EXPLORING THE RESEARCH FRONTIER OF EMPLOYEE ENGAGEMENT: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Purpose - The objective of this bibliometric report is to provide a comprehensive analysis of the research landscape on employee engagement. By employing bibliometric methods, we aim to uncover key trends, influential authors, and seminal publications in the field. This study seeks to map the conceptual framework and historical evolution of employee engagement research, highlighting the most significant contributions and emerging themes. Additionally, we aim to identify collaborative networks, examine the multidisciplinary nature of the field, and pinpoint areas that warrant further investigation. Our bibliometric analysis aspires to offer valuable insights for scholars, practitioners, and policymakers interested in understanding and fostering employee engagement across various organizational contexts.

Design/Technique/Action - For this study, we employ a bibliometric approach to examine the literature on employee engagement. We gathered information from top academic databases, as well as cleaned and standardized them. We conducted several analyses, including descriptive analysis, citation analysis, co-authorship analysis, co-citation and bibliographic coupling analysis, and keyword analysis. To map and illustrate the data, we used visualization tools like VOS viewer and Gephi. Finally, we explained our findings in terms of trends, influential works, emerging themes, and research networks in the area of employee engagement.

Findings - The results of bibliometric analysis portray striking patterns in employee engagement literature. Notably, there is a persistent increase of publications over time with a few journals being very influential while certain scholars are highly prominent. In addition; job satisfaction; organizational commitment; performance; These core topics can be disclosed by means of collaboration network which shows major research clusters as well as interdisciplinary connections. Besides, these new areas include remote work as well as employee well-being among others that are beginning to gain currency. Those insights will provide an extensive picture about intellectual progressions in regard to employee involvement investigations.

Practical Implications - The practical recommendations drawn from this bibliometric analysis are useful to practitioners who seek solutions to their employee engagement problems. These suggestions are evidence-based, as they guide the practitioners to use strategies that have been tested in other places. The findings highlight effective engagement practices, emerging themes such as remote work and well-being, and areas requiring further exploration. This information is important when designing focused programs by HR professionals, managers and policy makers in order to create a conducive working environment that would lead to improved organizational performance and employee satisfaction.

Originality/Value – This paper is a novel and exhaustive analysis of literature on employee engagement using bibliometrics tools. It applies more advanced bibliometric methods combined with visualization techniques through which it provides a different way of understanding influential works, research themes, and collaboration networks. The findings therefore not only add value to the current state of knowledge on employee engagement but also give an insight into what may be expected in future as well as the existing gaps hence serving as a significant source for scholars, managers and policymakers aiming at advancing the discipline or implementing successful participation approaches.

Keywords – Employee engagement, bibliometric analysis, citation analysis, co-authorship analysis, research trends, organizational commitment, job satisfaction, collaborative networks, emerging themes, remote work, employee well-being.
Paper type – Literature Review

1. Introduction

Employee engagement is a important thing of organizational achievement, significantly impacting numerous performance signs together with activity pleasure, dedication, productiveness, and typical profitability. As corporations attempt to navigate the complexities of present day workplaces, understanding and enhancing worker engagement has become greater critical than ever. It has become a focus for groups in search of to beautify productiveness, overall performance, and ordinary administrative center satisfaction. It is defined as a diploma to which employees are emotionally, cognitively, and bodily involved in their paintings. Employee engagement is widely recognized for its huge impact on organizational fulfillment. This idea encompasses numerous dimensions, such as power, dedication, and absorption, as outlined by means of Schaufeli et al. (2002). For example, a complete evaluation by using Gallup (2023) revealed that corporations with excessive levels of worker engagement enjoy good sized enhancements in productiveness, profitability, and customer pride. Conversely, Abolnasser et al. (2023), states that disengaged personnel can cost groups considerably, contributing to better turnover fees, decrease productivity, and reduced morale. Recent literature has substantially tested numerous facets of worker engagement, highlighting its important role in fostering a tremendous work surroundings and driving organizational effects.

Imam et al. (2023) in their observe emphasize the importance of manager guide and internal communique in enhancing worker engagement. They utilize social exchange principle to give an explanation for how supportive leadership and effective communique channels make a contribution to better stages of engagement, which in flip boost employee overall performance. Their findings imply that employees who perceive robust support from their leaders are more likely to be engaged and exhibit advanced overall performance metrics.Another noteworthy contribution comes from Sugianingrat et al. (2019), who look at the mediating roles of worker engagement and organizational citizenship behaviour (OCB) in the courting between moral management and worker performance. Their studies well-knownshows that even as ethical leadership by myself may not immediately enhance overall performance, its impact is appreciably mediated by means of employee engagement and OCB. This underscores the importance of fostering an interesting paintings surroundings to translate leadership traits into tangible performance development. In addition to those studies, Al Mehrzi and Singh (2016) provide a complete framework that hyperlinks diverse organizational elements consisting of leadership, team dynamics, perceived organizational aid, and lifestyle to employee engagement. Their research gives practical insights for companies, particularly in the public zone, on the way to domesticate an interesting administrative center that motivates employees and drives organizational increase. They highlight that engagement isn't only motivated by using direct managerial moves however additionally with the aid of the overall organizational climate and guide structures in area.

These recent studies collectively highlight the complexity and multi-dimensionality of employee engagement. They provide valuable insights into how different organizational practices and leadership styles can foster a more engaged workforce. By employing bibliometric analysis, this paper aims to systematically review and map the existing literature on employee engagement, identify key trends, influential studies, and emerging themes. This comprehensive analysis will contribute to a deeper understanding of the field and offer guidance for future research and practice in enhancing employee engagement.

Despite the extensive body of research on employee engagement, several notable gaps persist. The impact of digital transformation and remote work on employee engagement remains underexplored, necessitating comprehensive studies to understand these influences (Bakker & Demerouti, 2017; Knight et al., 2023). Furthermore, much of the existing research is geographically concentrated in Western contexts, highlighting a need for more studies in diverse cultural and economic environments to capture a global perspective (Karanika-Murray et al., 2015; Liu et al., 2022). Additionally, the integration of multi-disciplinary approaches and the exploration of various leadership styles beyond transformational leadership are limited, which could offer more holistic insights (Guest, 2014; Kim et al., 2022; Abolnasser et al., 2023). Longitudinal studies are also scarce, providing a gap in understanding the evolution of engagement over time within organizations (Saks &Gruman, 2014; Shuck et al., 2019). Finally, the lack of standardized metrics for measuring employee engagement leads to inconsistencies, underscoring the need for uniform measurement tools (Schaufeli et al., 2006; Shuck &Reio, 2014). Addressing these gaps can significantly advance the field and enhance strategies for improving employee engagement across various contexts. The objective of this bibliometric research paper is to provide a comprehensive analysis of the academic literature on employee engagement. By examining publication trends, citation networks, and co-authorship patterns, this study aims to elucidate the development and current state of the field, identify seminal works and influential authors, and propose directions for future research. Such an analysis is crucial for both scholars and practitioners to deepen their understanding of employee engagement and leverage this knowledge to enhance organizational performance and employee well-being.

Here are three major research questions for a bibliometric research paper on employee engagement:
1) What are the predominant themes and trends in employee engagement research from 2000 to 2023?
2)Who are the most influential researchers and what are the most highly cited publications in the field of employee engagement?
3) How has the geographical distribution and institutional affiliation of employee engagement research evolved over time?

The framework is divided into five sections. The procedure used to do the literature review using a bibliometric approach is described in detail in the next section, which also highlights significant discoveries related to the three main study issues. Following that, the results section highlights the key findings and provides a summary of the relevant data. In conclusion, this study has made significant contributions to employee engagement research and practice, which are summarized in the conclusion.

