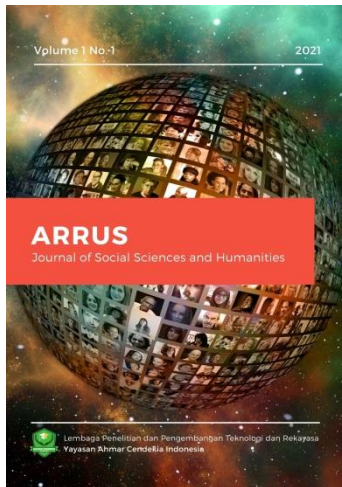




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## REVIEW ARTICLE

# Digital Talent Management: a Systematic Literature Review Using TCCM Frameworks

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**Abstract:** Digital talent management (DTM) discussion in the digital transformation process is gaining attention. This study intends to identify the theoretical, context, characteristic, and methodological (TCCM) contributions of prior research on DTM. This research utilized a Systematic Literature Review approach with PRISMA Protocols and TCCM framework analysis and Watase Uake as data processing tools. The findings indicate that DTM is a strategic capability discourse; predominantly occurred within organizational, business, and industry-specific contexts, and operated as an Input-Process-Output System. Further evidence shows an AI paradox and the prevalence of quantitative approaches. Future research should shift from organizational-centric models towards collaborative ecosystem frameworks.

**Keywords:** Talent Management, Digital Talent Management, TCCM Analysis, Business Performance, Watase Uake

## 1. Introduction

Digital talent management (DTM) is becoming an important emphasis for organizations addressing the complexity of the contemporary digital environment. Numerous recent studies highlighted the importance of examining DTM, particularly in improving the efficacy of talent management systems (Fauzian, 2023; Leskina et al., 2022; Morán et al., 2024). Robust DTM techniques markedly improve organizational agility and responsiveness in manufacturing companies (Puspita, 2025). Nonetheless, they also presented challenges and opportunities in DTM. It encompasses the requirement for agile and adaptable talent management strategies in response to digital disruption, departing from traditional hierarchical frameworks (Sheremetyeva et al., 2024; Sinulingga et al., 2024), as well as significant transformations in human resources processes resulting from digitization, highlighting the efficiency that technology applications have brought to functions such as talent acquisition and performance management (Bhat & Sheikh, 2024).

Review studies e.g systematic literature reviews (SLRs), bibliometric analyses, scoping reviews, and meta-analyses have helped classify and synthesize prior findings on talent management and digital transformation. Sukma & Yamnill (2025) used SLR to identify four insurance literature themes: digital literacy, adaptive leadership, teamwork, and innovation. A bibliometric study by Li & Tsai (2022) used stakeholder theory and big data analysis to evaluate job quality at two Chinese colleges. A systematic literature review on HR practices in Industry 4.0 found significant discrepancies in digital transformation programs (Banerjee & Sharma, 2025). However, those study did not focus on the management of digital talent,



ignoring regional and thematic context, missing global trends, and did not propose a new classification that addresses current issues such as AI ethics and the long-term effects of emerging technology. Our systematic literature review will propose a novel classification framework that incorporates cross-geographical dimensions, improve integrative synthesis, and investigate previously overlooked topics including AI ethics and DTM sustainability. We attempt to fill this gap by providing a more complete and timelier explanation.

## 2. Research Method

This study is undertaken to address the subsequent inquiries: RQ 1. What are the theoretical, context, characteristics, and methodological (TCCM) contributions of previous research on DTM, and how can these findings be integrated into a more holistic conceptual framework to fill the literature gap? RQ 2. What key aspects of DTM impact business performance across various industries, and what does this imply?

To bridge the research gap and respond to the research question, the Systematic Literature Review (SLR) methodology will be employed, utilizing the Scopus database as the principal source. This systematic literature review (SLR) examines digital transformation and talent management in many industries and regions. This comprehensive literature analysis evaluates, synthesizes, and highlights research gaps in digital talent development, technology-driven talent management, and digital transformation policy. Extensive literature analysis seeks to enhance academic comprehension and provide pragmatic guidance for businesses, governmental entities, and other stakeholders facing digital transformation obstacles.

This study adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009; Page et al., 2021). PRISMA is a standard designed to enhance the quality of reporting and methods in systematic reviews and has been extensively utilized across multiple disciplines (Panic et al., 2013; Siddaway et al., 2019) which primarily concentrates on the identification, screening, and inclusion phases of publications pertinent to the research topic.

Throughout all stages of this investigation, Watase Uake served as the research tool for data processing (Wahyudi, 2024). It is a web-based application (<https://watase.web.id>) created by Indonesian academics and researchers who focuses on facilitating the extraction, arrangement, and examination of data from chosen articles. Users may employ the data for model development, gap analysis, research design, surveys, and data examination. Watase Uake aims to streamline the research process, commencing with a literature review. This tool adopted PRISMA (Page et al., 2021) as a research protocol. It also utilizes Artificial Intelligence to extract articles text, classifying and categorizing data when needed. However, researchers can opt for manual extraction as well. It is designed to assist in pinpointing essential components of an article, including study variables, employed theories, data collection techniques, hypothesis testing outcomes, limitations, and research suggestions. This instrument is beneficial in expediting the organized coding and classification of data, particularly when managing a substantial volume of articles. Employing Watase Uake enables researchers to circumvent manual interpretation inaccuracies while improving uniformity and clarity in the data synthesis procedure. This instrument facilitates the depiction of research trends via tabulation capabilities and automated data export, which are extremely beneficial for assembling tables of results and descriptive study overviews. Consequently, the incorporation of Watase Uake enhances the scientific rigor and technical efficacy of the systematic literature review framework utilized in this study.

The following are the research stages conducted based on PRISMA protocol:

### 2.1. Keywords and Literature Identification.

The identification phase entails locating scientific papers through targeted keywords and designated databases. This procedure is conducted rigorously to guarantee the relevance and validity of the articles utilized in the systematic review. The Scopus database was selected as the principal database due to superiority in delivering high-quality scientific publications

through a stringent indexing process (Bergman, 2012). Scopus is well-regarded for excluding articles from predatory journals, commonly present in alternative databases. The keywords included in this article's identifying procedure are 'digital talent' and 'digital talent management.' These keywords can be entered directly into Watase Uake without being structured using Boolean operators. Watase Uake instantly located articles within Scopus due to its integration with the Scopus database with an API key. The preliminary search was executed in September 23rd 2025, yielding a total of 150 articles identified with the specified keywords. Consequently, articles published after the completion of keyword and literature identification phase cannot be incorporated into the analysis. 115 articles found from 'digital talent' and 35 from 'digital talent management' keyword. Thirty-five articles were removed due to redundancy. Subsequently, an aggregate of four articles was eliminated by the automated tool due to noncompliance with the specified year requirements (2015-2025). Twenty articles not classified within Tier Q1-Q4 were eliminated due to non-compliance with the journal tier standards. Three papers were eliminated due to the absence of an abstract. The total number of articles appropriate for the screening stage is 88 articles.

## 2.2. Screening

At this stage, we set eligibility criteria and sifts through papers utilizing the Inclusion and Exclusion criteria (Table 1). This procedure involves examining the titles and abstracts of the papers. Only two types of literature examined for this study which were review articles and research articles written in English language. The literature was filtered within those published in year 2015–2025 to reflect the most current evidence. Two independent reviewers (L) and (R) screened the titles and abstract based on the inclusion and exclusion criteria. Discrepancies were resolved through consensus discussions. Of the 88 articles, 16 were deemed irrelevant or did not satisfy the inclusion requirements. Consequently, 72 items were left to be searched and downloaded.

