based view by elucidating how employee competences may be methodically cultivated, enhanced and used via interrelated human resource processes instead of being seen as fixed assets. Second, the study extends the use of I-P Mapping in competency-based HR and talent development research, allowing the use of importance and performance data to identify strategic opportunities and areas requiring attention. Third, the research provides empirical inputs from specific manufacturing industries of Gujarat, which expands the scope of HR competency studies from mostly western and service-based settings.

Managerial implications

The key takeaway for management is that competency data must be embedded throughout the employee lifecycle. Recruitment should be done based on identifying what competencies are needed; training should be based on identifying gaps in competencies; performance appraisal should focus on both competencies and gaps in competencies; career development should offer opportunities to apply competencies and develop them further; and succession planning should plan for future competencies. In the Importance–Performance Map, competency-based HR functions were identified and ranked as high in importance and high in performance, suggesting that organizations already have a good starting point to build on for the development of such an integrated system. One of the more significant implications is about career development. The results show that competency-based career development is a particularly strong connection to talent development.

Thus, it is time for organizations to get past traditional promotion-based career systems and set up a series of career pathways based on competencies. Employees need to be able to describe the competencies needed for the future job, the development opportunities they can take advantage of to obtain these competencies, and the relationship between competency development and career advancement. This clarity can help employees feel their roles in talent development and at the same time reinforce the organization's internal talent pipeline. The findings also offer a positive message on the issue of communication transparency and employee involvement.

The relative weakness of the communication skill should not be taken as proof that communication is not important. Instead, it signals an opportunity to enhance the communication framework in which competency-based human resource systems operate. Organizations need to make competency expectations, assessment criteria, developmental opportunities and career consequences more clear, and engage employees in competency discussions. Greater transparency and participation can make workers aware of why competencies are being evaluated and the value of developing competencies to their future. The study thus argues that the use of competency systems is likely to be more effective if they are transparent, participative and development-oriented and not assessment-oriented.

Implications for human resource policy and organizational strategy

At the organizational policy level, the findings indicate a transition from human resource policies for different functions to a human resource policy based on competency. Common competency frameworks should be created and shared by organizations, to guide career planning, succession planning, performance management, learning and development and recruitment. This would make information about competencies more uniform across HR functions and allow competency data developed at one stage of the employee lifecycle to inform decision-making later in the lifecycle. This is especially important for manufacturing companies where technology change and changing work needs are commonplace. The results are relevant to Talent Retention, too. Not a lot of credit is being given to talent retention and not much credit is being received; this should be seen as a chance to tie talent retention more directly to employee development.

Organizations can boost retention by explaining how competency acquisition paves the way for career progression, leadership opportunities and future roles in the organization. Retention in this regard is not only a result of compensation (Bussin & Diez, 2017) or employee satisfaction; a path to development–career–future opportunities visible for employees can contribute to retention.

Implication for the manufacturing organizations in Gujarat

The results have a contextual meaning for the selected manufacturing sectors in Gujarat. These organizations can have a meaningful base to build an integrated capability system for their human resource functions because of the high importance and performance of these functions. The immediate need, then, is not just to introduce more human resource practices but to “link together practices to create a connected ecosystem for talent development”. The study is especially relevant to the sectoral context as it specifically examines the competencies needed in four selected sectors – Agro and Food Processing, Oil and Gas, Pharmaceuticals and Biotechnology and Chemical and Petrochemical – in which the competencies required for various occupations and technologies may vary significantly.

Limitations and future research

There are some limitations of the research. The cross-sectional, single-respondent approach does not eliminate the possibility of common technique bias and thus should be interpreted as correlations and not definitive causal relationships. Secondly, the research is limited to four industrial industries of Gujarat, and the purposeful method of sampling restricts the generalization of the findings of the study beyond the selected setting. Finally, the relative reduction in the effect of many competence indicators, particularly communication, suggests further development of the assessment system. Resolving these limitations would be possible with other methods such as longitudinal and multi-source methods, wider probability-based samples and comparative analysis with other states, industries and organizational environments in future investigations. Future studies can explore the impact of communication transparency, employee engagement, leadership endorsement and organizational culture as such factors, which can further boost competency-based human resources framework.

Also, researchers would be able to determine if talent development acts as the mediating variable in the relationship between competency-based human resource management practices and outcomes such as talent retention, creativity, organizational flexibility and overall success. These directions might help to clarify when, how and why competency-based human resource methods can be of lasting value to the organization.

AI implications and future gateway

One of the major future implications of the study is connected with the increasing integration of AI, predictive analytics and digital HR ecosystems into competency-based workforce management systems. The high rate of transformation of Industry 4.0, smart manufacturing, automation and digital workforce platforms is fundamentally changing the expectations of competencies in industrial organizations. The results indicate that future competency-based HR systems will be more and more reliant upon AI-driven competency mapping, intelligent recruitment systems, predictive talent analytics and automated learning platforms. Competency deficiencies, future workforce capability needs, personal employee learning trajectories and future leadership readiness can all be predicted with significantly greater accuracy than by the more traditional HR models. The use of AI in competency-based HR systems is thus not only a technological development but also a strategic change of organizational capability management.

The future organizations will become more and more in demand of hybrid competency ecosystems with competencies in technical, behavioural adaptability, emotional intelligence

(Emmerling & Boyatzis, 2012), digital fluency and AI literacy determined as a whole to determine competitiveness of the workforce. Nevertheless, an important issue also arises in relation to the ethical HR governance, algorithmic preference, surveillance of the workforce and depersonalization of the talent management system. As a result, human-focused organizational values and technological efficiency should be incorporated into future competency-based HR models to make the working force development systems sustainable and ethically balanced. The current study thus creates the basis of a reciprocal pathway to future interdisciplinary research to integrate competency-based HRM, AI-driven talent analytics, organizational capability theory and digital workforce transformation in the emergent industrial ecosystem.

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