

Bibliometric Analysis: Mapping the Artificial Intelligence and Labour Dynamics in the Indian Context

Madhuri Jyothi Rani^{1*} | Dr. Kirti Deswal²

¹Research Scholar, Dr K N Modi University, Newai, Jaipur.

²Faculty of Management and Business Studies, Dr. K. N. Modi University, Newai, Jaipur.

*Corresponding Author: madhuri.rani17@fms.edu

Citation: Rani, M. & Deswal, K. (2026). Bibliometric Analysis: Mapping the Artificial Intelligence and Labour Dynamics in the Indian Context. *International Journal of Advanced Research in Commerce, Management & Social Science*, 09(03(III)), 188–202. [https://doi.org/10.62823/ijarcms/9.3\(III\).9468](https://doi.org/10.62823/ijarcms/9.3(III).9468)

Abstract

The research provides bibliometrics analysis of Artificial Intelligence (AI) studies in the light of their relevance to the dynamics of the labour market in India. Based on the information retrieved from the Dimensions database and processed through the VOSviewer, the research examines trends in publications, co-authorship, citation, and keyword networks for the period from 2016 to 2025. The results show a gradual increase in AI-related labour studies, including those which form thematic clusters concerning automation, skills transformation, digital labour platforms, and AI-based human resources management. The list of influential studies includes works on different topics which reflects an interdisciplinary approach to AI impacts on employment. On the one hand, there is a gap between highly cited and loosely connected studies and new, more connected ones that reflect a shift towards a more coherent intellectual structure. India proves to be a major producer both by volume and citation of scholarly studies, while the global players like the USA, Brazil, and Switzerland are the source of high-impact publications. The research brings attention to the problem of the disruption and adaptation of skills on the part of the labour force.

Keywords: Artificial Intelligence, AI, Labour Market, Employment, Bibliometric.

Introduction

The technology of Artificial Intelligence (AI) is no longer limited to niche applications but has become a transformative force that shapes the productivity, competitiveness, and socio-economic systems across industries. Modern AI technologies execute cognitive activities which were executed by humans earlier, affecting various industries including manufacturing, health care, finance, education, agriculture and governance (ILO, 2023). In the labor market, AI technology has a dual impact on individuals. While on one side AI technology reduces the need for employees to perform routine tasks in manufacturing, back-office functions, on the other side, it has created new job openings in the field of data science, human-AI collaboration, and AI ethics (Georgieva, 2024). Such a phenomenon of 'creative destruction' exacerbates issues like labor polarization, where the demand increases on the two ends but decreases in between (Prakash & Rath, 2025). The country of India offers an ideal scenario to study such factors. With a labor force of over 500 million people, ranging from informal, semi-skilled to highly skilled labor categories, the implementation of AI technology can bring about opportunities as well as risks for the country. The introduction of AI in the economy increases productivity in the case of industries like Information Technology (IT), financial sector, and health care industry. However, it presents risks of displacement of workers in the labor-intensive sectors including Business Process Outsourcing (BPO) and manufacturing industry (Ministry of Finance, 2024). The Economic Survey 2023-24 states that there

is 'huge pall of uncertainty' with regard to employment at all levels of skill sets in a service-led Indian economy. On a macroeconomic level, the World Economic Forum (2025) states that the contribution of AI to the Indian economy will be US\$500 billion by 2025, with considerable potential in the agriculture, urban services and manufacturing industries. The Future of Jobs report (2023) mentions that 96% of the Indian firms have AI programs in their operations, which exceeds the world average of 88%. Gig economy, comprising 7.7 million workers in 2020-21 and forecasted to increase to 23.5 million by 2029-30 (NITI Aayog, 2022), is an example of how technology-induced disruption has informalized the employment relationship. Simultaneously, studies on the bibliometric front emphasize increasing contributions made by India to the world of discussions regarding AI, particularly where workforce transformations and Industry 4.0 are concerned (Sharma et al., 2024).

In this regard, the use of bibliometric analysis facilitates the development of a scientific understanding of knowledge creation, scholarly networks, and emerging themes. Using co-authorship, citation, and keyword analyses, bibliometric techniques identify intellectual networks, track thematic trends, and reveal gaps in literature (Donthu et al., 2021). These evidence-based insights are crucial in the development of labour policies under programs like Digital India and Skill India.

In this respect, the use of bibliometric analysis helps develop a scientific understanding of knowledge creation, networks, and emergent themes. Through publication, co-authorship, citation, and keyword analyses, bibliometric techniques help to trace intellectual networks, thematic trends, and gaps in literature (Donthu et al., 2021). Such evidence-based insights are vital in the development of labour policy under programs such as Digital India and Skill India.

