






# “Digitalization of talent planning in IT sector: Mediating role of HR policies and practices”

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# DIGITALIZATION OF TALENT PLANNING IN IT SECTOR: MEDIATING ROLE OF HR POLICIES AND PRACTICES

**Abstract**

In the highly dynamic digital era of the information technology industry, agile talent planning and human resources (HR) management strategies are essential for maintaining a competitive edge. This study aims to determine the impact of HR policies and practices as a mediator between the effectiveness of talent planning and digitalization tools and techniques within the IT sector. The research population comprised IT companies in Delhi (and its national capital region), India. Using the convenience sampling technique, a sample of 106 respondents was selected out of 168 contacted, including human resource professionals and managers. The study employed regression analysis and structural equation modeling. The results reject that digitalization tools and techniques do not significantly increase the effectiveness of talent planning in IT organizations (beta coefficient = 0.455 at  $p$ -value < 0.001). Additionally, the paper shows that digitalization tools and technologies significantly affect HR policies and practices (beta coefficient = 0.826 at  $p$ -value < 0.001). The findings reject the suggestion that there is no significant positive relationship between HR practices and policies and the effectiveness of talent planning in the IT sector (beta coefficient = 0.425 at  $p$ -value < 0.001). Furthermore, the study rejects the perception that HR policies and practices do not mediate the relationship between digitalization tools and techniques and the effectiveness of talent planning (beta coefficient = 0.351 at  $p$ -value < 0.001). These insights will contribute to developing effective HR strategies that align with technological advancements and foster organizational growth.

**Keywords**

digitalization, talent planning, HR policies, HR practices, digital planning, digital tools

**JEL Classification**

D22, M10

**INTRODUCTION**

The information technology (IT) sector is renowned for its rapid pace of innovation and change, broadly influenced by persistent advancements in technology. Staying ahead of technological trends is essential. Digital tools enable HR professionals to screen candidates more quickly and accurately, expanding the talent pool, managing their performance appraisal, looking into their training required, and improving the candidate experience. This dynamic landscape necessitates effective talent planning and management strategies to ensure that organizations can efficiently attract, retain, and develop the necessary workforce to maintain competitiveness. Digitalization, which means the integration of digital technologies into everyday business processes, has emerged as a critical factor in enhancing the efficacy of these strategies. Digitalization in talent planning involves transforming traditional HR functions into more efficient and dynamic processes through digital technologies. However, the effectiveness of digital tools in talent planning significantly depends on the supporting HR policies and practices. These policies play a crucial role in ensuring the potential of digital tools is fully realized.

## 1. LITERATURE REVIEW

Digitalization in effective talent planning encompasses the integration of digital technologies into various human resources (HR) functions, transforming traditional practices into more efficient and dynamic processes. This shift is particularly vital in the IT sector, where staying ahead of technological trends is essential. During the age of Industry 4.0, it is essential to preserve organizational equilibrium and provide a wide range of chances to talented employees (Acar & Sarniç, 2024). It is evident that as technology advances, businesses equally adapt their approach to managing HR (Zehir et al., 2019). An HR strategy whose main target is the creation of the right workforce capable of driving digital innovation should focus on three crucial elements, the identification, hiring, and retention of such people. Importantly, this talent pipeline should consist not only of people having a certain set of technical skills but of individuals who are in constant touch with change, both in the digital and in other spheres (Ajayi-Nifise et al., 2024).

As the Indian IT industry continues to grow rapidly, the implementation of innovative and effective HR practices has become more critical than ever. Increasing demand for the automation and digitalization of manual talent assessments, higher use of data for talent planning, and a growing requirement for identifying shortages of talent through performance data are all factors that are contributing to the growth of the IT sector (Grand View Research, 2021). This capability enables HR professionals to proactively manage talent, reduce the costs associated with unplanned turnover, and ensure that they have the right people with the right talent at the right time. Also, Tucker's (2021) findings provide key insights into how the top-level workforce planning staff use a sound set-up for talent planning and for efficiency to make good use of distinctive strategies in procedures, personnel, machinery, and time management. Organizations that incorporate the strategies and experience of those top-tier workforce planners as they implement their workforce planning processes could not help but be improved.

