


Evolution of Employee Engagement Research in Digital Era : Bibliometric Study

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Article Info	ABSTRACT
<p>Article history:</p> <p>Received March, 2025 Revised March, 2025 Accepted March, 2025</p>	<p>This study explores the evolution of employee engagement research in the digital era through a comprehensive bibliometric analysis. Drawing on data exclusively from the Scopus database and analyzed using VOSviewer, the research maps publication trends, thematic developments, influential authors, and international collaboration networks from 2000 to 2024. The findings reveal that “employee engagement” is increasingly intertwined with “digital transformation” and “human resource management,” reflecting a shift toward digitally mediated workplace dynamics. Key thematic clusters include psychological engagement, digital communication tools, performance management, and emerging technologies such as AI and machine learning. Temporal and density visualizations highlight a growing focus on remote work, resource allocation, and digital well-being. Co-authorship and country collaboration maps underscore the multidisciplinary and global nature of the field, with significant contributions from countries like India, the United States, and the United Kingdom. This study not only synthesizes the current intellectual structure of employee engagement research but also identifies future directions and theoretical gaps, offering valuable insights for scholars and practitioners navigating workforce engagement in an increasingly digital world.</p>
<p>Keywords:</p> <p>Employee Engagement; Digital Transformation; Bibliometric Analysis; VOSviewer</p>	
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1. INTRODUCTION

Employee engagement has emerged as a crucial factor influencing organizational performance, productivity, and employee well-being. Over the years, scholars have examined various dimensions of employee engagement, including psychological, behavioral, and organizational perspectives [1]. Traditional engagement theories primarily focused on motivation, job satisfaction, and organizational commitment

as key drivers of workforce engagement. However, as organizations transition into the digital era, technological advancements have significantly altered the way employees interact, communicate, and perform their tasks [2]. Digital transformation has introduced new variables that impact employee engagement, such as remote working, artificial intelligence (AI)-driven decision-making, and digital collaboration tools [3].

The rise of digital platforms and remote work arrangements has reshaped conventional employee engagement models. Organizations now rely on digital tools such as Slack, Microsoft Teams, and Zoom to foster collaboration and maintain engagement among employees. Additionally, social media and enterprise social networks have provided new ways for employees to voice their opinions, seek feedback, and engage in organizational decision-making processes [4]. While these tools have enhanced connectivity, they have also introduced challenges such as digital fatigue, work-life balance concerns, and potential disengagement due to information overload [5]. Understanding how these digital elements influence engagement is critical for organizations aiming to maintain a motivated and productive workforce in the digital era.

Employee engagement research has evolved significantly due to changes in workplace dynamics, workforce demographics, and emerging technologies. The traditional notion of engagement as a one-dimensional construct has expanded to include emotional, cognitive, and behavioral engagement [6]. Moreover, generational shifts in the workforce, particularly the increasing presence of Millennials and Generation Z, have driven new expectations regarding workplace flexibility, digitalization, and continuous feedback mechanisms [7]. These generational factors, combined with rapid technological advancements, require a reevaluation of employee engagement frameworks to ensure their relevance in contemporary work settings.

Despite the growing emphasis on digital engagement strategies, organizations continue to struggle with maintaining high levels of employee engagement. Studies have highlighted a paradox where digital technologies can both enhance and hinder engagement depending on their implementation and usage [8]. For instance, while digital platforms facilitate collaboration and knowledge-sharing, excessive reliance on them without clear engagement strategies may lead to employee alienation and burnout

[9]. Consequently, there is a need for a systematic bibliometric analysis to understand how research on employee engagement has evolved in the digital era and identify key trends, gaps, and future directions in the field.

Bibliometric studies have gained prominence as a robust methodology for mapping the intellectual landscape of research fields [10]. By analyzing publication trends, citation networks, and co-authorship patterns, bibliometric analyses provide valuable insights into the development and evolution of scholarly discourse. Given the increasing volume of research on employee engagement, a bibliometric study can help synthesize existing knowledge, highlight influential studies, and identify emerging research areas. This approach is particularly relevant in the digital era, where rapid technological advancements necessitate continuous adaptation of engagement theories and practices [11].