Literature Review

Bibliometrics has emerged as a commonly used research methodology for the assessment of publications within various research fields. The method offers systematic information regarding publication trends, themes, and author collaboration networks and thus facilitates the construction of scientific knowledge and the identification of new research frontiers (Donthu et al., 2021; Pandey et al., 2021). Software tools such as VOSviewer and Bibliometrix have made it easier for researchers to analyze co-authorship networks, co-occurrence of keywords, and citation connections (Aria & Cuccurullo, 2017; van Eck & Waltman, 2010). Recent research highlights the usefulness of bibliometrics in knowledge synthesis from various fields such as management, technology adoption, and human resource management (Tiwari et al., 2023).

In the case of artificial intelligence (AI), bibliometric investigations have traced the fast-growing trends of AI research in human resource management (HRM), talent acquisition, and labor platforms. For example, Agadi and Kinange (2024) have explored the bibliometric trends in AI-enabled HRM and found clusters related to the topics of recruitment automation, performance analytics, and workforce engagement. Likewise, Goel et al. (2024) have made use of network visualizations to reveal the growing importance of AI in digital labor markets where platform-based employment is changing the employment landscape. These examples prove the notion that bibliometrics provides both synthesis and understanding of the socio-technical transformations taking place.

In the Indian context, bibliometric reviews demonstrate a steady growth in the number of publications in relation to AI in the recent years and reflect the growing importance of India within the digital economy globally (Sharma et al., 2024). These works show that Indian scholars contribute to the global discussions about AI implementation especially in the domains associated with workforce transformation, industry 4.0 and human capital development. The identified thematic clusters focus on the topics of skill development, reskilling policies and frameworks which are in accordance with the country's initiatives such as Digital India and Skill.

On the other hand, there have been extensive discussions on the influence of AI on the labour market in the empirical and theoretical literature. AI will likely transform employment structures through skill-based polarization where there will be increasing demands for both cognitive skill jobs and service jobs while demand for automatable middle-skill jobs is expected to decline (Ganuthula & Balaraman, 2025). The automation of routine and repetitive tasks will mainly take place in industries such as manufacturing and BPO services. New job categories will emerge in data science, AI ethics and human-AI collaboration.

Additionally, bibliometric analyses conducted in various sectors including HRM, diversity and workplace inclusion provide information on socio-economic implications of the adoption of AI technology.

For instance, Sehgal and Thenmozhi (2024) cluster research based on algorithmic fairness, recruitment bias, and need for an inclusive framework of AI. Similarly, Sharma et al. (2024) analyse the intersectionality between AI and workplace diversity focusing on ethics and organisational accountability. It can therefore be concluded that the effect of AI on labour is not only technological but socio-economic.

Together, the literature presents two interlocking paths. On the one hand, bibliometrics have been found to be an effective tool for analyzing the development of research related to AI, identifying prevailing themes, and studying networks of collaboration. On the other hand, empirical research on the influence of AI on the labor market suggests transformative changes in employment, skill sets, and socio-economic processes. However, there is a lack of research combining these two areas, namely, bibliometrics of the influence of AI on the labor market in India. Filling in this gap is important both in an academic context and in the field of policy-making and practice.

Methodology

The present research applies the bibliometric technique to provide a comprehensive analysis of the research environment associated with Artificial Intelligence (AI) and the labour market in India. Over the years, bibliometric techniques have been widely acknowledged as an effective way to assess the development and structure of scientific knowledge (Donthu et al., 2021; Aria & Cuccurullo, 2017). Using various quantitative methods of analysis, bibliometrics makes it possible to reveal thematic groups, key authors, institutional cooperation, and new research directions.

For this paper, the Dimensions database was chosen to retrieve data. This academic database is known as one of the most complete ones, covering peer-reviewed journal articles, conference papers, policy documents, and preprints in multiple disciplines (Herzog et al., 2020). Therefore, its comprehensiveness makes it more appropriate to analyse interdisciplinary topics such as AI and labour market studies, which combine economics, computer science, management, sociology, and policy analysis.

The data collection was restricted to the years 2019 to 2025, in order to include the latest developments and thus ensure that the results would represent the current discussion regarding the impact of AI adoption on the labour market in India. The selected time span aligns with the rapid development of the international discourse on the future of work after the emergence of the COVID-19 crisis and its implications for the use of digital and AI technologies at the workplace (ILO, 2023).

A set of specific keywords was used to narrow down the research process. These included: Artificial Intelligence, AI, Labour Market, Employment, and India. They ensured the inclusion of both the technological aspects ("Artificial Intelligence" and "AI") and the research on the labour market and employment issues ("Labour Market" and "Employment"). Geographical aspect was ensured through the keyword "India".

After obtaining the relevant data, the pre-processing stage began. It included filtering of duplicate papers, incomplete articles, and irrelevant sources. The metadata of the selected papers was standardised to improve the accuracy of the results. This step is necessary to prevent distortion of network visualization and citation analysis (Moed, 2005).