**Table 1.** Inclusion and exclusion criteria

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inclusion Criteria</b> | <p>Studies discussing digital talent or digital talent management from diverse sectors</p> <p>Studies discussing critical dimensions, identification, and implementation of digital talent or digital talent management</p> <p>Studies written in English</p> <p>Studies that are published within period 2015 – 2025</p> <p>Studies that are in tier Q1-Q4 Journal</p> <p>Studies that are published as academic research articles and review articles</p> |
| <b>Exclusion Criteria</b> | <p>Studies outside the scope of digital talent or digital talent management</p> <p>Studies that do not fit into any inclusion criteria</p>                                                                                                                                                                                                                                                                                                                  |

## 2.3. Retrieval

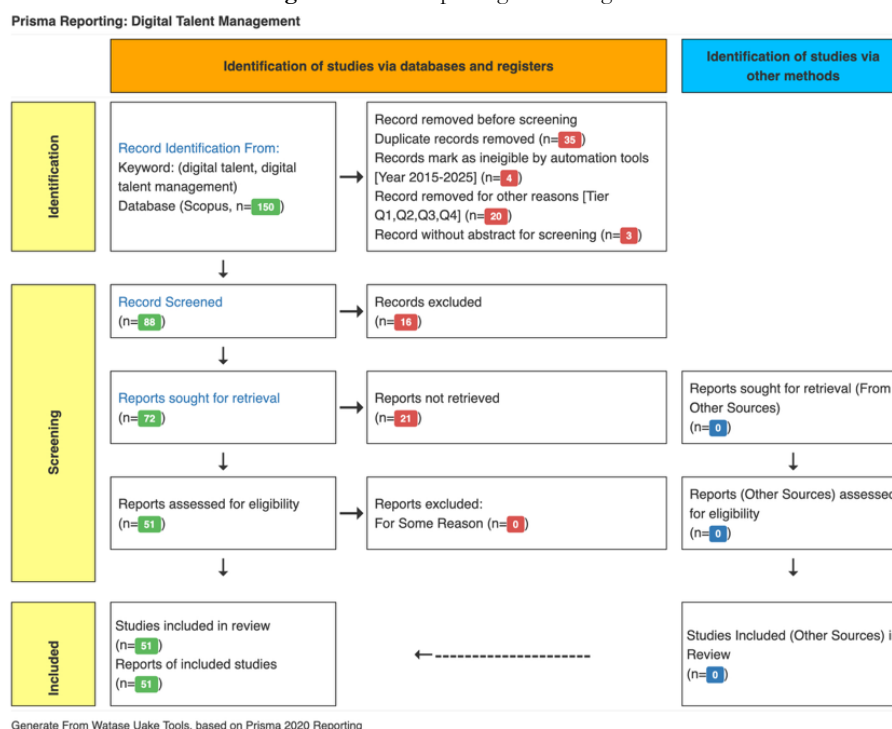
Subsequent to the screening stage, the researchers identified and downloaded the 72 articles requisite for the extraction operation. Fifty-one articles were successfully downloaded, while twenty-one articles were either unavailable or inaccessible. These 51 articles satisfied the eligibility criteria, extracted and reported for analysis.

## 2.4. Report

The 51 downloaded articles were subsequently uploaded to Watase Uake Tool for text extraction and categorization. Metadata information such as title, journal's name, authors, or publication year was automatically extracted by Watase Uake. For each article, researchers identified the research variables, their paths, hypotheses, and the result of hypotheses testing manually utilizing Path and Item Extraction menu. All interpretive coding was performed manually by the authors. After the comprehensive text evaluation procedure, we consolidated, summarized, download, and further processed certain data to enhance alignment with research objectives and address research problems as needed. To facilitate analysis utilizing the TCCM framework, we engaged in classification and categorization grounded in theories (T), research context, locus (C), dominant variables and variables

network (C), alongside dominant methods, data collection techniques, and analysis technique (M). Figure 1 shows PRISMA Reporting Flow Diagram.

**Fig 1.** PRISMA Reporting Flow Diagram



## 2.5. Analysis Techniques

The reviewed papers were evaluated using the Theory, Context, Characteristics, and Methodology (TCCM) frameworks (Paul & Rosado-Serrano, 2019). This study analysed the theories employed in prior research to elucidate the phenomenon under investigation (Theory). The research backdrop, including the country, industry, or elements of the social environment were under investigation (Context). Investigations of the studies delineated the specific attributes of the variables under investigation and elucidate how the interactions among these factors were articulated in the literature (Characteristics). Ultimately, we identified the research design, sample methodologies, analytical instruments, and additional procedures employed in prior investigations (Methodology). By examining the literatures through these four dimensions, we are able to methodically arrange findings, pinpoint research gaps, and effectively direct future research agendas.

## 3. Results and Discussion

### 3.1. Publication Trends

The topics regarding digital talent or DTM has not yet widely studied and limited in the last decade. The quantity of studies is inconsistent yet demonstrates progress over the years (Figure 2). The chart suggests that this subject retains significant research potential.

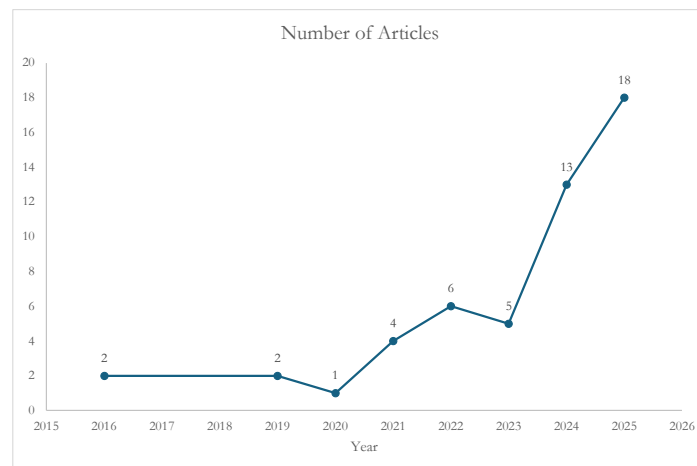


Fig 2. Publication trends

### 3.1.1. Top Cited Studies

The distribution of citations indicates disparities in research effect. Based on Table 2, most cited study investigated recruitment as a sensory organ enhancing absorptive capacity and as a mediator between external digital talent and internal units, positioning recruitment strategically in digital transformation with 130 citations (Gilch & Sieweke, 2021). Certain works, such as Huang et al. (2023) and Marchesani et al. (2023) possess substantial citation counts (47 and 59), signifying considerable impact in their domain. Currently, works such as Sukma & Yamnill (2025) and Priyanto et al. (2025) have not garnered citations, perhaps attributable to their recent release or narrower focus. Chinese research predominates, examining the influence of governmental policies and executive experiences on company digital transformation, as evidenced by Hua et al. (2025) and Bai et al. (2024).

Table 2. Top 5 cited studies

| No | Author(s)                    | Findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | #Citation |
|----|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. | Gilch & Sieweke (2021)       | Recruitment of digital talent triggers organizational change; recruiters adapt processes, engage internal actors, and act as sensory organ transferring external knowledge while mediating between candidates and departments; calls for building recruitment-specific dynamic capabilities                                                                                                                                                                                                                        | 130       |
| 2. | Montero Guerra et al. (2023) | Digital transformation positively affects talent attraction talent management and talent retention                                                                                                                                                                                                                                                                                                                                                                                                                 | 124       |
| 3. | Ogbeibu et al. (2022)        | Green Hard Talent Management (TM) predicts turnover intention, while Green Soft TM also positively predicts turnover intention. Leader STARA competence dampens the positive influence of Green Hard TM on turnover intention and reinforces the negative influence of green soft TM on turnover intention. Digital task interdependence weakens the positive influence of Green Hard TM on turnover intention but does not significantly influence the relationship between Green Soft TM and turnover intention. | 74        |
| 4. | Marchesani et al. (2023)     | Digital technology implementation positively affects national and international student inflows; no curvilinear effect for talent; positive direct effect on innovative companies; inverted U-shaped relationship between digital implementation and innovative companies indicating a threshold beyond which effectiveness declines                                                                                                                                                                               | 59        |
| 5. | Huang et al. (2023)          | The digital economy positively affects green technology innovation, but the relationship is nonlinear; digital talent aggregation negatively moderates the digital economy's promotion of GTI; digital economy generates a negative spillover on neighbouring provinces' GTI, which is intensified by higher digital talent aggregation; spatial analysis confirms significant positive spatial autocorrelation for both digital economy and GTI                                                                   | 47        |