While substantial research has been conducted on employee engagement, there is a lack of comprehensive bibliometric studies that analyze its evolution in the context of digital transformation. Existing literature primarily focuses on theoretical models and empirical studies that examine engagement drivers and outcomes in traditional work environments [12]. However, with the proliferation of digital technologies, the nature of engagement has changed significantly, requiring a reassessment of prevailing theories and research trends. This gap necessitates a bibliometric study that systematically evaluates the evolution of employee engagement research, identifies key scholarly contributions, and maps future research directions in the digital era. This study aims to conduct a bibliometric analysis of employee engagement research to explore its evolution in the digital era.

Theoretical Foundations of Employee Engagement

Employee engagement is rooted in several psychological and organizational theories that have shaped its conceptualization over time. One of the

earliest and most influential frameworks is the Job Demands-Resources (JD-R) model, which explains engagement as a function of job resources and job demands [13]. According to this model, job resources such as autonomy, feedback, and career development opportunities enhance engagement, while excessive job demands may lead to burnout and disengagement [14]. Another key theory is personal engagement model, which posits that employees engage in their roles when they experience psychological meaningfulness, safety, and availability. These theories provide a foundation for understanding how engagement is influenced by individual and organizational factors. [15] further extended the theoretical understanding of engagement by distinguishing between trait, state, and behavioral engagement. Trait engagement refers to personality characteristics that predispose individuals to be engaged, state engagement refers to momentary experiences of involvement and enthusiasm, and behavioral engagement captures actions such as discretionary effort and proactive behavior. These frameworks highlight the multidimensional nature of engagement and set the stage for examining how digital transformation affects engagement dynamics.

Evolution of Employee Engagement Research

The study of employee engagement has evolved significantly over the past few decades. Early research primarily focused on job satisfaction, motivation, and organizational commitment as proxies for engagement [16]. As the field matured, engagement became recognized as a distinct construct that encompasses emotional, cognitive, and behavioral components [17]. Over time, researchers began investigating the antecedents and outcomes of engagement, leading to a proliferation of empirical studies exploring factors such as leadership, workplace culture, and employee well-being [18]. With the rise of digital transformation, new dimensions of engagement have emerged, including virtual engagement, digital collaboration, and remote work dynamics [19]. Organizations are increasingly

leveraging digital tools to facilitate engagement, yet challenges such as digital fatigue, work-life balance issues, and decreased face-to-face interactions have surfaced [20]. As a result, contemporary engagement research must account for both the benefits and drawbacks of digitalization in the workplace.

Impact of Digital Transformation on Employee Engagement

Digital transformation has profoundly reshaped how employees engage with their work, colleagues, and organizations. The integration of artificial intelligence (AI), automation, and big data analytics has altered job roles and required employees to develop new skills to remain engaged [21]. Digital platforms such as Slack, Microsoft Teams, and Zoom have enabled seamless communication and collaboration, but they have also introduced new stressors, such as constant connectivity and information overload [22]. Remote work, accelerated by the COVID-19 pandemic, has further transformed engagement dynamics. Studies indicate that while remote work enhances flexibility and autonomy, it may also lead to social isolation and decreased sense of belonging [23]. Additionally, the blurred boundaries between work and personal life in a digital environment can contribute to burnout, negatively impacting engagement levels [24]. These findings suggest that organizations must adopt balanced digital strategies to maintain optimal engagement levels among employees.

2. METHODS

This study employs a bibliometric analysis to examine the evolution of employee engagement research in the digital era. Bibliometric methods, including citation analysis, co-authorship analysis, and keyword co-occurrence analysis, will be used to identify key trends, influential authors, and emerging research themes. Data will be collected exclusively from the Scopus database, focusing on peer-reviewed journal articles published over the past two decades.

The analysis will be conducted using the bibliometric tool VOSviewer to visualize networks of research collaboration and thematic clusters.