After cleaning the data set, it was analyzed using VOSviewer. This is a bibliometric software tool used to create visual maps of bibliometric networks (van Eck & Waltman, 2010). It has advanced features for creating network maps showing connections between publications, authors and keywords. The software was used in this paper for: Citation analysis. This is an analysis method that measures intellectual influence through identification of publications with many citations, revealing the highly influential publications in AI and labor studies. Co-Authorship Networks. These are networks indicating collaboration among scholars in AI and labor studies, providing information on the level of international and domestic collaboration in AI and labor studies research field. Bibliographic Coupling, where two publications are connected based on the number of common references they have.

This set of analyses paints a clear picture of the knowledge space in the domain of AI and labor studies in India. The bibliometric analysis, through its visualization techniques for patterns of knowledge creation, collaboration, and theme concentration, allows us to discern themes, key players, collaboration patterns, and knowledge gaps in this field. This knowledge not only helps scholars understand the field better but also helps decision makers understand the relationship between AI and labor in India.

Findings

The bibliometrics analysis suggests thematic groups that deal with AI and labour, employment, HRM, and labour market transformation. Some examples of thematic groups suggested by keyword co-occurrence mapping include automation, skills, gig economy, and workforce adaptation. The citation analysis confirms the impact of global research on the connection between AI and labour on research done in India. The provided information will serve as a base for the further study of Indian AI and labour research.

The bibliometric results are provided from different angles in order to give a comprehensive vision of Artificial Intelligence (AI) and labour research in India. Firstly, it is necessary to look at the publication trends and see what kind of annual growth there is in terms of scholarly publications in the field from 2016 to 2025. It will help identify the fluctuations in the number of publications, which usually coincide with changes in policies, technology development, and global discussions of automation and labour transformation. The next point is the analysis of the top sources and venues, which means the journals and proceedings of conferences where this research is being published.

Focus is now given on authorship and institutional affiliations, whereby the most productive authors, universities and research institutes that contribute the most, and the presence of either Indian or international collaboration in the research field are highlighted. This is followed by an investigation of the collaboration network, wherein the co-authorship patterns of the researchers are mapped using the VOSViewer program, which highlights various clusters of collaboration amongst researchers.

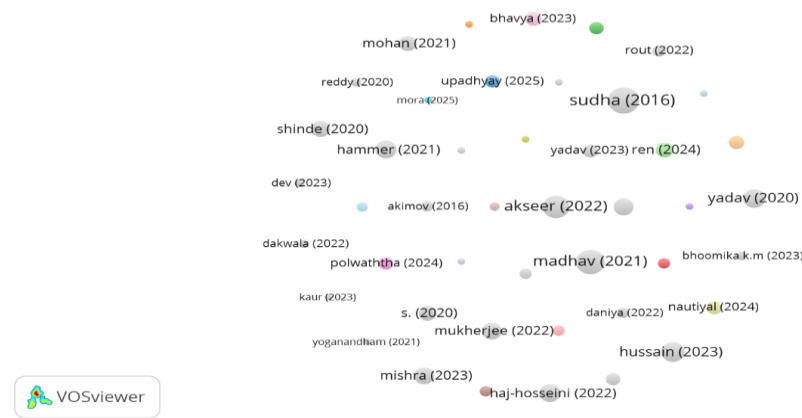


Figure 1: Citation : Cited Documents

Citation: Cited Documents

Citation document Threshold selected is 1, and hence, from 98 citation documents, 45 citation documents are found meeting the threshold, as shown in Table 1. The bibliometric study conducted using Figure 1 shows that publications in the range from 2016 to 2025 show an increasing trend in publication productivity per year. The most cited article is published by Sudha (2016) with 86 citations. Following it, Madhav (2021) is cited 66 times, and Akseer (2022) is cited 53 times. Some other influential articles are by Hussain (2023) with 33 citations, Yadav (2020) with 29 citations, and Hammer (2021) with 25 citations. The time period 2021-2023 shows the highest citation productivity with medium-level contribution by Mishra (2023; 19 citations), Mukherjee (2022; 20 citations), and Bonsay (2021; 20 citations). The research clusters highlighted a considerable consolidation of the research in the domain within this period. Even though the papers from the years 2024 and 2025 included in Table 1 have made their contribution to the emerging research in the field, they cited fewer numbers of sources, which is true for most of the latest papers in need of time to be cited. It can be concluded that there is a growing research interest in the selected domain, especially in the last five years.