Source: Extracted from Watase Uake Tools: <https://watase.web.id/> (Wahyudi, 2024)

### 3.2. TCCM frameworks application

#### 3.2.1. Theories (T)

Table 3 shows the predominant theories in the articles include Resource-Based View, Upper Echelons, Dynamic Capability, Sociotechnical Systems, and Signaling Theory, each covered in two studies. Concurrently, the article most often referenced in other studies is the one pertaining to Resource-Based Theory, which has garnered 270 citations (L. Liang et al., 2025; Montero Guerra et al., 2023; Yadav et al., 2024; Yadav & Rena, 2025). This signifies that this idea is regarded as the most pertinent and significant in DTM, alongside absorptive capacity and dynamic capabilities theory (130 citations). This suggests that a resource-based strategy is crucial for comprehending digital competences and capabilities in companies and remains as a pertinent theoretical framework yet necessitates further empirical investigation.

**Table 3.** Theories

| No  | Theory                                                                     | #Articles | #Citation | Authors                                              |
|-----|----------------------------------------------------------------------------|-----------|-----------|------------------------------------------------------|
| 1.  | Upper Echelons Theory                                                      | 2         | 7         | Hua et al. (2025); Bai et al. (2024)                 |
| 2.  | Dynamic Capability Theory; Resource-Based View Theory                      | 2         | 22        | Yadav et al. (2024) ; Yadav & Rena (2025)            |
| 3.  | Sociotechnical Systems Theory                                              | 2         | 15        | Hughes & Davis (2024); Griffith & Alpert (2022)      |
| 4.  | Signaling Theory                                                           | 2         | 0         | Chotia et al. (2025); Hu et al. (2025)               |
| 5.  | Resource-Based View Theory                                                 | 2         | 248       | L. Liang et al. (2025); Montero Guerra et al. (2023) |
| 6.  | New Economic Geography                                                     | 1         | 13        | Li & Chen (2024)                                     |
| 7.  | Systems Theory                                                             | 1         | 0         | Shan et al. (2025)                                   |
| 8.  | Stakeholder Theory                                                         | 1         | 4         | Li & Tsai (2022)                                     |
| 9.  | Social Construction of Technology                                          | 1         | 28        | Zahoor et al. (2024)                                 |
| 10. | Self-Determination Theory                                                  | 1         | 0         | Kumari et al. (2025)                                 |
| 11. | Resource Conservation Theory; Social Exchange Theory                       | 1         | 19        | Yang & Zhou (2022)                                   |
| 12. | New Institutional Theory                                                   | 1         | 2         | Mahroof et al. (2025)                                |
| 13. | Absorptive Capacity and Dynamic Capabilities                               | 1         | 130       | Gilch & Sieweke (2021)                               |
| 14. | Multi-Trait Multi-Method (MTMM)                                            | 1         | 8         | Stander et al. (2022)                                |
| 15. | Marxian Theory of Collective Labourer and General Law of Social Production | 1         | 3         | Charnock & Ribera-Fumaz (2024)                       |
| 16. | Job Demand-Resource                                                        | 1         | 12        | Chu et al. (2024)                                    |
| 17. | Human Resource Management                                                  | 1         | 0         | Papadonikolaki et al. (2025)                         |
| 18. | Human Capital Theory; Organizational Learning Theory                       | 1         | 26        | Nair (2019)                                          |
| 19. | Human Capital Theory                                                       | 1         | 0         | Sukma & Yamnill (2025)                               |
| 20. | Healthy Migrant Hypothesis                                                 | 1         | 1         | Inga-Avila et al. (2025)                             |
| 21. | Health Psychology and Crisis Intervention Theory                           | 1         | 0         | Hizam et al. (2025)                                  |
| 22. | Diffusion of Innovation Theory                                             | 1         | 4         | Nesindande et al. (2025)                             |

Source: Extracted from Watase Uake Tools: <https://watase.web.id/> (Wahyudi, 2024)

The theoretical usage trend indicates a multifaceted approach to comprehending DTM, integrating viewpoints from human resources and organizational capabilities. Human Capital Theory underscores individual advancement, whereas Resource-Based View Theory concentrates on organizational competitive superiority. This amalgamation provides an extensive framework for tackling the complexities of DTM during the digital transformation era.

#### 3.2.2. Context (C)

##### 3.2.2.1. Country Contributions

The data indicates that China is the predominant geographical location for the research, with 13 investigations conducted there (Table 4). China is a central subject in digital talent studies, especially for digital transformation, green technology, and regional innovation (Huang et al., 2023; Li & Chen, 2024b). Other developing nations, such as India, are notable for 4 studies, many of which address the integration of digital technology and talent management within



local sectors (Kumari et al., 2025; Yadav et al., 2024; Yadav & Rena, 2025). Moreover, developing nations like Pakistan, Indonesia, and Thailand also made contributions, albeit with a lesser volume of studies (Mahroof et al., 2025; Priyanto et al., 2025). Conversely, developed nations like Spain, Italy, and the United States significantly contribute to this research, especially regarding personnel management and digital transformation within corporations (Marchesani et al., 2023; Montero Guerra et al., 2023). Those studies indicates that developed countries, particularly China, USA and Spain and developing country such as India, are prioritizing the cultivation of digital talent within their economic and technological development goals. Research from wealthy nations continues to prevail in academic influence, highlighting the necessity for more international collaboration and publication in high-impact journals for researchers from poor countries (Banerjee & Sharma, 2025; Zhang et al., 2021a).

**Table 4.** Country contributions

| No. | Country                                                                                                                                                                    | #Articles |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1.  | China                                                                                                                                                                      | 13        |
| 2.  | USA                                                                                                                                                                        | 5         |
| 3.  | Spain                                                                                                                                                                      | 5         |
| 4.  | India                                                                                                                                                                      | 4         |
| 5.  | Italy, Pakistan                                                                                                                                                            | 3         |
| 6.  | Others (Brazil, Finland, Germany, Indonesia, Netherlands, Nigeria, Saudi Arabia, Senegal, Singapore, South Africa, Taiwan, Thailand, United Arab Emirates, United Kingdom) | 1*        |

Note: \*Each country contributes one (1) article

### 3.2.2.2. Research Context

Due to diverse context of studies, we classified the context into six categorization comprises a) Organizational/Corporate, where scope of the work are in the organizational/corporate level; b) Public Sector & Policy, which investigated DTM in public organization and policy-related; c) Industry-Specific, where studies includes specific industries, such as small medium enterprises; d) National/Regional Digital Economy, where DTM is a regional/national macroeconomic issue; e) Education & Academia, where DTM research is related to academic and student issues, f) Financial Services, where studies include finance and banking sectors.