3. RESULTS AND DISCUSSION

3.1 Keyword Co-Occurrence Network Visualization

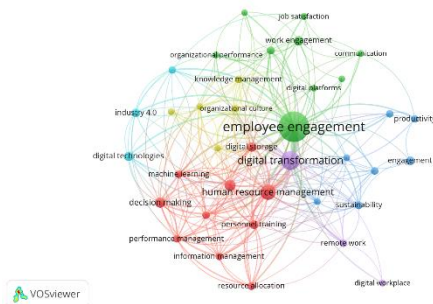


Figure 1. Network Visualization

Source: Data Analysis, 2025

The visualization illustrates a keyword co-occurrence network in the field of employee engagement research within the context of digital transformation. At the center of the network, "employee engagement" is the most prominent and frequently occurring keyword, signifying its central role in the literature. Closely connected terms such as "digital transformation" and "human resource management" reflect the growing importance of digital contexts and HR strategies in shaping engagement practices. The thickness of the connecting lines indicates strong relationships between these concepts, suggesting that modern engagement is heavily influenced by how organizations manage human resources amidst rapid technological changes.

The network is divided into several color-coded clusters, each representing a thematic grouping of related terms. The green cluster includes keywords like work engagement, job satisfaction, digital platforms, and communication, indicating a strong focus on psychological and relational aspects of employee engagement. This cluster reflects research on how digital tools facilitate or hinder interpersonal dynamics, motivation, and the overall employee experience. It suggests that scholars are increasingly

interested in how digital communication and satisfaction levels interact to influence engagement outcomes. The red cluster is anchored by terms like human resource management, performance management, decision making, and information management. This group indicates a managerial and operational perspective on employee engagement, where the emphasis is on aligning HR processes and decision-making systems with engagement goals. Notably, the presence of machine learning and digital technologies suggests that automated and intelligent systems are being integrated into HR practices, creating both opportunities and challenges in managing employee engagement effectively.

Meanwhile, the blue cluster focuses on broader organizational and strategic terms such as sustainability, productivity, engagement, and remote work. This cluster reflects a macro-level interest in how digital transformation influences overall organizational performance and the sustainability of engagement strategies in increasingly virtual and hybrid work environments. The inclusion of digital workplace and remote work signals an ongoing shift in how scholars and practitioners view the boundaries of work and the factors that sustain engagement outside traditional office spaces. The yellow and purple clusters bridge the core themes with emerging and specialized areas. Terms like organizational culture, knowledge management, and industry 4.0 highlight an integrative approach that combines technological, cultural, and informational elements. These clusters suggest that engagement is no longer just a matter of individual motivation or HR practice but is deeply embedded in broader organizational transformations.

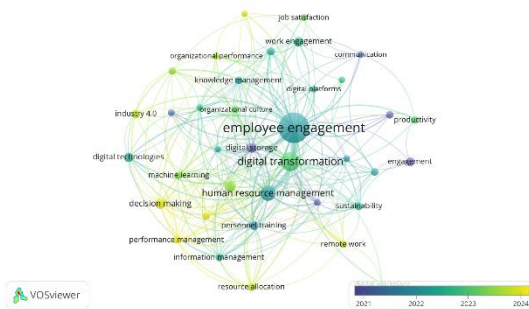


Figure 2. Overlay Visualization
Source: Data Analysis, 2025

This overlay visualization presents a temporal analysis of keyword co-occurrence in employee engagement research, highlighting the evolution of topics from 2021 to 2024. The color gradient—ranging from dark blue (older research focus) to yellow (newer research focus)—shows the shifting interest of scholars over time. Central terms such as “employee engagement,” “digital transformation,” and “human resource management” are shown in teal to green, indicating their consistent relevance and development over the mid-range of the timeframe. These core topics have formed the backbone of research across the years and remain highly interconnected with both earlier and more recent keywords.

Newer topics, shown in bright yellow, suggest emerging trends and research frontiers. For instance, “remote work,” “resource allocation,” and “performance management” appear in yellow, indicating increased scholarly interest in these areas, particularly post-2022. This aligns with the growing influence of hybrid work environments and the need to reevaluate how performance and resources are managed in digitally enabled workplaces. “Personnel training” and “decision making” also appear more recent, suggesting a focus on equipping employees with skills and frameworks for navigating digital transformation effectively. These trends reflect how organizations are adapting engagement strategies to evolving technological and structural changes.