Table 1: Citation: Documents

Author	Year	Citations	Author	Year	Citations
Sudha	2016	86	Maurya	2025	4
Madhav	2021	66	Daniya	2022	4

Akseer	2022	53	Johare	2022	4
Hussain	2023	33	Akimov	2016	4
Yadav	2020	29	Luwei	2024	4
Hammer	2021	25	Komatineni	2024	4
Haj-Hosseini	2022	22	Ravi	2023	3
Bonsay	2021	20	Dakwala	2022	2
Mukherjee	2022	20	Bhoomika K.M.	2023	2
Mishra	2023	19	Dev	2023	2
Shinde	2020	17	Singh	2023	2
Ren	2024	14	Reddy	2020	2
S.	2020	14	Sahoo	2023	1
Mohan	2021	13	Piska	2025	1
Bhavya	2023	12	Vatkar	2025	1
Ashoka	2023	9	Mora	2025	1
Nautiyal	2024	8	Patel	2024	1
Yadav	2023	8	Hajra	2017	1
Radhakrishnan	2021	6	Warbhe	2024	1
Polwaththa	2024	6	Yoganandham	2021	1
Upadhyay	2025	6	Ghate	2024	1
Saha	2025	6	—	—	—
Rout	2022	5	—	—	—

Citation : Source

Threshold used for Citation based on Sources selected is 1 as minimum number of citation and same for minimum number of documents at source, therefore among 85 documents, 43 documents exceed the threshold as shown in Figure 2 and Table 2. The 2016 IEEE Technological Innovations in ICT for Agriculture and Rural Development (TIAR) Conference Proceedings ranked highest by being cited 86 times. This was followed by Waste Management & Research: The Journal for a Sustainable Circular Economy (66 citations) and eClinicalMedicine (53 citations). Additionally, Worldwide Hospitality and Tourism Themes and SEDME: Small Enterprises Development Management & Extension Journal have been very impactful with 33 and 29 citations respectively. From the results, it can be noted that impactful scholarly outputs do not only come from one source but come from different fields including technology, sustainability, healthcare, and management. Conference proceedings such as the 2016 TIAR continue to have an impactful presence even several years later, whereas journal such as Waste Management & Research highlight the rise of sustainability in recent times.

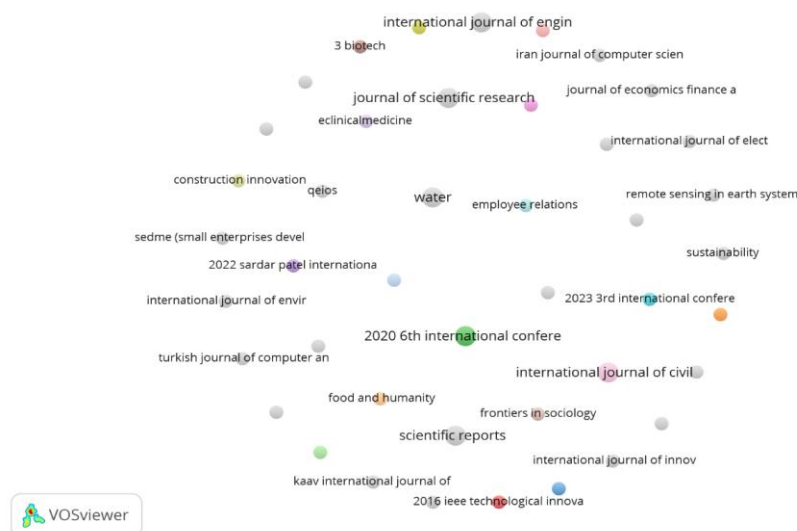


Figure 2: Citation: Source**Table 2: Citation : Source**

Source	Documents	Citations	Total Link Strength
2016 IEEE Technological Innovations in ICT for Agriculture and Rural Development (TIAR)	1	86	0
2020 6th International Conference on Advanced Computing and Communication Systems (ICACCS)	2	14	0
2020 International Conference on Industry 4.0 Technology (I4Tech)	1	17	0
2022 International Conference on Advancements in Smart, Secure and Intelligent Computing (ASSIC)	1	5	0
2022 Sardar Patel International Conference on Industry 4.0 – Nascent Technologies and Sustainability for 'Make in India' Initiative	1	2	0
2023 3rd International Conference on Innovative Sustainable Computational Technologies (CISCT)	1	1	0
2024 Parul International Conference on Engineering and Technology (PICET)	1	1	0
3 Biotech	1	2	0
Agricultural Reviews	1	13	0
American Journal of Agricultural Science Engineering and Technology	1	6	0
Asian Journal of Civil Engineering	1	4	0
Catalyst Feminism Theory Technoscience	1	6	0
Construction Innovation	1	1	0
eClinicalMedicine	1	53	0
Employee Relations	1	25	0
Food and Humanity	1	6	0
Frontiers in Sociology	1	4	0
International Journal of Civil Law and Legal Research	2	2	0
International Journal of Electrical and Computer Engineering (IJECE)	1	1	0
International Journal of Engineering Technology and Management Sciences	2	2	0
International Journal of Environment and Climate Change	1	9	0
International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences	1	4	0
Iran Journal of Computer Science	1	6	0
Journal of Economics Finance and Accounting Studies	1	20	0
Journal of Electrical Systems and Information Technology	1	4	0
Journal of Maxillofacial and Oral Surgery	1	22	0
Journal of Mobile Multimedia	1	4	0
Journal of Scientific Research and Reports	2	8	0
Journal of Service Science and Management	1	3	0
KAAV International Journal of Law Finance & Industrial Relations	1	1	0
Management Matters	1	20	0
Qeios	1	1	0
Remote Sensing in Earth Systems Sciences	1	1	0
Scientific Reports	2	15	0
SEDME (Small Enterprises Development Management & Extension Journal)	1	29	0
Sixteenth International Conference on Solid State Lighting	1	1	0