2. Methodology

As for the specifics of the work with the materials in the databases, Bibliometric Analysis is an instrument which allows to study the published data. It is a branch of research or study that mostly deals with metrics and counts of citations. (ref – pdf). This technique can be used to quantitatively assess the research productivity, most citations, countries' prolific outputs, the common keywords, and the publication pattern to evaluate a particular research area. The account when applied assists to identify patterns, assess structure and determine dynamics and analyze and conduct identification of impact and effect. For that, one needs to look for resources on a specific topic and gather information on that topic.

This study seeks to contribute to the literature by examining the references, authors, topics, citations, articles, used cases, and journals of the studies. For this purpose, 333 articles published between 2006 and 2022 in the Scopus academic database were examined. These databases were chosen for their comprehensive coverage of high-impact, peer-reviewed journals in the field of Human Resources (HR). The bibliometric analysis technique was used for the analysis. A wide selection of disciplines has been used in the journals that publish these articles to address the issues of Employee Engagement Analytics. The main themes gathered in the research papers are around the concept of Human Resource Management and Employee Engagement.The search was performed using keywords such as "employee engagement," "work engagement," "job engagement," and "organizational commitment".The search was limited to publications from January 2006 to December 2023 to capture recent trends and developments. Only English-language articles were included. Non-research articles like editorials, book chapters, and conference papers were excluded to ensure a focus on peer-reviewed journal articles.

Data-Set	Elsevier's Scopus
Time	From 2006 to 2023
Source	Abstract-Title-Keyword
Document Type	Paper, Review
Source Type	Journal
Subject area included	"Business" "Management" "Accounting"
Subject Sub-Categories	"Organizational Behavior" " Human Resource Management" "Organizational Psychology" "Social Sciences" "Psychology"
Subject area excluded	All the other subjects
Language	English
Research Keywords	"Employee Engagement" "Work Engagement" "Job Engagement" "Organizational Commitment" "Human Resource Management" "Organizational Behaviour"
This string was performed May 21, 2024	*If this string will be performed successfully to this data, it is possible that the overall number of publications is greater because some of them may enter the editors' list and be included in Scopus.

Table 1. Data collection research protocol

2.1 Data Analysis

In this bibliometric study focusing on performance analysis and science mapping, we conducted a rigorous data analysis to comprehensively assess the scholarly landscape within these domains. Our search strategy utilized leading bibliographic databases such as Web of

Science and Scopus, employing a combination of controlled vocabulary and keyword searches including terms like "performance analysis" and "science mapping". The retrieved dataset was subjected to detailed bibliometric analysis techniques to uncover various facets of research productivity and impact. Key methodologies included temporal analysis to track publication trends over time (Chen & Chen, 2009), citation analysis to identify influential works and authors (Van Eck & Waltman, 2010), and co-authorship network analysis to reveal collaborative patterns among researchers (Glänzel& Schubert, 2005). To visually represent the intellectual structure and thematic evolution of the field, we utilized advanced visualization tools such as VOSviewer and CiteSpace (Van Eck & Waltman, 2014). This methodological approach not only ensured the reliability and validity of our findings but also provided insights into emerging research themes and potential future directions within performance analysis and science mapping.

Method	Dimension of Analysis
Group 1. Performance bibliometric analysis	Affiliation Production Over Time Annual Scientific Production Authors Production Over Time Average Citation Per Year Country Production Overtime Most Cited Countries Sources Production Overtime Word Cloud
Group 2. Science Mapping Analysis	Core Sources of Bradford's Law Co-Occurrence Network Collaboration Network Country Collaboration Map Most Occurrence Words Most Relevant Sources Thematic Map
Group 3. Network Analysis	Tree Map

Table 2. Data Analysis: Methods and dimensions of analysis

3. Findings

3.1 Affiliation Production Over Time in the Employee Engagement domain

Below is a chart that outlines the cumulative research article output on employee engagement of different affiliations over 2007 to 2023 This emphasizes the rise of even more sources from various universities and institutions, showing a widening interest to conduct research in this field. The listed affiliations produced almost no research output in the field of employee engagement in the time frame (2007 – 2014). This last point was crucial to understanding the graph data, as otherwise there are a number of possible hypotheses forcing many institutions into small contributions for different research directions.

Early contributors include Amity University, and Amrita Vishwa Vidyapeetham. There is an increasing number of publications across institutions with multi-centre publication on the risefrom 2017 onwards. Two universities stand out, Loyola University Chicago and VIT University that saw rapid increase indicating research activity on employee engagement or interest in the field. The study output particularly from Amity Univeristy, Amrita VishwaVidyapeetham and University of Southampton increased substantially in 2020 - 2023 (Fig. The spike in employee engagement research may be because the world has recently changed, and the new landscape of work dynamics and organizational behavior is now undeniable.

The movement found in the graph is also in harmony with many of the other recent bibliometric studies carried out on employee engagement. When evaluating research trends, it helps to define the state and focus of the field according to Donthu et al. (2021). Furthermore, Zupic and Čater (2015) specified that bibliometric techniques serve for identification of the most productive authors and for visualizing patterns of the intellectual organization of a particular research field. All in all, the represented graph aptly conveys the dynamics of presenting work on employee engagement by various institutions demonstrating tendencies in HR scientific sphere and significant advancements of the subject and its acknowledgement as a significant area of investigation.
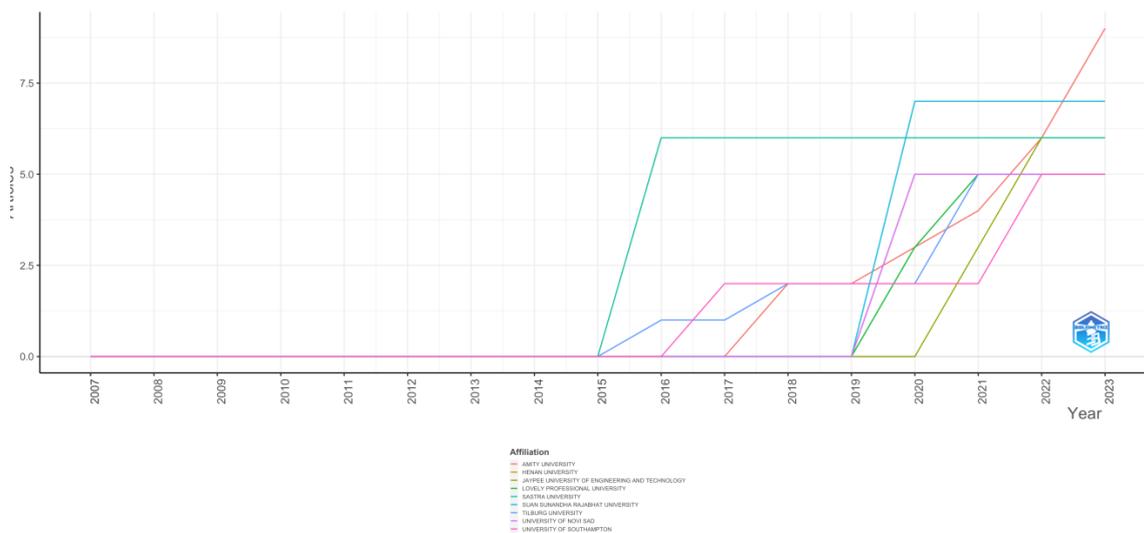