On the other hand, keywords shown in blue to purple, such as “productivity,” “engagement,” and “sustainability,” represent topics that were more prominent

earlier in the analyzed period but have since received relatively less attention. Their earlier emergence likely reflects the initial responses to digital adaptation strategies at the onset of widespread remote work and the digital pivot. This shifting focus reveals that while foundational themes remain important, the literature is evolving toward more nuanced and operational aspects of engagement in the digital workplace.

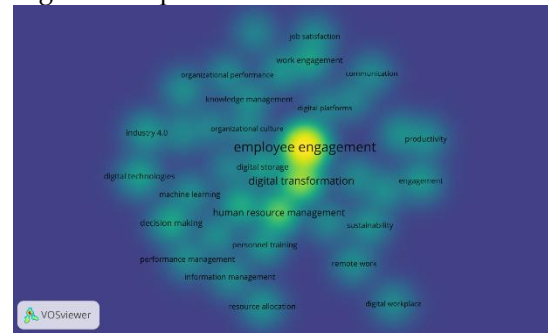


Figure 3. Density Visualization
Source: Data Analysis, 2025

This heatmap visualization highlights the intensity of keyword occurrences and their co-occurrences within employee engagement research. The yellow areas indicate the highest concentration of keyword usage, suggesting major focal points in the literature. Clearly, “employee engagement”, “digital transformation”, and “human resource management” are the most dominant themes, forming the core of current scholarly discussions. Their central positions and brightness on the map show that these topics are not only frequently mentioned but also serve as connecting hubs for a wide range of related concepts in the field. Surrounding this bright core are medium-to-low intensity regions in green and blue, such as “machine learning,” “industry 4.0,” “communication,” “remote work,” and “digital workplace.” These areas reflect emerging or supporting themes that, while less dominant, still play a significant role in shaping the broader narrative. Their distribution across the map suggests that employee engagement is being increasingly contextualized within digital innovation, organizational strategy, and workplace design.

3.2 Co-Authorship Network Visualization

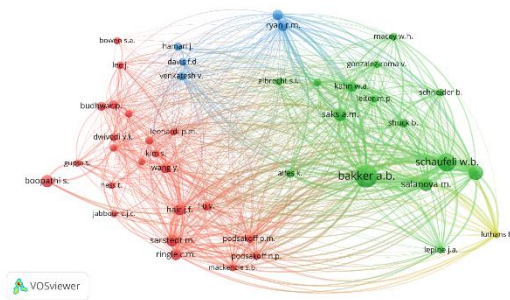


Figure 4. Author Visualization

Source: Data Analysis, 2025

This co-authorship network visualization illustrates the structure of scholarly collaboration in the field of employee engagement research. The nodes represent individual authors, with the size of each node indicating the author's publication volume and influence, while the lines (edges) show the strength and frequency of co-authorship links. Prominent authors like Schaufeli W.B., Bakker A.B., and Saks A.M. appear as central figures in the green cluster, indicating their foundational role in shaping the engagement discourse, particularly from a psychological and organizational behavior perspective. The red cluster, featuring authors such as Hair J.F., Ringle C.M., and Budhwar P., suggests a strong focus on management, methodological contributions, and digital transformation themes. Meanwhile, the blue cluster, with authors like Ryan R.M. and Venkatesh V., seems to center around motivational theory and technology acceptance models.

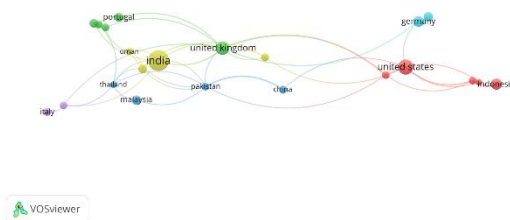


Figure 5. Country Visualization

Source: Data Analysis, 2025

This country collaboration map visualizes international research partnerships in the field of employee engagement. The size of each node reflects the volume of publications from that country, while the

thickness of the connecting lines indicates the strength of collaboration. India, United States, and United Kingdom emerge as central hubs with extensive connections, suggesting that they are key contributors and active collaborators in global engagement research. India, in particular, appears prominently, indicating its rising influence in this domain, especially in partnership with countries such as Oman, Malaysia, and the UK. The United States also shows strong bilateral ties with Indonesia and Germany, highlighting its role in bridging research between the West and Southeast Asia.