and LED-Based Illumination Systems			
Sustainability	1	19	0
The Indian Journal of Labour Economics	1	2	0
Turkish Journal of Computer and Mathematics Education (TURCOMAT)	1	1	0
Waste Management & Research – The Journal for a Sustainable Circular Economy	1	66	0
Water	2	20	0
World Economy and International Relations	1	4	0
Worldwide Hospitality and Tourism Themes	1	33	0

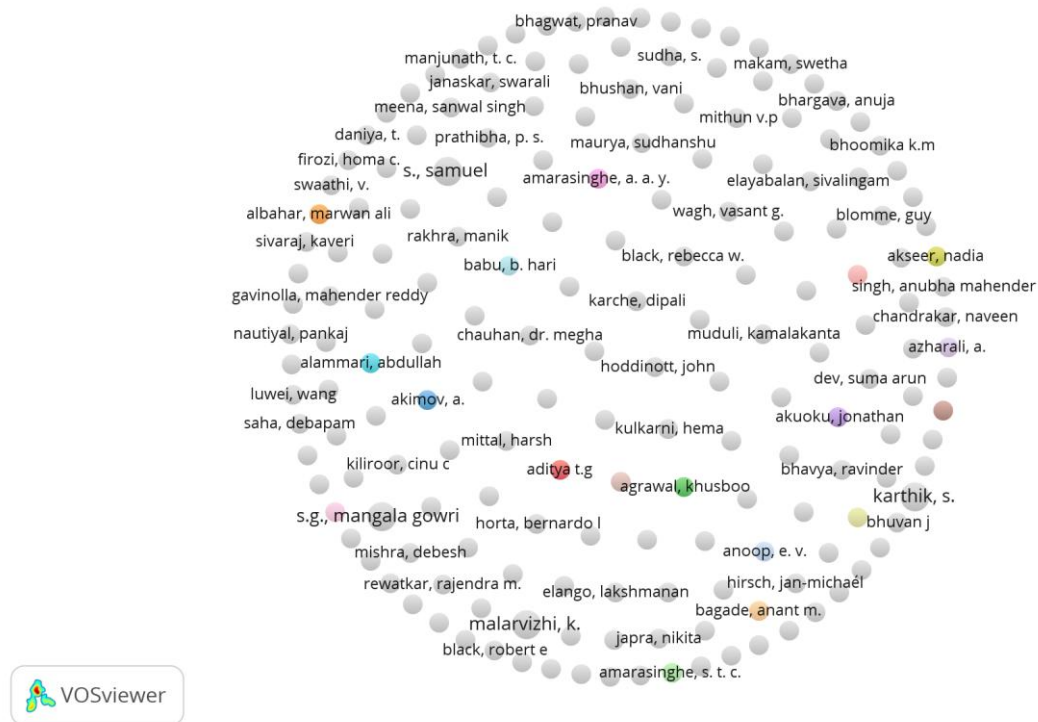


Figure 3 : Citation : Authors

Citation: Authors

Minimum Number of citation of Author and Document asre chosen as 1, so out of 321 authors 183 meet the threshold. shown in presented in Figure 3 and in Table 3 shows the top 20 authors with maximum citations

Sudha (86 citations), Pavithra (86 citations), Sangeetha (86 citations), and Vidhyalakshmi (86 citations) were identified as the most frequently cited authors in the dataset. These authors were followed by Harini, Killoor, Madhav, and Rajaraman (66 citations each), who had a high level of author influence in the period of 2021-2023. Another set of scholars, which included Akseer, Black, Hoddinott, Shekar, Shine, and Sanchez-Hernandez (53 citations each), represented international collaboration within the field. Authors like Hussain, Mohanty, and Singh (33 citations each) were also considered to have mid-level scholarly influence. Moreover, Tripathi (Mano Ashish and Ravindra) received 29 citations each. Thus, one may observe that there is a tendency for citation impact to be concentrated around a small set of authors who make fundamental contributions.