Rana et al. (2021) found that HR practices play a crucial role in the success of companies across various industries, especially in the IT sectors. Also, human resource practices are vital in digital transforma-

tions (Nicolás-Agustín et al., 2022). HRM software, HR practices based on IT are extensively used in this arena, making it one of the sectors most profoundly affected by the increasing influence of digital technology. Companies are adopting HR policies and practices that are digitally integrated and focused on the needs of employees. Upgrading human resource (HR) systems is essential to get excellent results and compete in a highly competitive sector (Kanungo et al., 2023). By digitalizing routine tasks and centralizing data, these systems provide a holistic view of talent planning and processes, making it easier for organizations to make informed decisions and foster a cohesive workforce environment (Bersin, 2017). According to Davenport et al. (2019), digital tools like artificial intelligence (AI) and machine learning (ML) are revolutionizing HR functions. These technologies automate complex decision-making processes, such as analyzing vast amounts of data to identify skill gaps or optimizing workforce allocation. Businesses should implement HR policies and procedures that, depending on the situation, help achieve the company's long-term objectives. Organizational practices have undergone a majority change because of the fourth industrial revolution, or Industry 4.0. To be competitive in the digital era, organizations need to adapt to the new digital technologies and procedures that are coming out (McKinsey & Company, 2022). To successfully undergo digital transformation, businesses need to have HR policies that are in line with their overall strategy and motivate staff to embrace new ways of working that are compatible with the digital age (Zhang & Chen, 2024). An essential part of digital transformation in this setting is creative behavior on the part of employees (Boudreau & Jesuthasan, 2016). To digitally alter their operations, businesses should push for staff to embrace new tech and procedures. To stay competitive in the ever-changing digital market and effectively manage the obstacles of digital transformation, firms should embrace a set of human resource strategies that foster creative behavior (Verhoef et al., 2021).

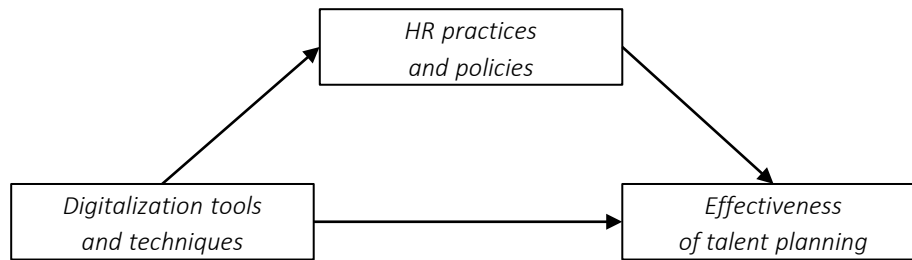
Muhammad and Shao (2013) revealed that talent management plays a crucial role in adopting HR general strategies to retain talent, decrease employee turnover, and achieve desired HR outcomes for a business. This may be achieved via effective and efficient implementation of HR policies. Furthermore, HR practices like training and development, recruit-

ing and selection, and the enhancement of resources and abilities among workers are crucial factors in achieving organizational success. Also, digital technologies make HR services more agile (Cappelli & Tavis, 2018). It is crucial to be able to swiftly adjust to changes in technology and market conditions in the ever-changing IT industry. To keep up with developments and keep the workforce successful, HR departments may benefit from digital solutions that make them more responsive and adaptable (Veldsman & Pretorius, 2023). Several HR activities may be drastically sped up with the use of digital solutions for talent planning. One way applicant tracking systems (ATS) may simplify hiring is by quickly screening applicants according to predetermined criteria (Chapman & Webster, 2003). In addition, by providing in-depth analytics on workforce skills and demands, HR practices can help improve resource allocation. By giving HR experts access to up-to-date, reliable data, digital solutions improve talent planning's efficacy (Nocker & Sena, 2019). Organizations may anticipate their talent demands and the possible effects of external changes on workforce dynamics with the use of predictive analytics, which is a crucial component of sophisticated HR platforms (Angrave et al., 2016). This kind of planning allows for the proactive management of people, which is essential in the dynamic IT industry.