**Table 5.** Research context

| No. | Context                             | #Articles | Authors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|-------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Organizational / Corporate          | 21        | Gilch & Sieweke (2021); Hua et al. (2025); McFarland & Jestaz (2016); Stander et al. (2022); Koivunen et al. (2023); Nair (2019); Papadonikolaki et al. (2025); Montero Guerra et al. (2023); Montero Guerra & Danvila-Del Valle (2024a); Awadh Aljuaid (2025); Galanti & Fantinelli (2025); Chu et al. (2024); Inga-Avila et al. (2025); Hughes & Davis (2024); X. Li et al. (2024); Huang et al. (2023); Priyanto et al. (2025); Martínez-Morán et al. (2021); Yang & Zhou (2022); Hu et al. (2025) |
| 2.  | Industry-Specific                   | 12        | Mukerjee et al. (2023); Bai et al. (2024); Yadav et al. (2024); Yadav & Rena (2025); Banerjee & Sharma (2025); Zahoor et al. (2024); Dawson & Agbozo (2024); L. Liang et al. (2025); Kumari et al. (2025); Chotia et al. (2025); Ogbeibu et al. (2022); Griffith & Alpert (2022)                                                                                                                                                                                                                      |
| 3.  | Education & Academia                | 6         | Yuan et al. (2021); Zou & Wu (2024); L. Li & Tsai (2022); Weng (2017); Qian et al. (2025); Zhang et al. (2021b)                                                                                                                                                                                                                                                                                                                                                                                       |
| 4.  | National / Regional Digital Economy | 6         | Cardenas-Navia & Fitzgerald (2019); Charnock & Ribera-Fumaz (2024); Marchesani et al. (2023); Huang et al. (2023); X. Li et al., (2024); Shan et al. (2025)                                                                                                                                                                                                                                                                                                                                           |
| 5.  | Public Sector & Policy              | 2         | Sukma & Yamnill (2025); Hizam et al. (2025)                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6.  | Financial Services                  | 2         | Nesindande et al. (2025); (Mahroof et al., 2025)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Source: Author's Classification (2025)

Table 5. indicates that investigations into DTM have been undertaken across many background. The research setting encompassed more on the organizational/corporate level



(21 literatures) and specific industries (12 literatures), concentrating on the effects of digital transformation on talent management, digital skills, and human resource development strategies. Research by Montero Guerra et al. (2023) and Marchesani et al. (2023) demonstrated that digital transformation markedly enhanced the efficacy of talent management, especially in attracting both domestic and foreign talent and fostering corporate creativity. Research by Huang et al. (2023) demonstrated that digital talent aggregation may negatively moderate green technological innovation, highlighting the intricate interaction between the digital economy and innovation. Less studies found in public sector & policy and financial services context (2 literatures each). This represents a research gap that merits investigation.

### 3.2.3. *Characteristics (C)*

An examination of a network graph generated from Watase Uake Tools comprising 48 nodes, 51 distinct directed edges and 85 paths were studied in the articles (Figure 3). The network illustrates that, first, there are essential "core hub variables", indicating the most commonly employed in prior research as primary outcomes and mediators. The primary variables are: (a) Talent Management, the central node where it was frequently regarded as the primary mechanism connecting digital input with organizational output (Mahroof et al., 2025; Montero Guerra & Danvila-Del Valle, 2024b; Priyanto et al., 2025; Yadav et al., 2024; Yadav & Rena, 2025; Zahoor et al., 2024); (b) Digital Transformation, which is also significant and possesses numerous connections, indicating that DTM in the literature was often associated with the primary organizational agenda of digital transformation (Hu et al., 2025; Mahroof et al., 2025; Montero Guerra & Danvila-Del Valle, 2024a); (c) Business Performance, which emerged as the predominant outcome, suggesting that the majority of studies ultimately seek to demonstrate that DTM influences business performance (Yadav et al., 2024; Yadav & Rena, 2025); (d) Employee Engagement, which was also a strong node as an intermediate outcome, where Employee Engagement frequently acted as the "pathway" to firm performance (Awadh Aljuaid, 2025; Zahoor et al., 2024). The DTM literatures established a significant chain: digital HR/DTM Practices as antecedents, mediated or moderated by Employee Engagement which influenced Firm/Business Performance.

Secondly, DTM was conceptualized as an "input-process-output system." The pattern of relationships reveals a distinctly organized structure inside this network. Input/Enabler factors (HR Analytics, E-HRM Infrastructure, Experiential E-HRM, Cognitive E-HRM, Utilization of Digital Technologies, Empowerment Capability, and Development Capability) suggesting that DTM was frequently perceived as significantly shaped by HR's digital competencies (Awadh Aljuaid, 2025). Process/Mechanism factors (Talent Management, Digital Transformation, Digital Leadership Competencies, Learning Organization, Entrepreneurial Orientation, and Strategic Resilience), which functioned as the "driving engine" (Mahroof et al., 2025; Montero Guerra & Danvila-Del Valle, 2024b; Priyanto et al., 2025; Yadav et al., 2024; Yadav & Rena, 2025; Zahoor et al., 2024). The Output/Outcomes factors (Employee Engagement, Firm Performance, Business Performance, Talent Retention, and Talent Attraction), with performance as the primary outcome, succeeded by associated talent outcomes (retention and attraction) (Awadh Aljuaid, 2025; Montero Guerra & Danvila-Del Valle, 2024b; Yadav et al., 2024; Yadav & Rena, 2025; Zahoor et al., 2024). The prevailing concept in prior research was the logic-based framework: digital capabilities that shape talent management practices determine the HR outcome and further impacts organizational outcomes.

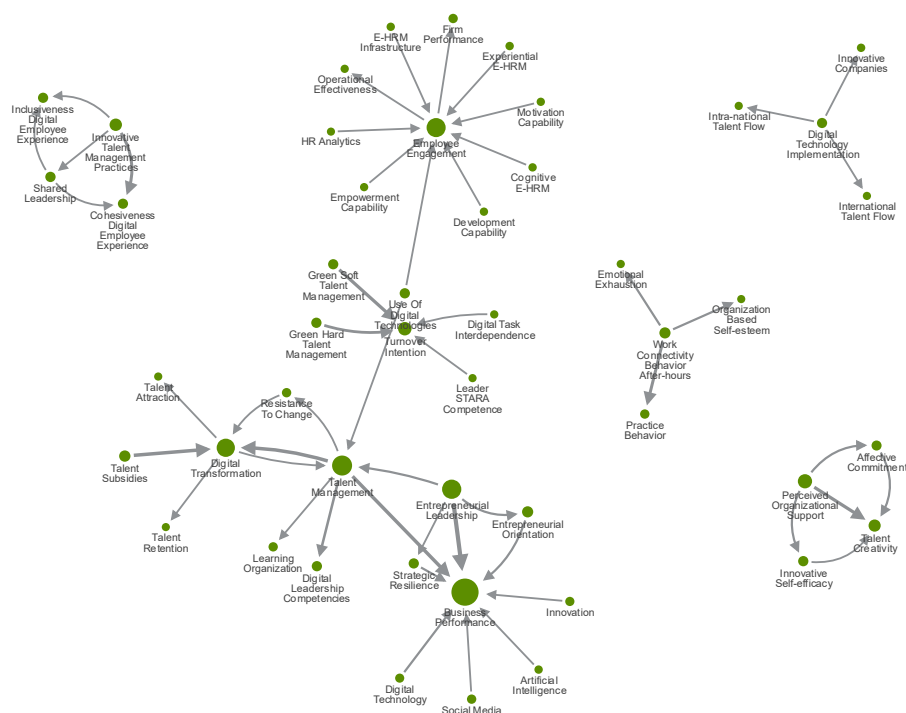
Third, the literatures tend to emphasize "performance-driven logic" rather than solely HR development. This occurs since Business Performance/Firm Performance emerged as the predominant result nodes. This also signifies that the DTM literatures remain significantly shaped by paradigms such as strategic HRM, the resource-based view approach, and performance management. Fourth, the predominant "talent outcomes" factors are Talent Retention, Talent Attraction, and Turnover Intention, whereas variables such as talent mobility, talent flow, and career sustainability are less represented. This means that the DTM

literatures remain quite limited in its definition of talent outcomes, mostly focusing on retention and recruitment.

Fifth, there existed isolated clusters (research fragmentation), sub-networks that are disconnected from the primary core. For instance: Cluster 1: Psychological/Behavioural (Emotional Exhaustion, Work Connectivity Behaviour After Hours, Practice Behaviour, Organization-based Self-esteem) indicates that the themes of well-being and digital overload remain relatively small Chu et al. (2024). Cluster 2: Green talent management (Green Hard Talent Management, Green Soft Talent Management, Turnover Intention) suggests that DTM and green HRM is still specialized and have not yet been incorporated into the fundamental DTM framework Ogbeibu et al. (2022). Cluster 3: Digital Talent Flow (Digital Technology Implementation, Intra-national Talent Flow, International Talent Flow) indicates that the theme of "talent mobility and migration" remains significantly constrained (Marchesani et al., 2023). Sixth, evidence suggests a predominant causal relationship characterized by a "mediation chain." Certain associations exhibit a consistent pattern indicating that prior research has predominantly utilized mediation models instead of straightforward direct effects.