DISCUSSION

The findings from the bibliometric analysis offer a comprehensive overview of how employee engagement research has evolved in the digital era, highlighting key themes, influential contributors, and emerging trends. The central positioning of "employee engagement" alongside terms like "digital transformation" and "human resource management" suggests a deep interconnection between traditional engagement constructs and contemporary technological and organizational changes. As the digital era unfolds, employee engagement is no longer perceived solely as a matter of individual motivation or managerial practice but as a multifaceted construct influenced by digital tools, cultural dynamics, and organizational strategies.

The keyword co-occurrence network reveals several thematic clusters that define the intellectual structure of the field. One of the most prominent clusters involves psychological and relational dimensions of engagement, as reflected in terms like "job satisfaction," "work engagement," "communication," and "digital platforms." These findings indicate that despite technological advancements, human-centric aspects of engagement remain critically important. Digital tools may facilitate communication and collaboration, but their effectiveness is deeply rooted in how they support psychological safety, autonomy, and meaningful interaction within teams.

Another major cluster emphasizes the managerial and strategic components of engagement, encompassing keywords such as "performance management," "decision making," "personnel training," and "information management." These concepts reflect an organizational-level focus where employee engagement is tied to broader strategic goals, including productivity and digital adaptation. With the growing integration of AI and data-driven decision-making tools, HR managers are increasingly adopting evidence-based approaches to drive engagement. The presence of terms like "machine learning" and "digital technologies" in this cluster suggests that researchers are exploring the intersection between technology and workforce engagement practices.

The overlay visualization further supports the evolution of the research field by illustrating temporal trends. It shows that newer topics such as "remote work," "resource allocation," and "performance management" have gained attention in more recent years, particularly after the global shift to remote and hybrid work models due to the COVID-19 pandemic. This shift has not only accelerated digital transformation but also forced organizations to rethink engagement strategies in virtual environments. The emerging focus on resource management and virtual productivity reflects an adaptive response to the challenges of maintaining employee morale and connection in decentralized work settings.

In contrast, terms like "productivity," "engagement," and "sustainability" appeared more frequently in earlier stages of the reviewed period, indicating a foundational concern with aligning engagement efforts with organizational effectiveness. This temporal evolution demonstrates that while core concerns remain consistent, the emphasis is gradually shifting toward more nuanced and technologically integrated aspects of engagement. This suggests a maturing field that is progressively integrating digital complexity into its theoretical and practical frameworks.

The heatmap visualization confirms the dominance of certain keywords, with "employee engagement," "digital transformation," and "human resource management" appearing in the highest density areas. These are the thematic anchors around which the rest of the research field is organized. The clustering of medium-intensity keywords such as "machine learning," "organizational performance," and "industry 4.0" around these core themes indicates a trend toward interdisciplinary convergence. It reflects how employee engagement is increasingly studied not just from a behavioral or managerial lens but also from the perspective of innovation management, industrial engineering, and digital ecosystems.

The co-authorship network provides valuable insight into the scholarly structure of the field. Prominent scholars such as Schaufeli W.B., Bakker A.B., and Saks A.M. form a dense, interconnected core, particularly in the green cluster associated with psychological foundations of engagement. These authors have laid the groundwork for contemporary engagement theory, focusing on constructs such as burnout, work engagement, and organizational behavior. Their interconnectedness indicates a high level of collaboration and scholarly dialogue, reinforcing their influence on the field's conceptual development.

Other clusters, such as the red group led by authors like Hair J.F., Ringle C.M., and Budhwar P., appear to focus more on quantitative methodologies, structural equation modeling, and digital transformation themes within management research. Their methodological contributions have enabled robust testing of engagement-related hypotheses, particularly in tech-driven contexts. The presence of diverse clusters with varying disciplinary orientations confirms the multidisciplinary nature of employee engagement research. It bridges psychology, organizational studies, information systems, and management science.