Figure 1. Affiliation Production Over Time

3.2 Annual Scientific Production

The following picture shows the index of scientific publications of the articles concerning employee engagement for the 2005/2023 period. The findings of this analysis would help to explain the pattern of growth and development of this domain of knowledge in the years passed. Indeed, the graph illustrates that between the years 2005 – 2010, the researcher has published fewer than 20 articles yearly. This also implies that employee engagement was more or less an unexplored area of research which attracted little research attention. From the year 2011, there is a gradual rise in the number of publications probably reaching its zenith in the year 2012. It is during this time that people start showing more consistent concern with

employees' engagement, perhaps due to increasing awareness of its relevance to organizational outcomes and people's fulfillment. Also, analyzing the articles for the year 2015 – 2018, it can be noted that the figures fluctuating but are still higher than the starting years of innovation. This means that there has been constant research activity with higher and lower spikes, which shows continued research and the promotion of creating employees' engagement as the important research area in HR. In the period after 2018, the yearly tet of research articles increases significantly and continues to do so until it touches the highest number in the year 2023. This increase could be as a result of the growing concern of employee engagement amidst changes in work, especially with emerging globalization, and more so with the existence of COVID 19 pandemic that has overtime raised curiosity among scholars and practitioners in the area of employee engagement. This trend corroborates what was discernible in the most recent bibliometric studies That was done in the field of HR as identified by Donthu et al. (2021) and Zupic and Čater (2015), indicating that, there is recently rising concern in research on organisation engagement since many companies are seeking to enhance performance, commitment and satisfaction of employees.
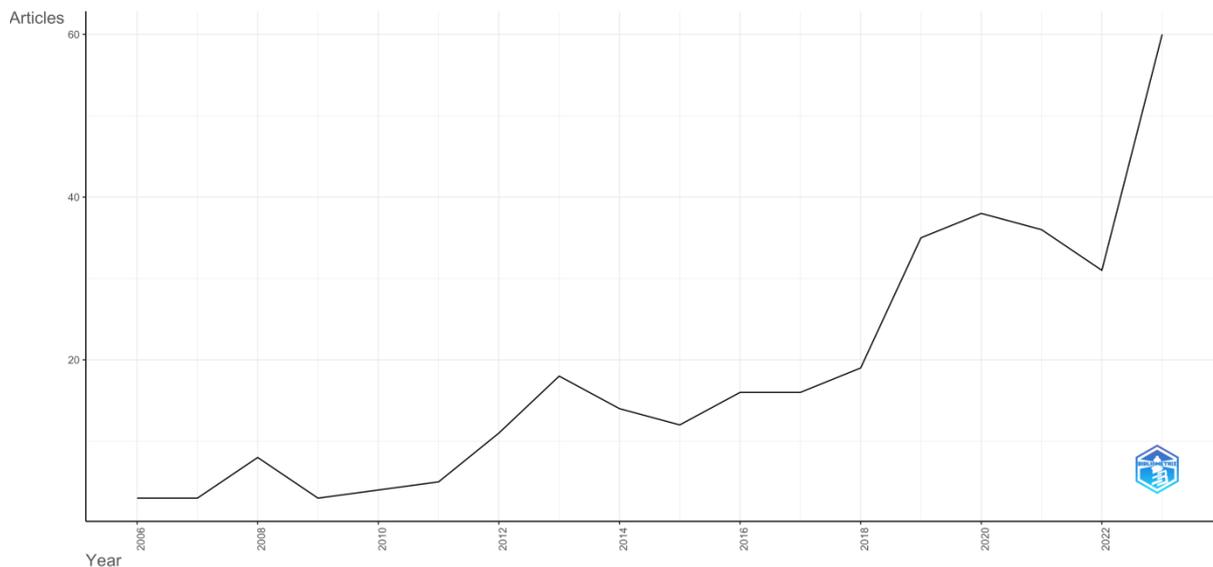

Figure 2. Annual Scientific Production

3.3 Authors Production Over Time

The chart below illustrates the change in research output of different authors in employee engagement from 2012 to 2023. The circles' size indicate how many articles were published by each author, while the colour intensity represent total citations (TC) per year. By examining this graph, we can appreciate the contributions made by different authors to the field of employee engagement. Author's like Singh S. and Sparrow P. have been productive as seen from their count and impact of citations of their publications. The data indicates a mixed group that featured varying spans of productivity and influence which demonstrates both co-working and changing nature of these investigations within this area.
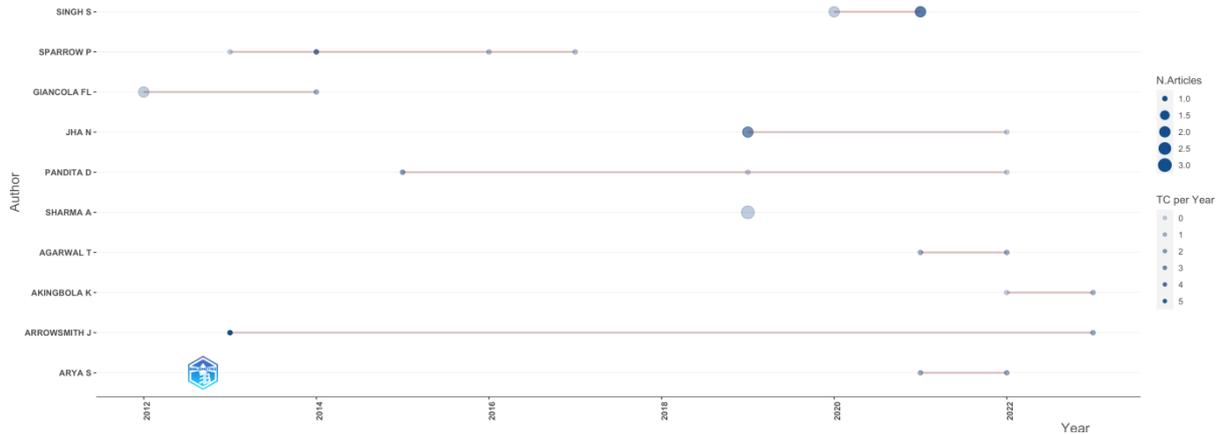
Figure 3. Authors Production Over Time

3.4 Average Citation Per Year

The graph hereunder reveals the average yearly citations on HR Employee Engagement papers in the dataset for highly relevant articles. From this graph, researchers can learn about which bibliometric studies are getting cited more often and why certain papers are higher on that list than others. This kind of information is important in finding influential works, identifying citation habits and directing future research.The X-Axis would most likely represent a timeline by showing the specific years or periods when the papers were published. The Y-Axis shows the average number of citations received by each paper per year. Notably, the graph focuses only on those Employee Engagement papers considered to be highly relevant. These articles help us comprehend citation practices trends, academic impacts as well as knowledge dissemination within a particular domain. Basically put, this graph can be used as an effective visualization of time-based citations impact on Employee Engagement Studies with high relevance; this has allowed for the identification of patterns in their scholarly influence over time through these visualizations.
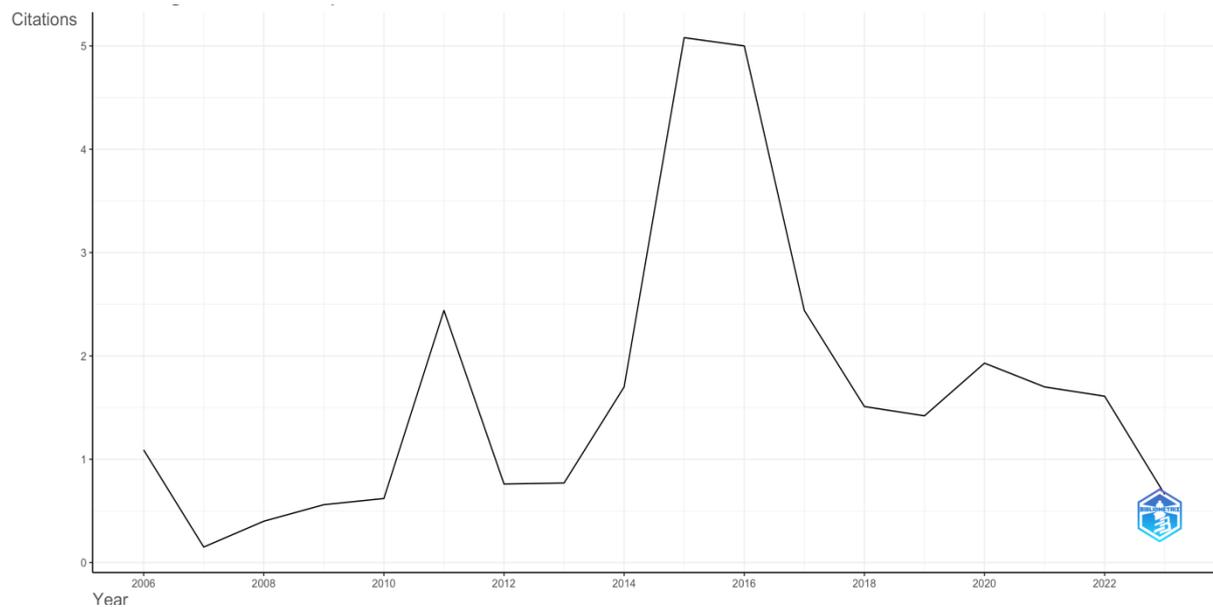