Automated HR systems allow for better career development opportunities and more effective communication channels between employees and management (Ruël et al., 2006). Specifically, digital HR practices have been crucial within the IT sector, where skill sets rapidly evolve, and employee turnover is traditionally high. The IT sector is rapidly evolving, with digitalization significantly impacting how organizations approach talent planning. Digital tools and data-driven strategies are increasingly employed to streamline recruitment, performance management, and employee development (Marler & Boudreau, 2017). This transition demands that HR policies and practices adapt to support these technological changes effectively. For a business to participate in the digitized HRM system, they must make significant investments in technology, personnel, and robust strategy. For example, the firm should implement a robust HRM digitalization transition, which involves restructuring the business process and adopting new perspectives on HRM practices (Halid et al., 2022).

HR policies must be strategically aligned with the organization's digital goals. This involves integrating digital competencies into job descriptions and performance criteria. Collings et al. (2019) stated that strategic HRM practices are crucial for leveraging technology in talent management practices. Although there are advantages, there are also some disadvantages to incorporating digital technologies into HR operations, including doubts about data protection, the need to constantly train HR staff, and the possibility of workers being resistant to change (Bondarouk & Ruël, 2009). To successfully adopt digital technologies, these issues must be carefully managed. Although it is already stated by Suwarno et al. (2023), that efficiently coordinated human resources practices not only assist in achieving short-term operational goals but also contribute to long-term strategic objectives.

Previous research shows that HR policies and practices, such as data-driven decision-making and automated talent management tools, affect digitalization and talent planning in the IT sector. Vatousious and Happonen's (2021) framework also presents an approach to talent management research, using digitalization as a tool in HR practices to enhance everyday human resources management work. Fedorova et al. (2019) highlight the challenges that arise from the widespread use of digital technologies in HRM systems. It demonstrated that while digitalization processes can have positive effects, they also have a negative impact on employee well-being. Consequently, it is imperative to develop HR strategies that prioritize the preservation of an employee's-centric approach in the workplace while implementing HR digitalization in the organization. Again, according to Fenech et al. (2019), the primary conclusion is that digitalization affects the daily practices and procedures of HR. Despite the potential benefits of digital tools and platforms, there is a gap in comprehensively integrating these technologies with existing HR frameworks. This involves examining the effectiveness of current HR practices and identifying areas where digital solutions can be integrated more effectively, thus aligning HR strategies with the technological advancements in the sector. Existing literature primarily focuses on digital tools and their direct impact on talent acquisition and management, often overlooking how HR policies can bridge the gap between digital advancements and effective talent planning. There is a need to explore how HR policies can facilitate the



**Figure 1.** Conceptual model

integration of digital technologies in talent planning, ensuring alignment with organizational goals and enhancing overall effectiveness. This gap presents an opportunity to examine the strategic role HR plays in adapting and implementing digital solutions within talent management frameworks in the IT sector.

Therefore, this study aims to understand the mediating role of HR policies and practices in the digitalization of talent planning within the IT sector (Figure 1). The following are the proposed hypotheses:

- H01: Digitalization tools and techniques have no significant positive impact on the effectiveness of talent planning in IT organizations.*
- H02: Digitalization tools and techniques have no significant positive impact on HR policies and practices.*
- H03: There is no significant positive relationship between HR practices and policies on the effectiveness of talent planning in the IT sector.*
- H04: HR policies and practices do not significantly mediate the effectiveness of talent planning and digitalization tools and techniques.*