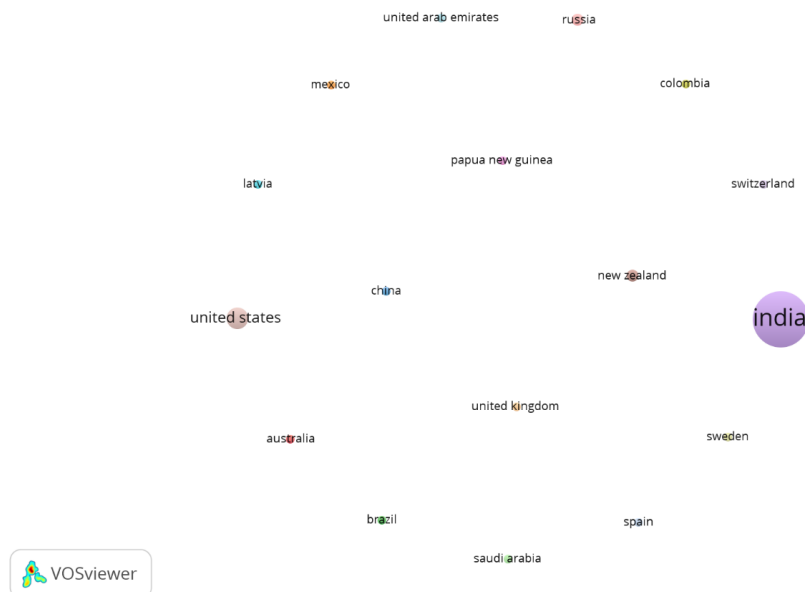
Table 3: Citation: Authors

Author	Documents	Citations	Author	Documents	Citations
Sudha, S.	1	86	Shine, Ritta	1	53
Pavithra, K.	1	86	Sanchez-Hernandez, Diana	1	53
Sangeetha, K.	1	86	Wazny, Kerri	1	53
Vidhyalakshmi, M.	1	86	Hussain, Sarah	1	33
Harini, S.	1	66	Mohanty, Priyakrushna	1	33
Killoor, Cinu C.	1	66	Singh, Anubha Mahender	1	33
Madhav, A. V. Shreyas	1	66	Tripathi, Mano Ashish	1	29
Rajaraman, Raghav	1	66	Tripathi, Ravindra	1	29
Akseer, Nadia	1	53	—	—	—
Black, Robert E.	1	53	—	—	—
Hoddinott, John	1	53	—	—	—
Shekar, Meera	1	53	—	—	—

Citation: Countries

India had the highest number of publications at 41 and the highest number of citations at 359 as shown in Figures 4 and Table 4, thereby making India the most prominent contributor to the research domain. Coming second was the United States of America, which had 6 publications with 84 citations. Both Brazil and Switzerland each had 53 citations for their single publication, signifying the impact of selective publications from these two countries. Other contributors were Europe with Latvia having 33 citations, the United Kingdom with 25 citations and Sweden with 22 citations. Australia and Papua New Guinea also each contributed one highly impactful publication, which had 19 citations.

In general, the results indicate that while India dominates the research area in terms of productivity and citations, there is significant global involvement in the research area. Impactful contributions from countries with low numbers of publications signify the global and multidisciplinary nature of the research area.

**Figure**

Citation : Countries

Like wise, nations like Australia and Papua New Guinea have made significant single contributions with 19 citations each. In general, the results show that while India remains dominant in terms of production and citations, the world is involved in the research field. High-impact contributions from nations that have produced relatively low number of papers indicate the international aspect of the research.

Table 4 : Citation: Countries

Country	Documents	Citations
India	41	359
United States	6	84
Brazil	1	53
Switzerland	1	53
Latvia	1	33
United Kingdom	1	25
Sweden	1	22
Australia	1	19
Papua New Guinea	1	19
New Zealand	2	15

Cocitations: Cited Sources

The citation sources are useful for evaluation of the journal's co-citations, journal selection, and collection for the publication-oriented researchers in a specific area. Minimum number of citations considered is 5. As a result, 44 cited sources have been found and presented in Figure 5 and Table 5. Top 10 sources have been identified based on the highest citations and total link strength. Computers and Electronics in Agriculture has been identified as the most significant source of co-citation with 48 citations and highest total link strength (1143), highlighting its importance in the intellectual structure of the area. Sensors (26 citations and 834 link strength) and IEEE Access (29 citations and 483 link strength) are also prominent sources with wide scholarly connectivity. Other prominent sources include Agriculture (14 citations and 466 link strength), Sustainability (17 citations and 325 link strength), and Biosystems Engineering (12 citations and 358 link strength). Some other journals such as Remote Sensing, Scientific Reports, and Multimedia Tools and Applications have also been found with co-citation linkages across multiple thematic clusters. These results indicate that the research area is supported by only a few journals that have high influence and interdisciplinarity, especially those related to agriculture, sustainability, and technological.