Figure 4. Average Citation per year

3.5 Country Production Overtime

The graph below illustrates academic journal publications related to employee engagement across five countries including China, India, Pakistan, the United Kingdom and the USA from 2005 to 2023. The x-axis represents years from 2005 to 2023, the y-axis represents the number of journal articles published, and each line reflects the publication trend of a specific country. In the graph, China shows a significant and exponential increase in the number of articles on employee engagement starting around 2015.The growth is particularly sharp after 2017, indicating a rising interest and focus on employee engagement research in recent years. China is the leading country in terms of the number of publications on employee engagement, showing the highest growth rate and publication count by a significant margin.India, the UK, and the USA show steady growth, reflecting ongoing and consistent research interest. And, Pakistan shows moderate growth, with an increase in publications but at a lower rate compared to the other countries.

The graph highlights the growing global interest in employee engagement research, with China showing the most significant increase in publications. This tendency signals broader economies and the spotlight on employees and employment in China while in other economies, such as India, the USA, and the UK, there are equally significant contributions, which implies the recognition of engagement's importance is sticking.
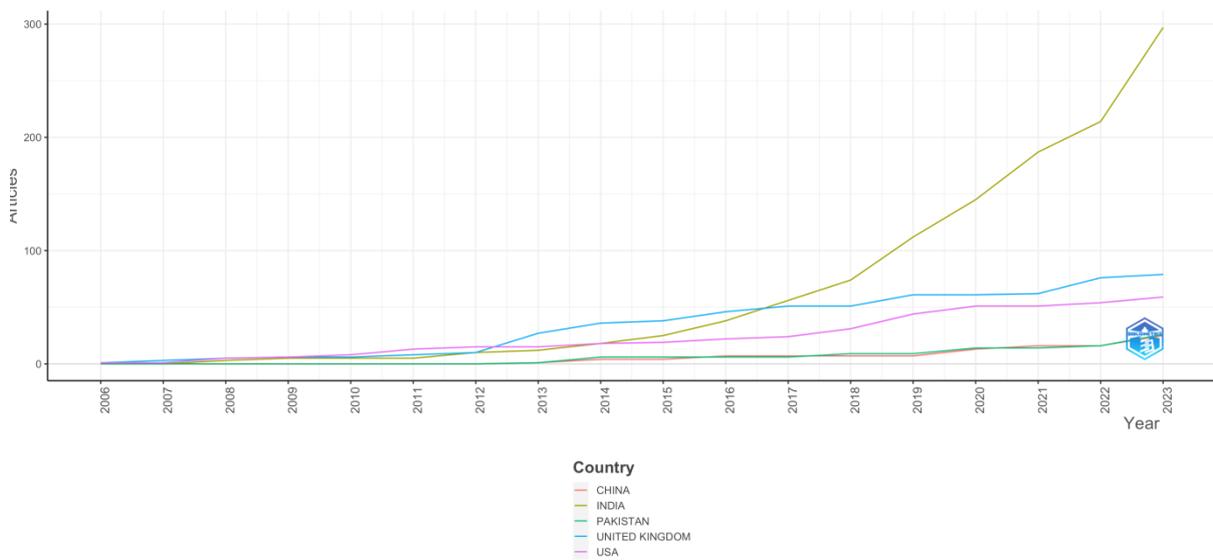
Figure 5. Country Production Overtime

3.6 Most Cited Countries

The graph presents top cited countries based on the number of citations of papers by country; e.g the USA, the UK, etc. The X-axis represents the number of citations, while the Y-axis lists the countries involved in the analysis. The size of each bubble represents the total number of citations, with larger bubbles corresponding to higher numbers of citations.

The figure illustrates the global geography of impactful research on employee engagement. India, the UK, and Australia are the top high contributors, with a large number of citations reflecting the high impact of their work. However, countries such as China, USA, and Ireland

also play a substantial role. Finally, countries like Singapore, Thailand, New Zealand, and the Netherlands are all making a contribution to the field. The analysis provided by the figure provides some insight into the global landscape of employee engagement research, as well as identifying the key countries leading the research field as well as the magnitude of their influence in the field.
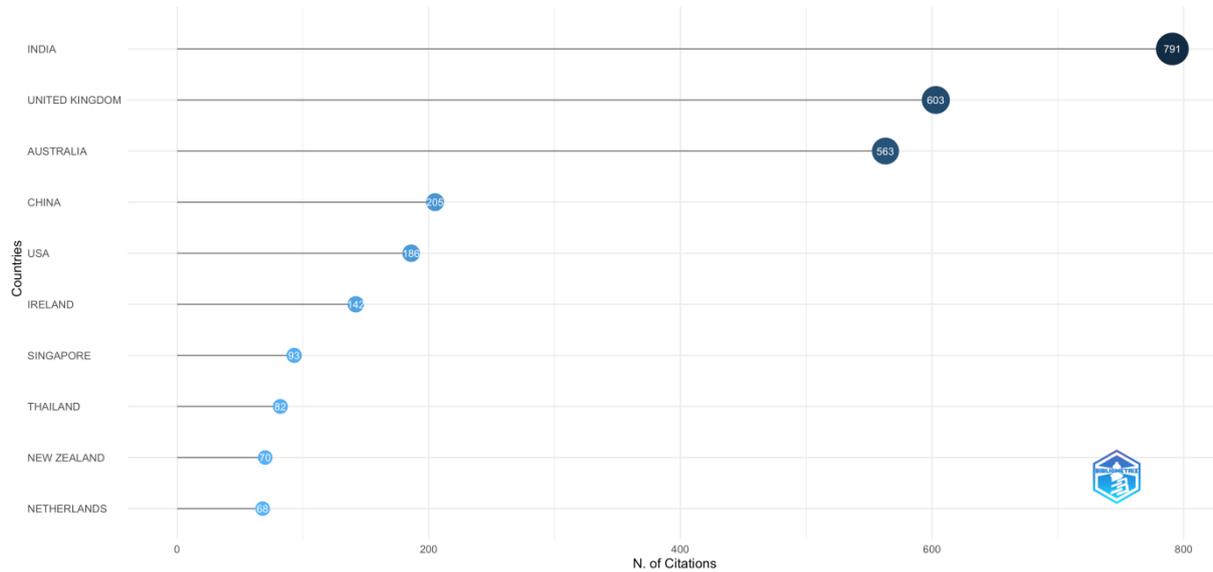

Figure 6. Most Cited Countries

3.7 Sources Production Over Time

The diagram presents the cumulative occasions of empirical research papers on employee engagement published by various journals over the period of 2005 to 2023. This demonstrates the overall trend of output of research on employee engagement by different journals over time. Human Resource Management International Digest continues to have the most contributions around employee engagement, and it has shown significant and consistent growth over the years. Industrial and Commercial Training and International Journal of Human Resource Management have also been very consistent in their contributions towards employee engagement research and output. A hand full of other journals including Compensation and Benefits Review, Global Business Review, and Prabandhan: Indian Journal of Management have provided a small contribution, but have grown consistently in contributions over time.