## 2. METHODOLOGY

This study aims to explore the correlation between digitalization, HR policies, and talent planning effectiveness in India's IT sector. To achieve this, a mixed-methods approach was adopted, incorporating both quantitative and qualitative analyses. The research population includes Delhi NCR, India. A structured questionnaire for data collection was constructed, and semi-structured interviews were conducted. To conduct the research, 168 participants were connected via dif-

ferent survey instruments like e-mail, Google Group, and social networking platforms. A convenience sampling technique was used, in which 106 respondents from Delhi NCR, including HR professionals and managers, participated and assessed digital tool usage, existing HR policies, and talent planning efforts. Additionally, qualitative insights were gathered through the interviews, offering detailed perspectives on talent planning in digitalized environments. Through regression analysis of the quantitative data and thematic analysis of the qualitative interviews, this study examined the relationships between digitalization tools and talent planning effectiveness and the mediating effect of HR policies. Structural equation modeling (SEM) was employed to investigate mediating effects, providing a comprehensive understanding of the dynamics between these variables.

Table 1 presents the demographic characteristics of the respondents, illustrating a diverse population. Across age groups, significant portions fall into the 35-44 years and 45-54 years brackets, each constituting approximately one-fifth of the sample. Gender distribution is balanced, with 51.9% male and 48.1% female respondents. Educationally, the sample is varied, with master's degree holders comprising the largest group at 25.5%, followed closely by those with an associate degree at 21.7%. In terms of experience in the IT sector, the distribution is even across different tenure categories, with 1-5 years and 6-10 years both representing 23.6% of the sample. In terms of current position level, executive and entry-level roles are most prevalent, each accounting for around 21.7% of respondents, followed by senior/managerial positions at the same percentage. Other positions encompass the remaining 19.8% of the sample, reflecting a diverse mix of roles within the IT sector.

**Table 1.** Demographics of respondents

Demographic Details	Particulars	Frequency	Percent
1. Age (in years)	Under 25	19	17.90%
	25-34	18	17.40%
	35-44	20	18.00%
	45-54	27	25.90%
	55+	22	20.80%
2. Gender	Male	55	51.9%
	Female	51	48.1%
3. Educational Background	High school diploma or equivalent	19	17.9%
	Associate degree	23	21.7%
	Bachelor's degree	18	17.0%
	Master's degree	27	25.5%
	Doctorate or higher	19	17.9%
4. Years of Experience in the IT Sector	Less than 1 year	17	16.0%
	1-5 years	25	23.6%
	6-10 years	25	23.6%
	11-20 years	19	17.9%
	More than 20 years	20	18.9%
5. Current Position Level	Entry-level	23	21.7%
	Mid-level	14	13.2%
	Senior/Managerial	23	21.7%
	Executive	25	23.6%
	Other	21	19.8%

### 3. RESULTS

Structural equation modeling (SEM) was employed for data analysis due to its ability to handle complex relationships among multiple variables simultaneously, which is essential for examining the interplay between HR policies, digital tools, and talent planning outcomes in the IT sector. Table 2 provides an assessment of internal consistency, reliability, and convergent validity for the key variables in the study. The variables include digitalization tools and techniques, the effectiveness of talent planning, and HR policies and practices. Internal consistency, measured by Cronbach's alpha, is high for all

variables, with digitalization tools and techniques at 0.948, the effectiveness of talent planning at 0.896, and HR policies and practices at 0.831, indicating strong reliability of the scales. Composite reliability demonstrates high reliability across all variables, with digitalization tools and techniques ranging from 0.948 to 0.958, the effectiveness of talent planning ranging from 0.906 to 0.918, and HR policies and practices ranging from 0.868 to 0.915. Convergent validity, assessed through average variance extracted (AVE), indicates satisfactory levels for digitalization tools and techniques (0.763), the effectiveness of talent planning (0.615), and HR policies and practices (0.53), suggesting that the variables adequately capture the underlying constructs. Overall, these results support the validity of the measurement model used in the study. In further analysis, the heterotrait-monotrait (HTMT) ratio and the Fornell-Larcker criterion were calculated to check the discriminant validity of the data.