Finally, the leadership variable is identified as a significant connection. We observed multiple clusters: Shared Leadership, Inclusive Digital Employee Experience, Cohesive Digital Employee Experience, and Innovative Talent Management Practices (Kumari et al., 2025). This suggests that leadership in the digital realm was not exclusively hierarchical, but rather oriented towards shared leadership, inclusive experiences, and cohesion. This signifies a transition in the DTM literatures towards an employee-centric digital experience.

The DTM literatures predominantly emphasize "performance" outcomes, in the internal organizational level, revealing a substantial gap as the DTM model inadequately encapsulated the ecosystem context. DTM studies primarily identified talent management and digital transformation as the principal strategic mechanisms linking HR digital capabilities (such as HR analytics and e-HRM) with organizational outcomes, including employee engagement and business performance, whereas themes of governance, quality, and collaborative ecosystems are comparatively peripheral and disjointed.



**Figure 3.** Variables Network.

Generated from Watase Uake Tools: <https://watase.web.id/> (Wahyudi, 2024)

This structural examination reveals that the Resource-Based View, the corpus's dominant anchor, was insufficient to support the field on its own due to the violation of its four boundary criteria. The RBV clarified the rent generation but did not address the rent capture when the resource is both human and mobile; hence, viewing turnover and retention as factors to minimize misconstrues mobility as a failure of management rather than as a sign that the firm does not possess the resource (Coff, 1997; Wright et al., 2014). The network's key precursors, including e-HRM infrastructure, HR analytics, and digital technology, were vendors-supplied and are proliferating quickly, and in line with RBV's rationale, they suggest uniformity instead of a competitive edge (J. B. Barney, 1986). RBV perceived the resource endowment as outside influence and did not provide language that crosses the firm boundary, which clarifies the separate talent flow cluster and the disproportionate assignment of results to managerial efforts when skill supply and institutional capability are limiting factors (Acemoglu & Autor, 2011). In conclusion, it did not incorporate a depreciation clause, even if skill obsolescence is fundamental to digital proficiency. Consequently, RBV should therefore be bounded explicitly and complemented by absorptive ability, the Job Demands-Resources model, institutional and ecological perspectives, along with sociomaterial analyzes of artificial intelligence (Adner, 2017; Orlikowski, 2007; Zahra & George, 2002).

Furthermore, we identified the variable paths and identified which key variables significantly impacted Business Performance (Table 6). Those variables are Entrepreneurial Leadership, Social Media, Digital Technology, Strategic Resilience, Entrepreneurial Orientation, Innovation, Talent Management (Yadav et al., 2024; Yadav & Rena, 2025), meanwhile Employee Engagement impacted firm performance (Awadh Aljuaid, 2025). However, while Digital Technology as general affects Business Performance, Artificial Intelligence in particular have not been demonstrated to directly influence Business Performance (Yadav & Rena, 2025).

**Table 6.** Key variables impacted business/firm performance

| No. | Independent Variables      | Dependent Variables  | Sig |
|-----|----------------------------|----------------------|-----|
| 1.  | Entrepreneurial Leadership | Business Performance | Yes |

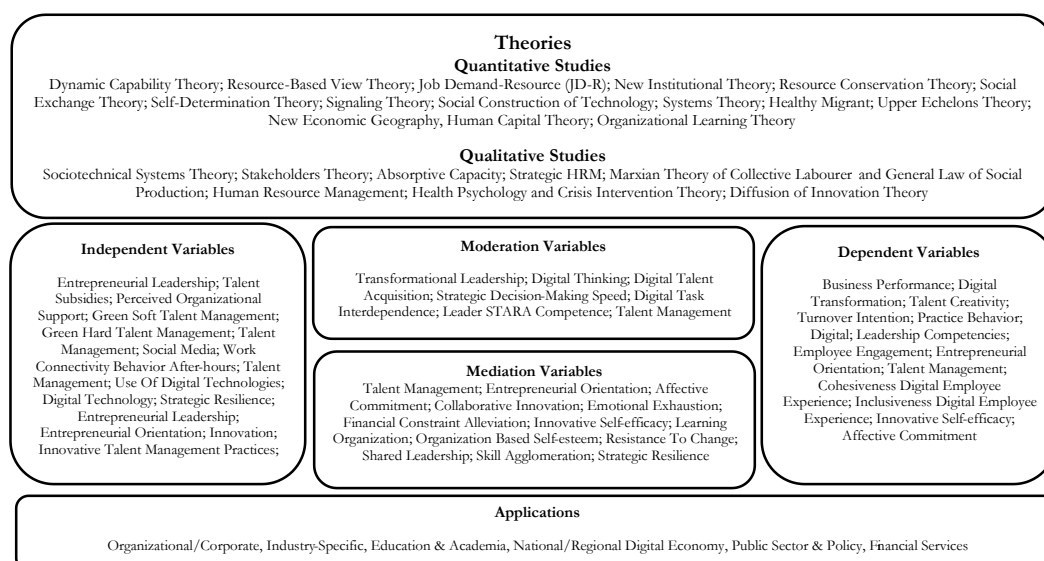
|    |                             |                      |     |
|----|-----------------------------|----------------------|-----|
| 2. | Social media                | Business Performance | Yes |
| 3. | Digital Technology          | Business Performance | Yes |
| 4. | Strategic Resilience        | Business Performance | Yes |
| 5. | Entrepreneurial Orientation | Business Performance | Yes |
| 6. | Innovation                  | Business Performance | Yes |
| 7. | Talent Management           | Business Performance | Yes |
| 8. | Artificial Intelligence     | Business Performance | No  |
| 9. | Employee Engagement         | Firm Performance     | Yes |

### 3.2.3.1. Research Frameworks

Figure 4 shows the research frameworks based on theories, variables and applications of the studies. Based on Figure 4, DTM research operated under two distinct theoretical ecosystems. Theories derived from quantitative studies underpin DTM as a measurable strategic asset, explaining the conversion of digital talent inputs into organizational performance and employee outcomes through motivation, resources, and institutional legitimacy. Meanwhile, qualitative studies defined DTM as a complex organizational transformation process, influenced by power dynamics, institutional pressures, stakeholder negotiations, and technological adoption mechanisms. The DTM literatures were not just interdisciplinary, they were methodologically polarized, producing two parallel narratives: one was aimed to measure impact (quantitative), the other was aimed to explain transformation (qualitative).

The antecedents clustered into four dominant drivers: (1) Leadership and strategic posture (Entrepreneurial Leadership, Entrepreneurial Orientation, Strategic Resilience); (2) Institutional and organizational support (Talent Subsidies, Perceived Organizational Support, Talent Management Practices); (3) Technology as an enabler (Use Of Digital Technologies, Digital Technology, Social Media, Work Connectivity Behaviour After-Hours); (4) Emerging sustainability logic (Green Soft Talent Management, Green Hard Talent Management). This suggests that the research constantly assumes DTM begins with corporate goal, institutional backing, and technology infrastructure, not talent scarcity. DTM was a strategic system, not an reactive HR response. The moderators variables clearly suggest DTM was not universally effective. Leadership cognition, digital work structure, and strategic agility affect it. The field becomes more contingency and dynamic capability-oriented. Meanwhile, the mediators variables showed that DTM was typically thought to influence results through two main mechanisms: capability-building, and psychological and transformation. This indicates that DTM research is maturing from descriptive HRM discussion to causal explanatory maturity.