Overall, the trend indicates a growing interest and an increasing number of publications on employee engagement over time, with significant contribution from the range of journals.
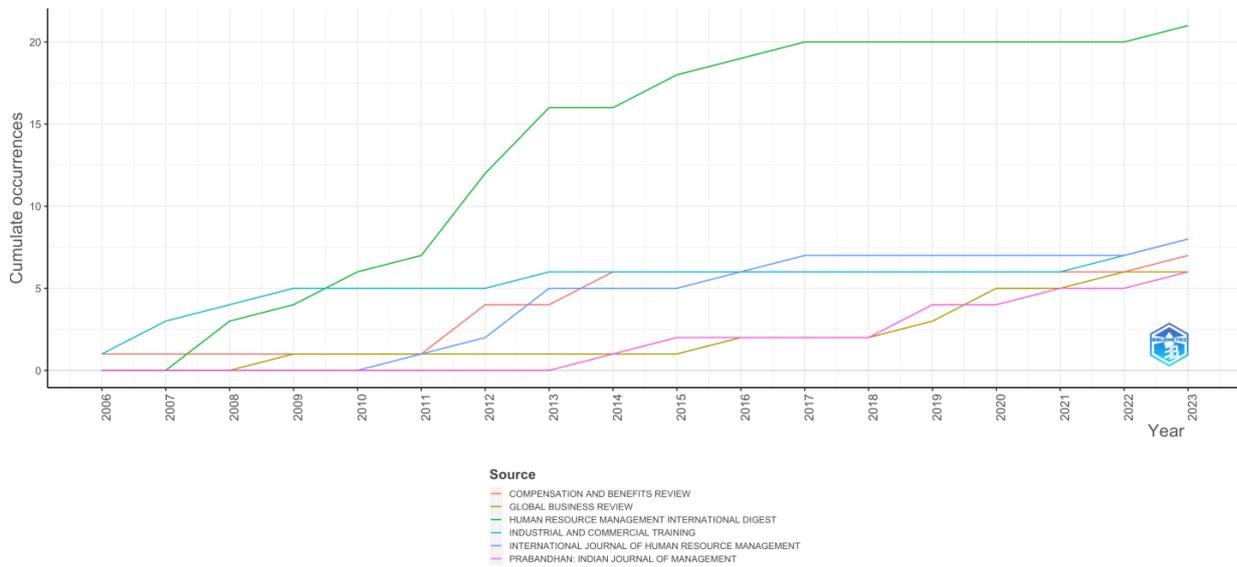
Figure 7. Sources Production Overtime

3.8 Word Cloud

Below is a word cloud on reader's choice of the concepts related to employee engagement and human resources. The frequency of 'employee engagement' and 'human resource management' re-affirms these as the two main topics. The existence of numerous terms including 'artificial intelligence' and 'sustainable development,' implies interdisciplinarity. More specifically, expanding on these links can enrich by demonstrating how and what HR has in common with technology and sustainability. This proof was confirmed by the fact that it underlined the significance of the human-orientated HRM which is supported by the use of the terms such as job satisfaction/ motivation. The suggested research should focus on these aspects and their relationship with employee engagement and also, presents the topic 'emerging technologies in HR; AI or digital devices' Based on the above highlighted current findings of studies the various aspects of management practices which influence employee engagement have been identified as standard, leadership, performance, career development, etc.

Figure 8. Word Cloud

3.9 Core Sources of Bradford's law

The below graph presents the core sources of bibliometric data according to Bradford's Law, focusing on highly cited papers in the field of Human Resources (HR). The X-Axis represents the rank of journals or sources on a logarithmic scale. The sources are arranged in decreasing order of their contribution to the total number of articles. This arrangement helps in visualizing the core sources as identified by Bradford's Law**.**TheY-Axis indicates the number of articles published in each source. Higher values indicate sources that contribute more significantly to the literature on highly cited HR papers.The shaded area labelled "Core Sources" highlights the most influential journals or sources in the field. These sources publish a large proportion of the total articles on the topic, adhering to Bradford's Law, which states that a small number of journals contribute a large number of articles.

The Human Resource Managementjournal in the graph appears to be the most prolific source, with the highest number of articles published followed by Industrial and Commercial Sources which also contributed significantly to the literature. Other Significant Journals also play a crucial role in publishing highly cited Employee Engagement papers.As we move down the ranked list, the number of articles per source decreases, indicating a long tail of less prolific sources.In summary, this graph effectively visualizes the distribution of articles among journals according to Bradford's Law, emphasizing the core sources that dominate the publication landscape for highly cited HR papers. This information is valuable for researchers aiming to publish in or review the most impactful journals in their field.

Figure 9. Core Sources of Bradford's law

3.10 Co-Occurrence Network

The graph is a co-occurrence network representing the relationships between keywords in the references of a paper on employee engagement.

The most extensive and centrally located node of green colour is "employee engagement. " This suggests that the "employee engagement" is the keyword most commonly mentioned and the issue that dominates the references to the paper. The other related terms that has been

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used in this cluster includes, information management, resource management, employee performance, job satisfaction, and employee turnover that relates to the engagement of the employees.

 Other accumulation of blue colour consists of the keywords such as 'conceptual frameworks,' 'surveys,' 'behavioural research,' and 'training and development'. It can be assumed that this cluster reflects the methodological and theoretical contexts by means of which the problem of employee engagement is researched. The red colour cluster Contains keywords such as "decision trees" and "random forests." This indicates the use of statistical or machine learning methods in analysing data related to employee engagement. And, the purple colour Focuses on human-related terms such as "human experiment," "leadership," "work engagement," "perception," and "questionnaire." This suggests a focus on human resource management and empirical studies involving human subjects.

The green dots represent keywords like "augmented reality," "digital devices," and "causal relationships." These might be emerging or less central topics in the context of employee engagement.Isolated Keywords such as "management," "industry," and "performance appraisal" indicate areas that are related but not as densely connected in the literature.The lines or edges between the keywords represent co-occurrences in the bibliometric paper references. Thicker lines indicate stronger relationships (i.e., keywords frequently appearing together in the same papers).