Table 3 displays the heterotrait-monotrait (HTMT) ratio for assessing discriminant validity among the variables. The HTMT ratios are calculated as follows: 0.848 for the comparison between digitalization tools and techniques and effectiveness of talent planning, 0.825 for the comparison between digitalization tools and techniques and HR policies and practices, and 0.892 for the comparison between the effectiveness of talent planning and HR policies and practices. These ratios are well below the recommended threshold of 0.85, indicating strong discriminant validity among the variables. Thus, the variables exhibit distinct constructs, supporting the validity of the measurement model.

Table 4 displays the outcomes of the Fornell-Larcker criterion, which evaluates discriminant validity among the variables. The diagonal elements show the square root of the average vari-

**Table 2.** Internal consistency, reliability, and convergent validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digitalization tools and techniques	0.948	0.948	0.958	0.763
Effectiveness of talent planning	0.896	0.906	0.918	0.615
HR policies and practices	0.831	0.915	0.868	0.53

**Table 3.** HTMT ratio – Discriminant validity

	Digitalization tools and techniques	Effectiveness of talent planning	HR policies and practices
Digitalization tools and techniques			
Effectiveness of talent planning	0.848		
HR policies and practices	0.825	0.892	

ance extracted (AVE) for each variable: 0.874 for digitalization tools and techniques, 0.784 for the effectiveness of talent planning, and 0.728 for HR policies and practices. Off-diagonal elements indicate the correlations between the variables. These correlations are lower than the square roots of the average variance extracted (AVE) for each variable, indicating satisfactory discriminant validity. The correlations between digitalization tools and techniques and effectiveness of talent planning, digitalization tools and techniques and HR policies and practices, and effectiveness of talent planning and HR policies and practices are 0.806, 0.826, and 0.801, respectively, – each lower than the square roots of the average variance extracted (AVE). Thus, the variables demonstrate acceptable discriminant validity as per the Fornell-Larcker criterion.

Table 5 summarizes the *R*-squared and adjusted *R*-squared values for the two dependent variables: effectiveness of talent planning and HR policies and practices. For the effectiveness of talent planning, the *R*-squared value is 0.707, indicating approximately 70.7% of the variance. After adjusting for the number of predictors and degrees of freedom in the model, the *R*-squared adjusted value for the effectiveness of talent planning is 0.702. Similarly, for HR policies and practices, the *R*-squared value is 0.682, suggesting approximately 68.2% of the variance. After adjustment, the *R*-squared adjusted value for HR policies and practices is 0.679. These values indicate that the independent variables in the models explain a substantial portion of the variance, suggesting a good model fit.

**Table 4.** Fornell-Larcker criterion – Discriminant validity

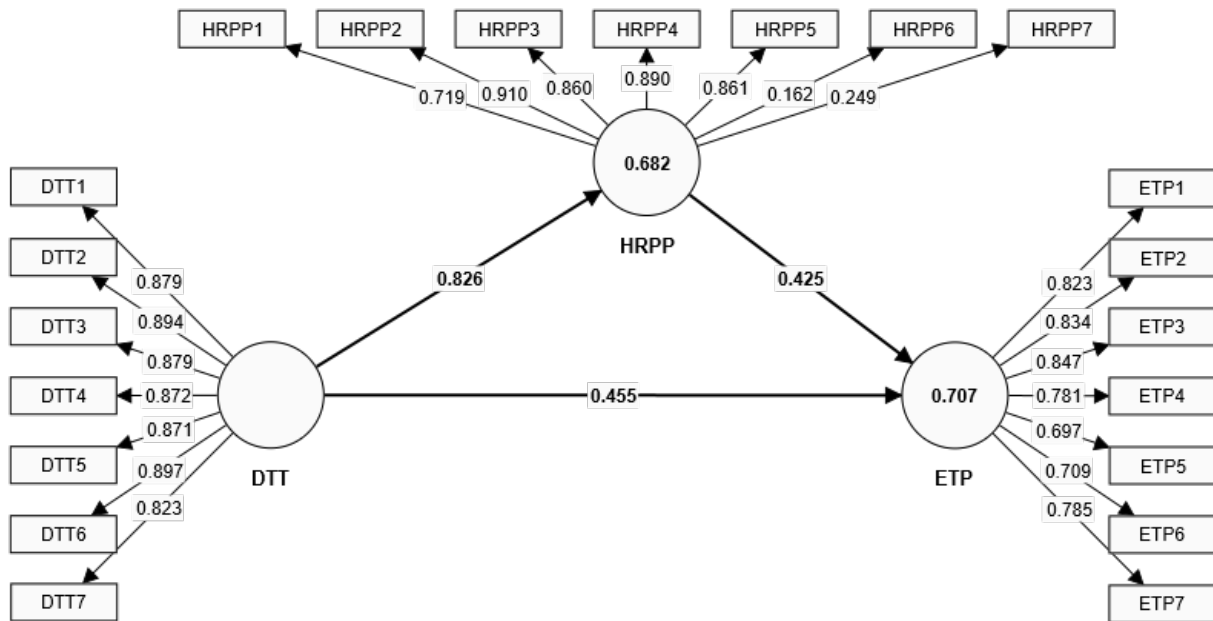
	Digitalization tools and techniques	Effectiveness of talent planning	HR policies and practices
Digitalization tools and techniques	0.874		
Effectiveness of talent planning	0.806	0.784	
HR policies and practices	0.826	0.801	0.728