Key outcomes include strategic transformation (Digital Transformation, Business Performance, Digital Leadership Competencies) and human sustainability (Turnover Intention, Employee Engagement, Employee Experience, Affective Commitment, Talent Creativity). This suggests DTM balanced performance and change without compromising



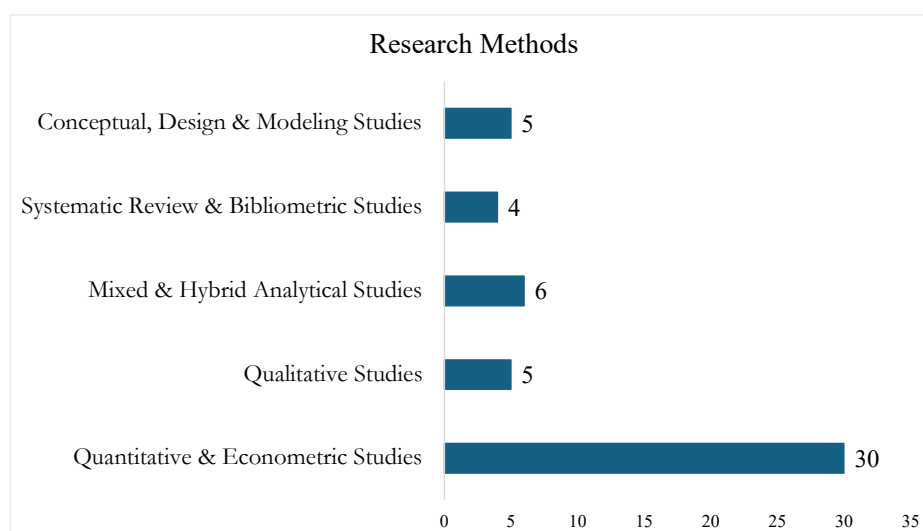
employee well-being and retention. There was an increasing awareness that digital transformation is a talent sustainability issue, not just a technology implementation issue. DTM was still mostly firm-centric, but not exclusively. It is entering macro-level and governance contexts, especially policy and regional/national reform agendas.

**Figure 4.** Studies frameworks

### 3.2.4. Methodology (M)

The methodologies employed in prior investigations were highly varied. Consequently, they were classified into five broad methodological categories. First category: Quantitative & Econometric Studies include quantitative survey, empirical analysis, experimental research, quasi-experimental DID, panel data econometric (FE, GLS, spatial Durbin), threshold regression methods. Second category is Qualitative Studies include qualitative, qualitative case study, grounded theory, exploratory interview study, secondary analysis of qualitative interviews. Third category: Mixed & Hybrid Analytical Studies comprises mixed methods, text mining & matrix construction, clustering analysis, panel VAR, comparative experimental design. Fourth category: Systematic Review & Bibliometric Studies includes Systematic Literature Review, synthesis review, bibliometric analysis, factor analysis, fuzzy comprehensive evaluation, predictive modelling (SARIMA, LSTM, RF). Last category is Conceptual, Design & Modelling studies includes conceptual perspective, viewpoint essay, design & development case study, Smart Education Optimization Model (SEOM), AHP–entropy–neural network models.

Figure 5 indicates that the quantitative method predominated the studies, comprising a substantial majority. Among the 51 studies reviewed, a minimum of 30 studies (59%) employed exclusively quantitative methodologies, including surveys, panel data analysis, and econometric models (Bai et al., 2024; Huang et al., 2023; Montero Guerra et al., 2023). Moreover, numerous studies employed mixed methodologies and qualitative techniques, including Systematic Literature Reviews (SLR), case studies, and interview analysis, as seen in the research conducted by Sukma & Yamnill (2025) and Papadonikolaki et al. (2025). The prevalence of quantitative methods suggests a propensity in this research domain to examine relationships between variables, assess policy effects, or empirically corroborate models utilizing extensive statistical data, as evidenced in numerous panel data studies derived from provincial or corporate data in China (Hua et al., 2025; X. Li et al., 2024).



**Figure 5.** Methods

A notable novel method is employing big data analysis and machine learning models to assess the digital talent ecosystem (Liang & Xing, 2024). Moreover, experimental methodologies were progressively employed to evaluate the efficacy of digital technology-driven talent training programs. The spatial analysis methodology is increasingly pertinent in

comprehending the effects of digital talent migration on industrial agglomeration which underscores the significance of digital economic policies in enhancing the beneficial effects of digital talent migration in China (Li & Chen, 2024a).

The qualitative approach is evolving by employing approaches such as in-depth interviews and focus group discussions to comprehend talent management strategies in the context of digitalization (Papadonikolaki et al. 2025). A notable trend is the incorporation of sophisticated technologies, like artificial intelligence (AI), blockchain, and augmented reality (AR), into personnel management processes (Huang et al. 2023; Griffith and Alpert, 2022; Dawson and Agbozo, 2024).

#### 3.2.4.1. Data Collection Techniques

The predominant data collection techniques were questionnaires/surveys (17 studies) and secondary data analysis (10 studies), succeeded by semi-structured interviews (4 studies) and literature reviews (3 studies) (Figure 6). Survey methodologies were extensively employed in quantitative research, exemplified by the studies conducted by Mahroof et al. (2025) and Ogbeibu et al. (2022), which gathered data through online or physical questionnaires to examine the relationships among variables utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM). Concurrently, secondary data analysis was frequently employed in studies utilizing panel data, exemplified by Huang et al. (2023), who leveraged official statistical data for spatial econometric analysis.

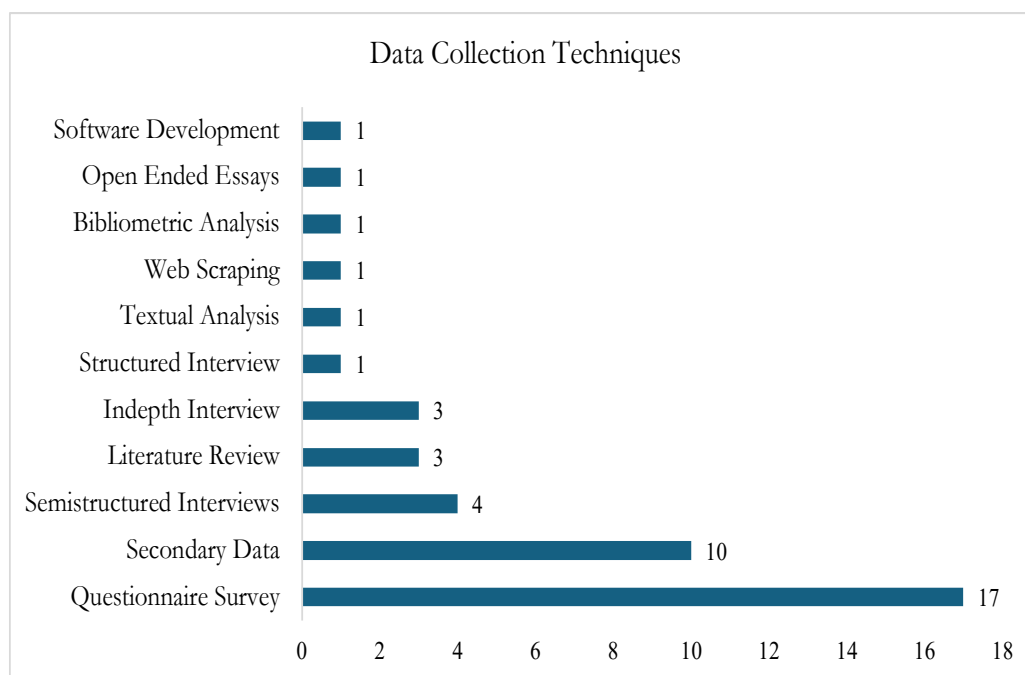


Figure 6. Data collection techniques

#### 3.2.4.2. Analysis Techniques

An examination of the analysis techniques in research pertaining to the DTM reveals the pre-eminence of the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique as the most prevalent approach (Awadh Aljuaid, 2025; Mahroof et al., 2025; Montero Guerra et al., 2023; Ogbeibu et al., 2022; Yadav et al., 2024; Yadav & Rena, 2025) followed by Thematic Analysis, Two-way Fixed Effects regression and Descriptive Statistics Analysis. PLS-SEM is favoured for its capacity to examine intricate associations among variables within tiny sample sizes or non-normally distributed data. This technique is frequently utilized alongside SmartPLS software, reflecting a trend towards employing accessible computational tools for multivariate analysis (Priyanto et al., 2025; Yadav et al., 2024).