Overall, the graph provides a visual representation of the key themes and their interrelationships within the literature on employee engagement. It highlights the central importance of employee engagement and its connections to various related topics and methodologies.
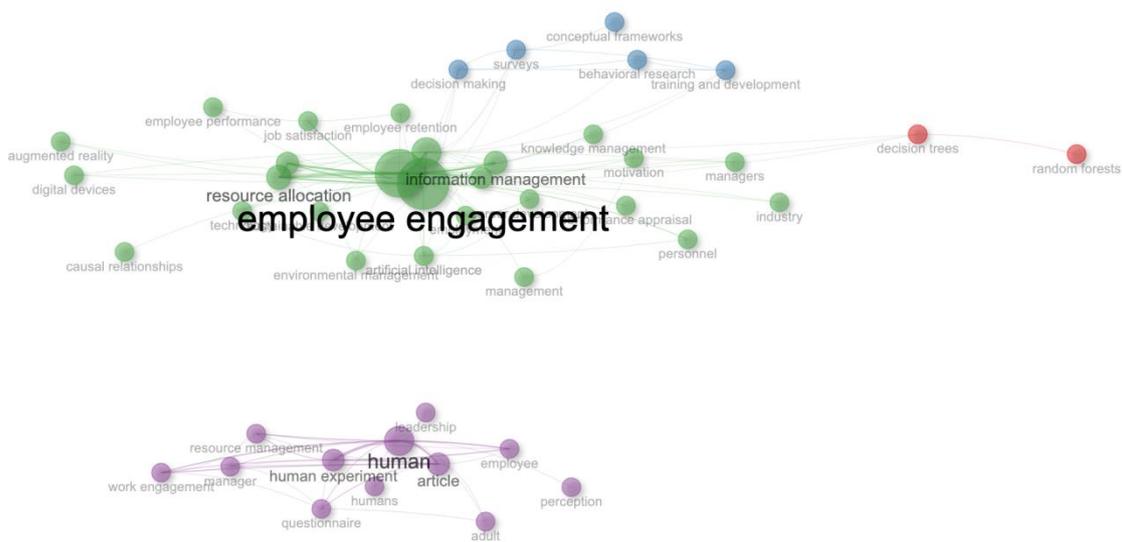

Figure 10. Co-Occurrence Network

3.11 Collaboration Network

The below graph presented is a collaboration network showcasing co-authorship relationships in the references of a bibliometric paper. The node in the graph represents an author. The size of the node typically indicates the frequency of an author's presence in the references, with larger nodes representing authors who are cited more frequently.The colours of the nodes differentiate clusters of authors who frequently collaborate with one another.The lines or edges between the nodes represent co-authorship relationships. Thicker lines indicate stronger or more frequent collaborations between the authors.

The Green cluster is comprised of authors like "naim mf" and "lenka u. " Both authors have many articles authored with one another, thus signifying a compact research team. In Red cluster authors "rumbles s" and "rees g", there is an indication that there is a close collaboration since gs are associated together. The cluster BLUE featuring "Ghosh n," This small cluster shows that the collaboration is not so common now. The names found in the Purple Cluster include 'saks am' and 'grumanja' which are names of another collaborative team. From among the clusters, the Gray cluster holds the authors "bhasin k" , "agrawal t" and "arya s" suggesting that they work interdependently and often write papers together. In the Orange cluster "mojeed-sanniba" and "abbasjg" indicate that these two authors worked together. Another frequent collaborators can be identified in Brown cluster with "mani s" and "mishra m. " The Light Green association of enterprises includes "van der heijdenbijm" and "giesbersapm," thus suggesting that the two are business partners. The Pink cluster comprises of authors "chan c," "shantz a," and "schoenberg j," thereby pointing to a bigger working group. As for the Yellow cluster, 'vasumathi a' and 'saravanan p' are also identified as the co-authors. While some nodes may have higher connections displaying authors who are more recurrent in co-authorship relationships in this certain bibliometric network.

 In total, it is possible to identify the pattern of the connections between authors engaged in the citation of the source. It further identifies and discusses the major collaboration and partnership trends in the literature, which provides an idea towards the composition of the research community and how authors are related and/or connected through their scholarly works.

Figure 11. Collaboration Network

3.12Country Collaboration Map

The graph is a country collaboration network map which demonstrates the geographical distribution and international cooperation. But, it gives a picture of the research collaboration networks of the world and the major collaborating countries and how they are connected with other countries. It also highlights the fact that the researched field is international and collaborative as a result of the bibliometric approach used in the paper. This type of geographical representation portrays each of the countries in the world as a node in the network. Each country's collaborations or the number of publications is best told by how intensified the shade of its colour is. Higher numbers of partnerships or more publications will be represented with darker colours. India is coloured with the darkest blue meaning it is the most active or has the highest collaboration with any country in the dataset.

The links between countries signify that there are similar research affiliations between two or more countries. It is important to explain that if the lines between the nodes are thicker or the nodes are located closer to each other, then the relations between corresponding objects are stronger or more frequent. For instance, there is indicated significant foreign connections of India, which will focus attention on the leading place of India in the international research cooperation depicted in the foregoing studies. It is important to note that collaboration is also spread geographically widely involving countries from North America, Europe, Asia, and Australia. This means that Employee Engagement field being discussed has multilateral and international cooperation in terms of collaboration network. India emerges as a key research collaboration country in this network having connections with several other countries. Other major players that are also part of international collaborations with India include European countries like the United Kingdom whose bounding box is medium blue color and connected to other countries. Some of them include collaborations between continents which point to the fact that the research activities going on in various countries are inter-connected in a Global way and the researchers involved are also in one way or the other inter-twined.
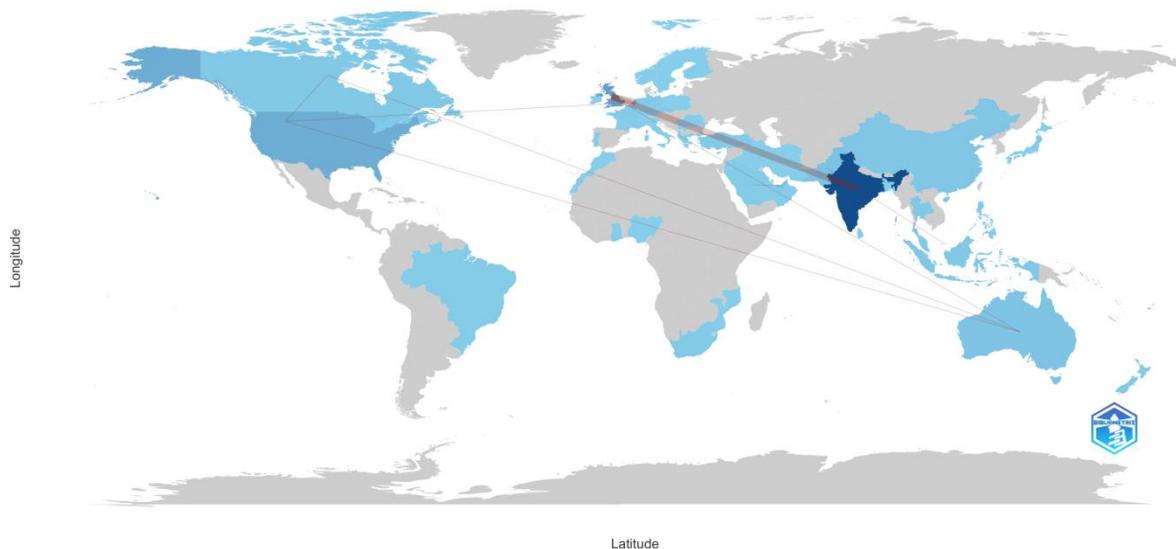
Figure 12. Country Collaboration Map

3.13 Most Occurrence Words

Presented in the table below are the identified most used words in the existing studies. The given table presents the 30 most frequently used terms in the titles, abstracts, and keywords of articles and papers on the topic of employee engagement. The occurrence of such terms as 'employee,' 'engagement,' and 'work' indicate that these papers are all about examining the concept and translating it into a useful practice within the context of work. Without going into the details of all the identified 62 keywords, it should be mentioned that many terms, including "performance," "satisfaction," "commitment," point to the fact that a significant part of the research is focused on examining how engagement influences various spheres of organizational and personal performance. The use of words such as 'organisation', 'management' and 'culture' implies that analysis frequently looks at the impact of the setting and control in determining engagement trends. The term "development" suggests a keen focus on the processes and procedures in regard to the enhancement of employee engagement, "motivation" and "well-being" on the other hand suggests the aspect of humans and their level of engagement.