**Table 5.** R-square and R-square adjusted

Variables	R-square	R-square adjusted
Effectiveness of talent planning	0.707	0.702
HR policies and practices	0.682	0.679

Table 6 displays the outcomes of testing hypotheses using the conceptual model (Figure 1). The study rejects the first null hypothesis that digital HR tool adoption has no discernible effect on IT organizations’ talent planning processes’ efficiency and effectiveness (Path coefficients= 0.455, *p*-value = 0.000). Thus, digitalization tools and techniques have a positive and statistically significant correlation with the effectiveness of talent planning. There is a strong positive correlation between digitalization tools and techniques and HR policies and practices. Hence, the study rejects the second alternative hypothesis that digitalization tools and techniques do not have any beneficial effect on HR policies and practices (Path coefficients = 0.826, *p*-value = 0.000).

Furthermore, the third hypothesis, which states that there is no significant positive relationship between HR practices and policies and the effectiveness of talent planning in the IT sector, is also rejected (Path coefficients = 0.425, *p*-value = 0.000). This suggests that HR policies and practices and the effectiveness of talent planning do have a significant positive relationship. The fourth hypothesis, which posited that HR policies and practices do not mediate the association between digitalization tools and techniques and the effectiveness of talent planning, is rejected with a path coefficient value of 0.351 and *p*-value of 0.000, proving that HR policies and practices do, in fact, mediate this



Note: DTT means Digitalization tools and techniques, ETP means Effectiveness of talent planning, and HRPP means HR policies and practices.

Figure 2. Structural model using AMOS SEM

Table 6. Path coefficients for the constructs

Hypothesis	Path	Path coefficients	P-Value	Decision on Null Hypotheses
Digitalization tools and techniques do not significantly increase the effectiveness of talent planning in IT organizations.	DTT → ETP	0.455	0.000	Rejected
Digitalization tools and techniques have no significant positive impact on HR policies and practices.	DTT → HRPP	0.826	0.000	Rejected
There is no significant positive relationship between HR practices and policies and the effectiveness of talent planning in the IT sector.	HRPP → ETP	0.425	0.000	Rejected
HR policies and practices do not significantly mediate the variables of the effectiveness of talent planning and digitalization tools and techniques.	DTT → HRPP → ETP	0.351	0.000	Rejected

Note: DTT means Digitalization tools and techniques, ETP means Effectiveness of talent planning, and HRPP means HR policies and practices.

relationship. Consequently, the results provide strong evidence to reject all the hypotheses. Based on these findings, the model shown in Figure 1 shows the hypothesized correlations among digitalization tools and techniques, HR policies and practices, and the effectiveness of talent planning.