Figure 7 shows a clear patterns on how digital management is being studied. First, there was a methodological concentration, a strong polarization at two poles. The two poles are dominant methods and a long tail of single use methods where more than 20 techniques appear only once. Second, PLS-SEM dominants signal theory-building and model testing. Third, there was strong qualitative foundation with thematic analysis, indicating that researchers are still exploring conceptual boundaries, and defining the concept of digital talent across context. Fourth, there was limited methodological replication where most quantitative technique appeared only once. Cumulative evidence was limited, findings may be context specific rather than generalizable. It is appeared the field lack methodological standardization. At last, advanced or mixed-method designs was underutilized, where there is rarity or absence of longitudinal design, robust causal inference methods, explicit mixed-methods integration, network analysis or ecosystem-level modelling.

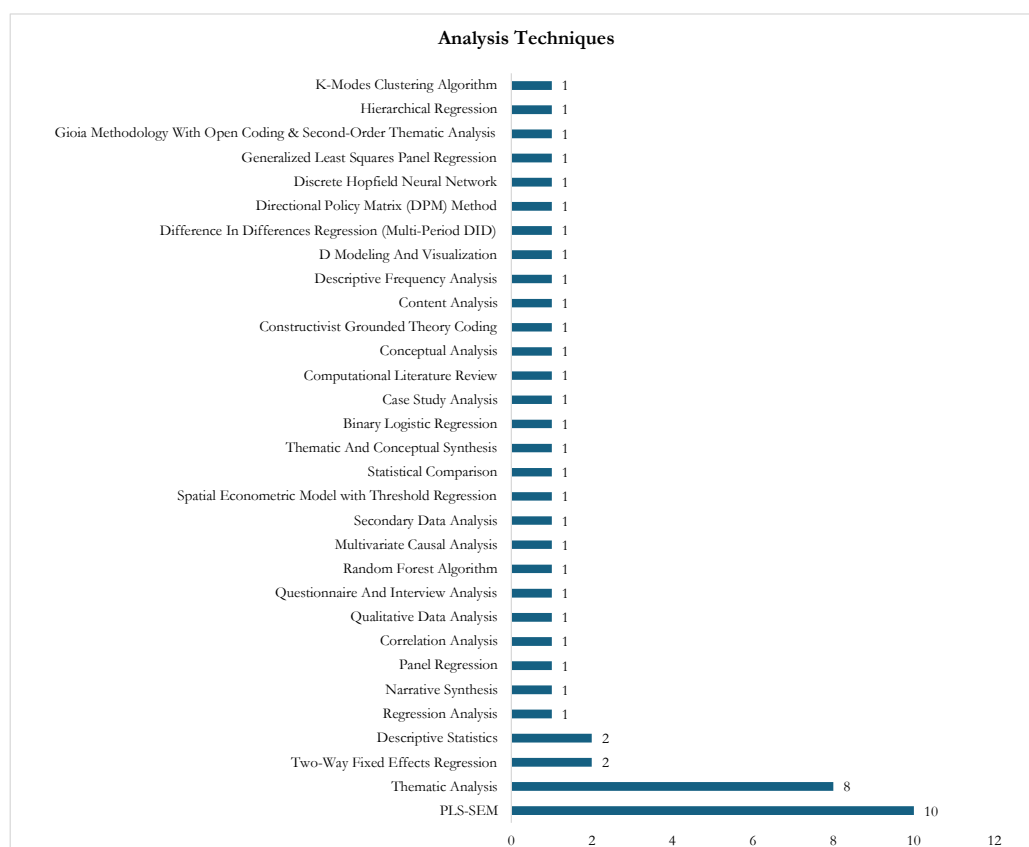


Figure 7. Analysis techniques

This study reviewed 51 Scopus-indexed literatures on digital talent management using TCCM framework, enabling the structured on the field's theoretical grounding, contextual focus, dominant constructs, and methodological trajectory (Page et al., 2021). The findings reveal that overall, the evidence suggests that DTM is swiftly expanding, although it remains anchored in an organizational/firm-centric, performance-driven paradigm, with limited integration of ecosystem governance, sustainability, and long-term dynamics. The RBV, the corpus's dominant theoretical anchor, cannot carry the field alone, as four of its boundary conditions are violated. Some key takeaways from the investigations are; First, there is a theoretical consolidation where DTM viewed as a Strategic Capability Discourse. The theoretical pattern of Resource-Based View, Dynamic Capabilities, Absorptive Capacity, and Upper Echelons Theory (J. Barney, 1991; Teece, 2007; Teece et al., 1997; Zahra & George, 2002) positions DTSM as strategic asset and capability building mechanism that enables organizations turn digital transformation into competitive advantage. In this view, digital talent is a significant resource embedded in organizational routines, learning processes, and strategies for transformation, not merely a workforce category.

However, while the theoretical convergence legitimizes DTM as a strategic management topic, it also signals a narrowing of theoretical diversity. Many studies used comparable strategic frameworks to justify why digital talent improves business performance without theoretical boundaries. DTM transitions from exploration toward confirmation, as RBV-based assumptions are regularly validated rather than rigorously challenged (Alvesson & Sandberg, 2011; Colquitt & Zapata-Phelan, 2007). Since theoretical originality was restricted despite increasing empirical output, the field faces conceptual stagnation.

On the contrary, theories with psychological and sociotechnical perspectives such as self-determination theory, Job Demand Resource model and Socio-Technical Systems Theory were not prevalent in mainstream DTM theorization. It suggests that human-centered mechanism like motivation, digital strain, and well-being are not yet central (Bakker & Demerouti, 2007; Deci & Ryan, 2000; Parker & Grote, 2022; Tarafdar et al., 2019). Since digital transformation is both strategic, technological, and a human sustainability issue, this disparity is of critical importance.

Secondly, there is a contextual concentration on the Organizational-Level and the Underdeveloped Ecosystem Perspective. The contextual mapping demonstrates that DTM research occurred primarily in organizational/corporate and industry-specific contexts, with public sector and policy-oriented contexts remain marginal (Vial, 2019; Warner & Wäger, 2019). This suggests that DTM is mostly seen as an internal organizational challenge that HR strategy, digital HR practices, and leadership initiatives may resolve. This organizational/corporate level dominance has made DTM more managerially relevant by tying it to company performance, organizational agility, and transformation success.

Nonetheless, this contextual concentration further uncovers a key conceptual contradictory: ecosystem-level forces including education systems, labor market institutions, regional innovation dynamics, digital infrastructure, and national policy interventions shape digital talent (Acemoglu & Autor, 2011; OECD, 2024). Yet these institutional variables were weakly included into mainstream DTM models. Thus, the literatures risk overestimating organizational influence over digital talent outcomes, especially in emerging economies where corporate strategy alone cannot address talent scarcity, skill mismatch, and institutional constraints.

Studies from China and other developed nations expand this gap. Such contexts provide important insights into digital transformation and macroeconomic innovation agendas, but the inadequate representation of developing nations limits the generalization of DTM model across institutional environments (Jackson & Deeg, 2008; Meyer & Peng, 2016; North, 1990; Scott, 2013). This necessitates comparative research on DTM under diverse government structures, labor market situations, and digital development stages. Most evidence implied that DTM research is advancing within organizations but not in ecosystem-level governance discourse. Future studies must include multi-actor collaboration encompassing government, academic institutions, and industry networks, especially in the context of national digital talent development agendas.