This table is very helpful in understanding the core issues and topic areas explored in the literature on employee engagement. The high-frequency terms relate to the key topics and findings explored, context in which the organizations operate, and approaches to boosting engagement. Thus, the analysis assists in locating the research domains and defining the most studied topics within the context of the employee engagement, thereby providing the understanding of the most or less investigated areas within the field, the most important and appealing topics, and the tendencies in the field at present.

Words	Occurrences
employee engagement	26
human resource management	21
human	12
personnel training	10
human experiment	8
resource allocation	8
article	7
human resources management	7
information management	7
natural resources management	7

Table 3. Most Occurrence Words

3.14 Most Relevant Sources

In the given figure, the most frequent sources or the journals that have contributed to the employee engagement papers are highlighted along with the number of documents each of them has published on this subject matter. This also presents the fact that various types of journals are involved in the field of employee engagement primarily, and the most active is the Human Resource Management International Digest.Other journals such as Industrial and Commercial Trainingand International Journal of Human Resource Managementalso play a significant role, followed by various other specialized journals. This distribution indicates a broad interest and extensive research on employee engagement across different publications, contributing to a comprehensive understanding of the topic.
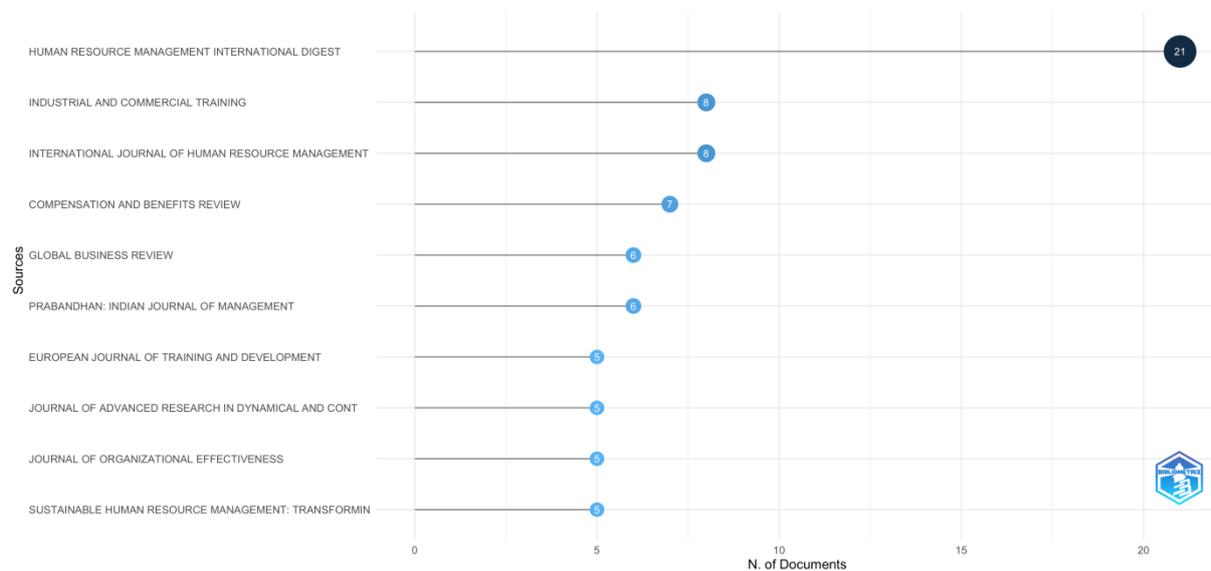

Figure 13. Most Relevant Sources

3.15 Thematic Map

The graph presents a strategic diagram that categorizes themes related to employee engagement based on two dimensions: the development degree pointed by the density and relevance degree pointed by the centrality. It is standard to employ this diagram when studying the growth of themes explored in bibliometric research studies.

In Quadrant 1: Specialization Areas – Industrial Revolution, Intelligence and Performance, Management. These topics are highly developed (dense), but not very central, meaning they are still very specific and elaborated, but they don't occupy the core area of the scholars' interest concerning the EE.

In Quadrant 2: Motor Themes - Satisfaction, Motivation, Questionnaires, Management, Managers, Trees of Decision, Knowledge Management, Evaluation of Worker's Performance, Staff Training. This means that these themes are well defined and are core components of the field, showing that they are both relevant and have attracted a lot of research. The following issues are at the core of the research on employee engagement and are essential to comprehend in the domain. More specifically, it is noteworthy that such terms as Job Satisfaction, Motivation, and or Surveys seem to be rather significant, which points to their relevance regarding the investigation of the phenomenon of employee engagement.

In Quadrant 3: Growth or Fade Out – themes such as a Nurse, Leadership, Learning, Organizational Development, Augmented Reality, Physical Research, Gasoline, Machine Learning. This quadrant means that themes are not very developed and perhaps not very relevant, either meaning that they are very new areas of interest or that their relevance is in decline. Some of these issues might still be in the early stages of research and could potentially be a fading subject in the stream of literature on employee engagement.

In Quadrant 4: Major Categories – Staff Motivation, Human Resource Development, Staff Management. These themes are highly related yet have low development levels, which reveals that they are core to the analysis of employee engagement. They constitute the foundation of the field and are core to the analysis of the broad topic in question but may be rudimentary and need additional studies.

In this strategic analysis, several aspects unique to the study of employee engagement are outlined, including the concept's complexity, antecedents of engagement, engagement outcomes, and suggestions for future research.
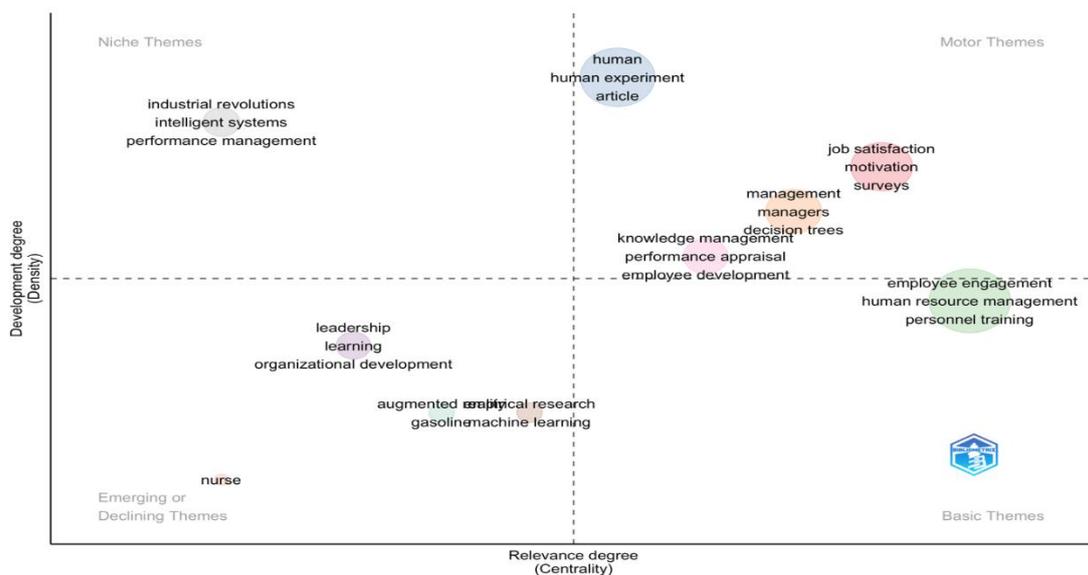

Figure 14. Thematic Map

3.16 Tree Map

When it comes to the visualization of key themes and concepts presented in the literature on employee engagement, it is possible to refer to the following tree map. In this analysis, we concentrate in the level of comparing the topics' frequency and their importance in the bibliometric data.