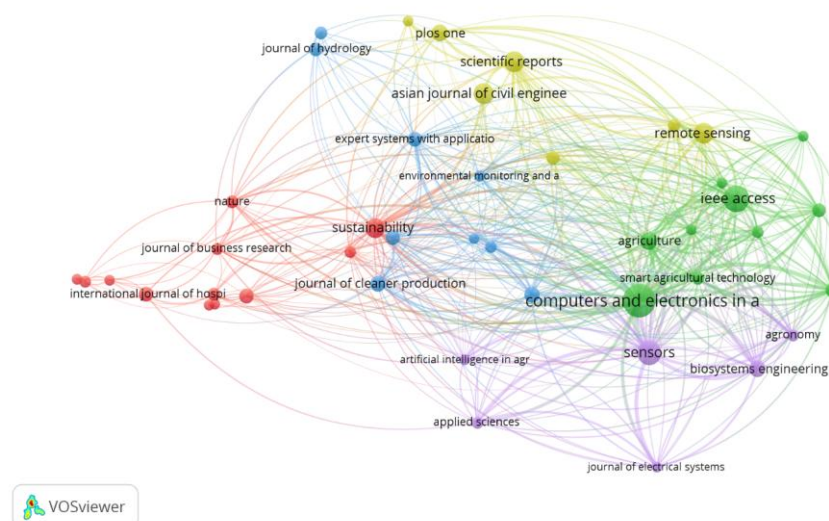
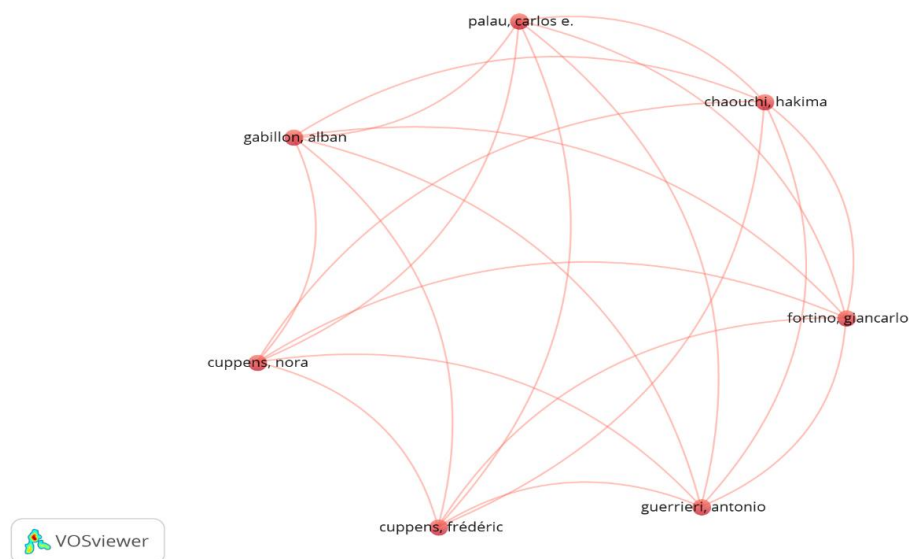


Figure 4: Cocitation : Cited Sources

Table 5 : Cocitation: Cited Sources

Source	Citations	Total Link Strength
Computers and Electronics in Agriculture	48	1143
Sensors	26	834
IEEE Access	29	483
Agriculture	14	466
Sustainability	17	325
Biosystems Engineering	12	358
Remote Sensing	18	250
Journal of Electrical Systems and Information Tech	5	250
Scientific Reports	18	277
Multimedia Tools and Applications	8	267

**Cocitations: Cited Authors**

Name the authors that contributed to the existing body of knowledge concerning this issue and explain its intellectual base (González-Teruel, 2015). As can be seen from Figure 6 and Table 6, minimum number of citation of author is 1 and the result is based on 20 authors. There are some authors that became the core of co-citation network even having not many citations. Such scholars as Chaouchi, Cuppens (Frédéric and Nora), Fortino, Gabillon, Guerrieri, and Palau managed to show the link strength of 6, which indicates that they were consistently cited together with other relevant sources. Some other important participants of the research process include authors such as Das, Patel, Rai, Sarkis, and Singh; each of them has a total link strength of 4, which means that they appear together with other sources in citation clusters. Although the citation rates of the scholars in question are not particularly high (mostly being one), the high link strengths show how significant these authors are for the intellectual base of the field.