Third, the construct patterns and dominant logic is that DTM served as an Input-Process-Output System. The synthesis of key constructs and their interrelationships indicate that DTM studies were increasingly structured around an input-process-output causal logic (Becker, 1998; Jiang et al., 2012; Wright & McMahan, 1992). Across the reviewed literatures, technology-related capabilities and digital transformations emerged as antecedents; talent management and leadership capabilities function as mediating mechanism; and business performance and employee engagement are outcomes. The literatures have largely converged toward an instrumental understanding of DTM where digital capabilities and HR technologies are enabling resources, talent management as the strategic conversion mechanism, and performance is the ultimate validation of DTM effectiveness. Scholars are progressively explaining causal routes rather than descriptive narratives, indicating the field's empirical maturity.

However, the same trends also reveal a conceptual limitation. Performance-driven assumptions dominate DTM. The major endpoint is business performance (Aust et al., 2020; Ehnert & Ehnert, 2009; Kira & Eijnatten, 2008; Mariappanadar, 2012), and broader talent outcomes such as long-term employability, talent mobility, career sustainability, and workforce resilience are underdeveloped. This demonstrates that DTM research still conceptualized talent outcomes on attraction, retention, and turnover intention without adequately addressing how digital talent grows throughout lifespan trajectories and dynamic labor markets.

Network investigation additionally displays fragmented clusters relating to psychological strain, green talent management (Renwick et al., 2013), and digital talent mobility (Collings et al., 2011; Renwick et al., 2013; Tarique & Schuler, 2010) which are loosely connected to the performance-oriented core. Due to this fragmentation, emerging subjects like well-being, sustainability, and migration dynamics are still considered as subtopics rather than integrated DTM knowledge components. A holistic construct architecture that combines human sustainability and ecosystem mobility into mainstream DTM models needs to be developed.

Fourth, another finding from the investigations showed that AI paradox appeared, where there is high conceptual visibility yet limited empirical validation. AI, big data analytics, and machine learning are increasingly seen as revolutionary talent management transformative drivers in the reviewed literature. However, AI related constructs are weakly validated as direct business success predictors despite their conceptual accessibility (Kellogg et al., 2020; Marler & Boudreau, 2017; Raisch & Krakowski, 2021; Tursunbayeva et al., 2022)

This highlights “AI paradox” in DTM literatures: AI is often positioned as a disruptive enabler of talent acquisition, digital HR decision-making, and workforce analytics, while empirical studies have not consistently demonstrated its performance impact. A possible explanation is that AI deployment alone may not provide value without complementary capabilities like employee readiness, organizational learning, ethical governance, and strategic integration (Leonardi, n.d.; Orlikowski, 2000). Another reason is AI is typically considered as a general digital tool rather than a socio-technical system with algorithmic decision-making, trust, transparency, and fairness issues it its extensive operationalization.

Consequently, DTM studies must advance beyond symbolic AI treatment towards precise conceptualization and measurement. Future studies should include AI’s institutional and ethical effects on workforce design, employee experience, and organizational legitimacy. As algorithmic talent management system increasingly affects recruiting, performance appraisal, and career mobility, bias, transparency, and human-centered governance become crucial (Leicht-Deobald et al., 2022; Meijerink & Bondarouk, 2023).

Fifth, there was a methodological evolution where quantitative research was dominant, yet causal inference and replication were limited. The evidence shows that DTM research was increasingly dominated by quantitative and econometric designs, especially survey-based PLS-SEM and panel-data-based regression investigations. DTM studies are maturing from conceptual investigation toward explanatory maturity as it focuses more on hypothesis testing and causal modeling. However, methodological focus highlights structural shortcomings The DTM’s causal inference was limited by cross-sectional surveys and single-wave statistical models (Antonakis et al., 2010; Podsakoff et al., 2003). Many studies claim performance impacts of DTM practices, yet the predominance of correlational designs restricts confidence in whether DTM drives performance improvements or merely co-occurs with broader transformation readiness.

The “long tail” of one-off methods shows methodological replication and standardization are lacking in this field (Aguinis et al., 2018; Bergh et al., 2017; Collaboration, 2015). Without recurrent model testing across contexts, cumulative evidence is fragmented and context specific. This inhibits the field’s ability to develop universal principles or prediction frameworks. Longitudinal, experimental interventions and integrated mixed method which considered as advanced design remain underutilized. Temporal and process-based

methodologies to capture time-lagged effects and sustainability outcomes must be prioritized in the future research since DTM is dynamic, affected by technological and skill demands changes, and long-term transformation processes.

Finally, based on TCCM findings, this review signifies DTM in a transitional stage from organizational-centric models toward collaborative ecosystem frameworks. The dominant capability-base theories and quantitative hypothesis testing suggested a coherent strategic-performance logic. However, its conceptual rigidity makes business performance the major story and ecosystem-level governance optional. Future research should broaden the field's conceptual boundaries rather than provide incremental models linking digital practices to business performance. It must also build integrated multi-level frameworks that define how organization and societal systems produce, control, mobilize and sustain digital talent. Transformation to solve digital skill scarcity, talent migration, ethical AI governance, and sustainable workforce is necessary.

The analysis suggests rethinking DTM as a strategic collaborative system rooted in innovation ecosystems as opposed to an HR strategy. This reconceptualization would assist DTM studies transition from performance-driven managerialism to a more comprehensive view of digital talent as a strategic resource and social development challenge (Delery & Roumpi, 2017; Pfeffer, 2010; Van der Heijden et al., 2020).

This review suggests policy and managerial implications. First, since this review finds DTM evidence was predominantly centered on firms, whereas skill development is regulated at the ecosystem level, so conclusions from organizational research cannot be directly applied to national policy. Government entities and local educational institutions should be regarded as co-producers within a multi-actor framework instead of as external participants, reflecting the transition from organization-centric to collaborative ecosystem models mentioned before. Given that the domain construes talent outcomes in a limited manner as attraction, retention, and turnover, policy metrics in emerging economies ought to encompass employability, mobility, and career sustainability throughout the labor market. Considering the restricted causal inference outlined in this research, such initiatives require phased piloting accompanied by longitudinal assessment instead of instant expansion.

Second, for managerial implications, the input-process-output framework delineated in this review serves as the management directive: the conversion mechanism is capability, rather than technology. For small and medium enterprises with limited resources, this requires the development of managerial and engagement skills prior to investing in digital HR systems, a progression supported by the AI paradox outlined here, which indicated that digital investments generate performance benefits only when coupled with employee preparedness, organizational learning, and governance. This review indicates that performance-oriented reasoning has overshadowed human sustainability in the context of soft and hard practices, and there was no corroborated evidence endorsing any weighting. In sectors with substantial employee turnover, engagement and strain ought to be regarded as limiting factors that restrict the use of stringent digital measures, rather than as opposing goals.

#### 4. Conclusion

The studies suggest that digital talent management has emerged as a strategic capability discourse. Nevertheless, the field remains to be entangled in a repetitive performance-centric paradigm driven by Resource-Based View causal modelling. Evidence indicates that DTM studies has predominantly overlooked the institutional, ethical, and sustainability tensions inherent in shaping digital workforce transformation, leading to under-theorized and empirically fragmented ecosystem governance and human sustainability.

There are several limitations to this review which should be acknowledged. First, there is database coverage and indexing limitations where only Scopus was used, potentially excluding other relevant studies. Second, the study only included peer-reviewed journal articles and excluded conference proceedings and other forms of grey literatures. This may have

constrained the inclusion of emerging industry practices, especially in this rapidly changing domain. Finally, with the swift evolutions of digital technologies and labor market, the findings should be interpreted as a snapshot of the current state of knowledge rather than a definitive description of the future trajectory of the field. A clear move from firm-specific forecasting models towards broader multi-level models which explain how digital talent is governed, sustained, and mobilized across organizations, sectors, and national innovation systems is necessary to progress the area.

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### Disclosure of the Use of AI Technologies

During the preparation of this work, the author(s) used Scite.ai to assist with literatures search and Quill Bot to improve readability and language. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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