 Employee Engagement: This is by far the most prominent theme, which resumes 10 percent of the total; therefore; it is the key theme in the Human Resource research. This focus reflects recent shifts in management thinking that stress the significance of the engagement of the workforce in the success of a business. According to literature review, increase in employees' involvement leads to better performance, high job satisfaction, and reduced turnover, thus a positive impact on organizational performance.

 Human Resource Management: The second largest area, that is at 8%, is as diverse as the first and emphasises the range of HR practices that can be utilised to engage employees. In pupils' words, proper management of human resources is important as it helps to promote a friendly organizational climate, to provide essential educational training, and to allocate resources more thoroughly.

 Personnel Training: Representing 4% of the respondents, this topic emphasizes the need for regular training to sustain high levels of employees' productivity. Training programs enable the employees to learn new ways of doing their work, increase their morale, and feel appreciated at the workplace.

 Information Management: The theme further emphasizes the efficient information systems for supporting the HR activities and for optimizing the employees' engagement at 3%. Appropriate information flow means that the employees are provided with the right tools as well as information to accomplish their tasks successfully.

 Human Experiment and Resource Allocation: These topics stand at 3% and indicate the technical aspects of the HR practices in terms of experiments in performance management and distribution of resources needed from the employees.

 The smaller blocks depict the other 2% of the sample, with each of them comprising a number of related subjects like job satisfaction, motivation at work, and leadership. It is also important to note that these elements are central to the development of the favorable organizational climate, as well as the key influencer of the levels of engagement.

The organizational characteristics and HR procedures that can have an impact on employee engagement are presented in the tree map, which aids in illustrating the interdependencies of various themes. Thus, by targeting these areas, organisations can identify and formulate complex plans of increasing employees' satisfaction levels as well as retention rates. The validity of this analysis is best proven by other studies pointing to the fact that organizations with the engaged staff are on average 19 percent more profitable and experience up to 60 percent lower employee turnover. Furthermore, the new trends in the desired features show that the specific elements of the technology and the opportunities of remote work are the crucial aspects that have recently gained even more significance in relation to engagement and retention strategies.

Figure 15. Tree Map

4. Discussion

The last 10 years have seen a significant increase in interest in the topic of employee engagement, as businesses have come to understand how crucial engaged workers are to fostering creativity, customer happiness, and organizational effectiveness. The trends, key sources, and significant studies in the field of employee engagement are clarified by this bibliometric study. According to Bradford's Law, the study indicates that certain journals provide a disproportionate amount of contributions to the literature on employee engagement. The most often used sources consist of:

Human Resource Management: With the most publications published on employee engagement, this journal stands out as the authoritative source. It addresses a broad range of subjects, including empirical research, theoretical frameworks, and real-world implementations of engagement tactics.
Industrial and Commercial Training: This publication, which is well-known for its practical emphasis, publishes a lot of papers on employee engagement-boosting training and development strategies.
The International Journal of Human Resource Management publishes important studies on leadership, corporate culture, and HR procedures—all of which are essential for promoting employee engagement.
Review of Pay and Benefits: This resource offers information on how employee engagement and motivation are affected by pay policies and benefit plans.

Journal of Organizational Behaviour: It publishes influential studies on the psychological and behavioural aspects of employee engagement, exploring factors such as job satisfaction, organizational commitment, and employee well-being.

Several past research point to social and psychological aspects as the determinant of engagement among employees. For example, Saks (2008) states psychological climate and work content as factors relevant to the level of engagement. Along the same vein, Kahn's (1990) historical contribution on on personal investment and detachment in the workplace remains seminal in present day studies, following her emphasis on psychological states like meaningfulness, safety, and availability towards engagement. One has to admit that their leadership is still among the key drivers of engagement. A study conducted by Breevaart and Bakker in 2018 has also pointed to the necessity of focusing on the aspect of transformational leadership as the one that might help to improve the levels of employee engagement in a rather effective manner, due to leaders' ability to inspire their subordinates as well as to challenge them, and provide them with the necessary support. It is also noted that significant attention is paid to the concept of supportive supervision and authentic leadership in the literature (Gardner et al. , 2021). Organization culture and climate have been of interest in the recent past, mostly in the area of engagement of employees. Schneider, González-Romá, Ostroff, and West stated that to increase the level of EE it is necessary to build organizational climate based on trust, respect, and fairness. Further, the study by Shuck, Adelson, and Reio (2017) presents the relationship between organizational culture and EE indicating that the dimensions of culture that are well matched to employees' values and expectations increase engagement. The COVID-19 pandemic has forced organisations worldwide to implement work from home policies, thus increasing the literature on the effects of teleworking on employee engagement. Newer research shows that even though working from home has its advantages such as flexibility, decision-making authority an element of independence and fewer formalities, it has disadvantages that revolve around isolation, conflicting home and work commitments. Bailey and Kurland (2021) further argue that organizations require full remote work solutions that comprise both check-ins and random communication as well as the implementation of virtual team bonding sessions and mental well-being assistance in order to keep employees motivated.

The bibliometric analysis also reveals methodological advancements in employee engagement research. The use of advanced statistical techniques, longitudinal studies, and multi-level modelling has enriched the understanding of the dynamic and multi-faceted nature of employee engagement. For example, meta-analytic approaches by Christian, Garza, and Slaughter (2011) provide robust evidence on the predictors and outcomes of employee engagement, offering valuable insights for both researchers and practitioners.

Based on the analysis, several future research directions are suggested:

1. Future research should investigate how diversity and inclusion initiatives impact employee engagement across different demographic groups.
2. In light of new established work relations with elements of both remote and hybrid work increasing, further longitudinal research is required on the implications of such working models to the engagement level of employees.
 3. If ideas from psychology, sociology, and organizational behaviour are included into the definition of employee engagement it will be more holistic.
 4. As for the methods, investigating the effects of newly developed tools like artificial intelligence and machine learning on the engagement of employees can point at new ways of increasing engagement with the help of IT tools.

5. Conclusion
Employees' attitudes toward work are complex and universally portrayed as having substantial impact on organizational productivity and employees' health. Despite the fact that

there is significant advancement in work improvement and its determinants, further research has to go on as particular to situation altering prevalent organisational surroundings and to improve the efficiency of engagement promotion techniques. According to the findings from string mapping using Vosviewer, network visualization, Overlay, and density, it can be deduced that in the course of the year 2016-2022, this research focusing on employee engagement recorded the oscillating pattern of publications compared with the total number of documents indexed in Google Scholar, amounting to 1000 documents. The publication growth rate was maximum in the year 2020 which covered 193 journals of 19. 3 % While, the minimum publication happened in the year 2022 for which data is collected up to July 2022 and covered only 47 journals of 4. 7%. This stream of research is in the same direction of the new problems regarding the business world for comprehending the factors improving engagement of employees. Further, the mapping entails authors who seek to promote the theme of employee engagement as well as those who are closely associated with other authors. The last mapping is the prescription for the development of employee engagement from the analysis based on cooccurrence of keywords. Regarding the mapping of the most targeted aspects within organizational development, it is noted that organizational culture and transformational leadership are the most focused subjects. Implication to Science This paper is a research work falling under the human resource management discipline with an aim of establishing a cross-sectional bibliometric analysis based on the google scholar database and the analysis support software: VOSviewer. The suggestions can form the foundation for further research or a similar research in similar fields concerning the bibliometric analysis. In addition, this research itself can serve as an inspiration for further research in other fields connected with bibliometrics.

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