The country collaboration network further underscores the global nature of employee engagement research. India, the United States, and the United Kingdom emerge as central players with significant international collaborations. India's prominent role, particularly in partnerships with Oman, Malaysia, and the UK, suggests an increasing contribution from emerging economies in shaping engagement discourse. The United States also plays a crucial role as a collaborative hub, facilitating research across Western and Asian contexts. This geographic diversity enhances the field's applicability, offering culturally varied insights into engagement strategies and outcomes.

The rise of countries like Indonesia, Pakistan, and Portugal in the collaboration network indicates a democratization of research, where engagement scholarship is no longer limited to traditionally dominant Western nations. These developments reflect broader trends in global academia, where knowledge production is becoming more inclusive and responsive to diverse labor market conditions and organizational cultures. Cross-national research efforts are especially important in studying employee engagement in the digital era, as technological adoption and workplace norms vary significantly across regions.

Taken together, the bibliometric findings highlight several key implications for future research and practice. First, there is a need to further explore how digital tools influence the psychological components of engagement. While digital transformation offers new means of connection and flexibility, it can also lead to challenges such as digital fatigue, blurred boundaries, and decreased team cohesion. Future research should investigate how digital work environments can be designed to support well-being and sustainable engagement, particularly through leadership, organizational culture, and digital well-being initiatives. Second, the integration of advanced technologies like AI, big data, and machine learning into HR practices presents both opportunities and ethical considerations.

As organizations increasingly rely on predictive analytics to assess engagement levels and guide management decisions, issues related to transparency, bias, and employee autonomy must be addressed. Scholars and practitioners alike should consider how to balance efficiency with empathy in tech-driven engagement strategies. Third, generational and cultural differences in digital engagement warrant deeper examination. The expectations and behaviors of digital-native employees (Millennials and Gen Z) differ significantly from those of earlier generations. Similarly, engagement practices that are effective in one cultural context may not translate directly to another. Future research should adopt a more contextualized approach, considering demographic, regional, and sectoral variations to develop more inclusive engagement frameworks. Lastly, bibliometric methods themselves offer a valuable lens for continuous monitoring of research evolution. This study demonstrates the usefulness of tools like VOSviewer in mapping the intellectual landscape, identifying knowledge gaps, and guiding scholarly discourse. By periodically conducting similar analyses, researchers can track how the field adapts to emerging challenges and opportunities, ensuring that employee engagement research remains dynamic and relevant in an ever-changing digital world.

4. CONCLUSION

In conclusion, employee engagement research in the digital era is characterized by interdisciplinary growth, global collaboration, and evolving thematic complexity. While foundational theories remain vital, the integration of digital technologies and new workplace paradigms is reshaping how engagement is conceptualized and practiced. Acknowledging these shifts and addressing the emerging gaps will be essential for scholars, managers, and policymakers seeking to foster meaningful and sustainable employee engagement in the 21st century.