#### 4. DISCUSSION

H<sub>0</sub>1, the adoption of digital tools and techniques does not significantly improve the efficiency and effectiveness of talent planning processes in IT organizations, is rejected. Thus, digital tools and

techniques significantly impact effective talent planning (Path coefficients= 0.455, *p*-value < 0.001). Nicolás-Agustín et al. (2022) demonstrate that human resource strategies have a role in mediating the connection between a company’s strategy and digital transformation. This suggests that companies that invest in digital tools are likely to witness significant improvements in their talent planning processes. This paper provides evidence for the increasing use of technology to enhance effective talent planning in organizational performance.

H<sub>0</sub>2, digitalization tools and techniques have no positive impact on HR policies and practices, is



rejected (Path coefficients = 0.826,  $p < 0.001$ ). The data show that digitalization tools and techniques have a significant path coefficient of 0.826, indicating a consistent and positive correlation with HR policies and practices. In other words, organizations that implement and develop effective HR policies and procedures are more adept at doing so when they employ digital tools and techniques. According to Martínez-Morán et al. (2021), employees' lifetime process of talent recruitment, acquisition, training, assessment, and development in the Spanish market should focus primarily on digital tools and techniques. The primary findings indicate a significant surge in the quantity and diversity of digital tools used in the process of acquiring talent and a broader utilization of social networks to augment the extent of these processes. Such tools enable data-driven decision-making, automate administrative tasks, and improve communication, resulting in more strategic and impactful HR initiatives.

The results confirmed that  $H_03$  is rejected with a high degree of confidence (Path coefficients = 0.425,  $p < 0.001$ ). Thus, there is a positive relationship between HR policies and practices and the effectiveness of talent planning. These results demonstrate the critical role of effective HR practices in promoting talent engagement, development, and retention, which leads to improved organiza-

tional performance. The study shows the significance of aligning HR strategies with the organization's objectives to accelerate effective talent management initiatives.

The study's results corroborate that HR policies and practices mediate the relationship between digitalization and talent planning within the IT sector. For  $H_04$ , the findings show a mediating relationship between the effectiveness of talent planning and digitalization tools and techniques, with a path coefficient of 0.351 and  $p < 0.001$ . The path coefficient of 0.351 indicates that HR policies and practices play a crucial role as a mediator in the correlation between digitalization tools and talent planning effectiveness. This study establishes an appropriate basis for organizations that aspire to implement the most recent technology to accomplish their strategic objectives in human resource management by outlining the advantages, obstacles, and favorable influence on employee satisfaction (Stone et al., 2015). It highlights the importance of HR practices in effectively translating digital HR investments into practical improvements in talent outcomes (Nicolás-Agustín et al., 2022). Therefore, organizations should not solely rely on the adoption of digital tools but also focus on optimizing their HR processes and practices to fully capitalize on the benefits of digitalization in talent management.

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## CONCLUSION

This study highlights how HR policies and practices play a crucial mediating role in facilitating the digitalization of tools and techniques and effective talent planning in the IT industry. Analyzing data from top IT organizations makes it clear that talent planning procedures are far more efficient and successful when digital tools and techniques are used. The paper shows that digitalization techniques improve HR policies and practices, showing how important digital tools are for HR frameworks in IT companies.

To create a favorable work environment, it is crucial to match HR policies and practices with digital innovations. Human resources policies and practices play a mediating role in the connection between digitalization tools/techniques and talent planning effectiveness. It confirms that HR policies are the key mediators, helping to connect organizational goals with digital techniques for talent planning and easing their integration.

The results of this study show a strong link between HR policies and digital technology in the Indian IT sector. The paper highlights the importance of having specific HR policies and practices to use digital tools for better talent planning. This information is valuable for IT organizations wanting to improve their management strategies in the digital age. These insights are crucial for helping organizations adopt new digital HR processes, making them more efficient and competitive in the IT industry.

## AUTHOR CONTRIBUTIONS

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Data curation: Swati Yadav.

Formal analysis: Swati Yadav.

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Visualization: Swati Yadav.

Writing – original draft: Swati Yadav.

Writing – review & editing: Shikha Kapoor, Sandeep Kumar Gupta.

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