REFERENCES

- [1] J. R. Burnett and T. C. Lisk, "The future of employee engagement: Real-time monitoring and digital tools for engaging a workforce," in *International perspectives on employee engagement*, Routledge, 2021, pp. 117–128.
- [2] B. K. Goswami and Y. Upadhyay, "An empirical study on digital transformation and its impact on employee engagement," in *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*, 2019.
- [3] A. J. Chan, L. W. Hooi, and K. S. Ngui, "Do digital literacies matter in employee engagement in digitalised workplace?," *J. Asia Bus. Stud.*, vol. 15, no. 3, pp. 523–540, 2021.
- [4] E. O. Gasparovich, E. V Uskova, and E. V Dongauzer, "The impact of digitalization on employee engagement," in *Digital Economy and the New Labor Market: Jobs, Competences and Innovative HR Technologies*, Springer, 2021, pp. 143–150.
- [5] S. Winasis, S. Riyanto, and E. Ariyanto, "Digital transformation in the Indonesian banking industry: Impact on employee engagement," *Int. J. Innov. Creat. Chang.*, vol. 12, no. 4, pp. 528–543, 2020.
- [6] Y. Singh and H. Atwal, "Digital culture—a hurdle or a catalyst in employee engagement," *Int. J. Manag. Stud.*, vol. 6, no. 1/8, pp. 54–60, 2019.
- [7] K. Srinivas and S. Yasmeen, "A study on employee engagement in small and medium enterprises in digital economy," *Millenn. Work. Contempl. Hyderabad Zenon Acad. Publ.*, vol. 6, no. 2, pp. 57–64, 2017.
- [8] J. L. Nikolić, "The impact of digital technologies on employee engagement: Case study of company 'A' in Serbia," *Eur. J. Appl. Econ.*, vol. 20, no. 2, pp. 29–40, 2023.
- [9] I. S. Nusannas, T. Yuniarsih, J. Sojanah, D. Mutmainnah, M. Rahayu, and S. Imbari, "The effect of self-efficacy and employee engagement on employee performance in mediation by digital literation," *Enrich. J. Manag.*, vol. 11, no. 1, November, pp. 63–67, 2020.
- [10] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *J. Bus. Res.*, vol. 133, pp. 285–296, 2021.
- [11] D. Lager and E. Milojkovic, "Digitalization and the renewal of employee engagement surveys," 2018.
- [12] L. Stofberg, A. Strasheim, and E. Koekemoer, "Digitalisation in the workplace: the role of technology on employee engagement and creativity teams," in *Agile coping in the digital workplace: Emerging issues for research and practice*, Springer, 2021, pp. 231–257.
- [13] K. Stachová, Z. Stacho, P. Šamálík, and F. Sekan, "The Impact of E-HRM Tools on Employee Engagement," *Adm. Sci.*, vol. 14, no. 11, p. 303, 2024.
- [14] M. Van den Heuvel, E. Demerouti, A. B. Bakker, and W. B. Schaufeli, "Personal resources and work engagement in the face of change," *Contemp. Occup. Heal. Psychol. Glob. Perspect. Res. Pract.*, vol. 1, pp. 124–150, 2010.
- [15] V. O. Omachi and O. E. Ajewumi, "The influence of agile organizational design on employee engagement and performance in the digital age," *Int. J. Res. Publ. Rev.*, vol. 5, no. 10, pp. 25–39, 2024.
- [16] S. Winasis, U. Wildan, and A. H. Sutawidjaya, "Impact of digital transformation on employee engagement influenced by work stress on Indonesian private banking sector," in *Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management*, 2020, pp. 10–14.
- [17] V. O. Viktorovna, "Digital tools for managing employee engagement," 2022.
- [18] I. V. Kablashova, I. V. Logunova, and V. N. Rodionova, "Methodology for ensuring employee engagement in the context of enterprise digital transformation," *Вестник университета*, p. 41, 2023.
- [19] M. Ekhsan, Y. Badrianto, and S. Suwandi, "Digital Talent on Employee Retention: the Role of Employee Engagement as Mediation," *J. Law Sustain. Dev.*, vol. 11, no. 10, pp. e1121–e1121, 2023.
- [20] M. Gupta, "Employee engagement through digital innovation: A research study," *DR. DY PATIL B-SCHOOL, PUNE, INDIA*, p. 381, 2021.
- [21] I. N. Sulistiana and G. S. Darma, "Digital leadership, work-life balance, compensation, job satisfaction, and employee engagement," *Quant. Econ. Manag. Stud.*, vol. 4, no. 5, pp. 981–993, 2023.
- [22] J. Ludike, "Digital employee experience engagement paradox: Futureproofing retention practice," in *Psychology of retention: Theory, research and practice*, Springer, 2018, pp. 55–73.
- [23] A. Dixit, D. Soni, and S. Raghuvanshi, "Role of virtual leadership and digital fatigue on employee engagement," in *Digital business and optimizing operating strategies*, IGI Global Scientific Publishing, 2024, pp. 1–26.
- [24] S. Pandey and D. S. Sushil, "Redesigning employee engagement practices in the digital era," *Asian J. Manag. Commer.*, vol. 4, no. 1, pp. 235–241, 2023.