Table 6 : Cocitation: Cited Authors

Author	Citations	Total Link Strength
Chaouchi, Hakima	1	6
Cuppens, Frédéric	1	6
Cuppens, Nora	1	6
Fortino, Giancarlo	1	6
Gabillon, Alban	1	6

Guerrieri, Antonio	1	6
Palau, Carlos E.	1	6
Das, Nripendra Narayan	1	4
Patel, Govind Singh	1	4
Rai, Amrita	1	4
Sarkis, Joseph	1	4
Singh, R. P.	1	4

Bibliographic Coupling – Authors

The bibliographic coupling analysis highlights differences in authors' connectivity within the research network. Authors such as Akseer, Black, Hoddinott, and Horta demonstrated the highest Total Link Strength (TLS = 840), indicating that their publications are central to the intellectual structure of the field despite each contributing only one document. This suggests that their work is highly coupled with others and plays a key role in shaping the shared knowledge base. In contrast, authors with moderate TLS values (e.g., Chandrakar, Naveen; Komatineni, Bharath Kumar) reflect connections with existing scholarship but are less central. Authors with zero TLS (e.g., Bhoomika

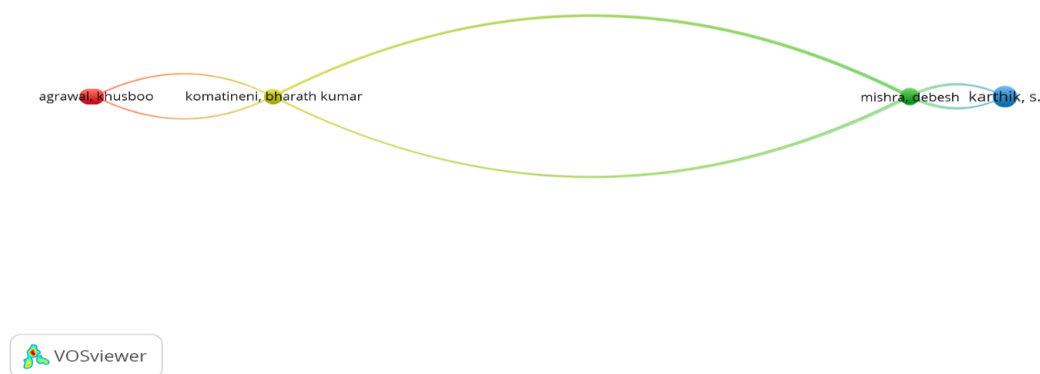


Figure 5: Bibliographic Coupling: Authors

K. M.; Pavithra G.; Amarasinghe, S. T. C.) have limited or no bibliographic coupling, which may indicate that their studies are either isolated or represent emerging themes. Interestingly, citation counts do not always correspond with TLS. For example, Amarasinghe (citations = 6, TLS = 0) has received recognition in the form of citations but has not established strong bibliographic linkages. This distinction shows that TLS is more reflective of network integration, while citations indicate direct scholarly impact. Overall, authors with both high TLS and citation counts form the intellectual core of the domain, whereas others with low TLS may represent specialized, peripheral, or developing research contributions.

Table 7: Bibliographic Coupling: Authors

Author	Documents	Citations	TLS	Author	Documents	Citations	TLS
Akseer, Nadia	1	53	840	Shekar, Meera	1	53	840
Akuoku, Jonathan	1	53	840	Shine, Ritta	1	53	840
Black, Robert E.	1	53	840	Tasic, Hana	1	53	840
Hoddinott, John	1	53	840	Wazny, Kerri	1	53	840
Horta, Bernardo L.	1	53	840	Wigle, Jannah	1	53	840
Japra, Nikita	1	53	840	Amarasinghe, S. T. C.	1	6	0
Nwuneli, Ndidi	1	53	840	Bhoomika, K. M.	1	2	0
Onah, Michael Nnachebe	1	53	840	Bhushan, Vani	1	2	0

Rajakumar, Ramraj	1	53	840	Pavithra, G.	1	2	0
Sanchez-Hernandez, Diana	1	53	840	Sindhu Shree, M.	1	2	0

TLS = Total Link Strength, a measure of bibliographic connectivity.

Bibliographic Coupling – Documents

The number of common references used in literature is known as bibliographic coupling (Waheed, 2018). The bibliographic coupling study showed the considerable differences in documents concerning citations and Total Link Strength (TLS). There were several documents with high citations but without coupling. Sudha (2016) was the document with the highest number of citations (86) but the TLS of zero, which shows the lack of connection with other works despite high citation. Likewise, Hussain (2023; 33 citations) and Akseer (2022; 53 citations) were very well-cited but had no bibliographic coupling.

However, there were some documents that showed both citations and high TLS, meaning their presence in the network. Komatineni (2024; TLS = 5), Mishra (2023; TLS = 5) and Saha (2025; TLS = 3) can be mentioned as good examples with both citations and bibliographic coupling with relevant research.

Documents with low or zero citations and TLS (Piska, 2025; Vatkar, 2025; Ghate, 2024) can be an example of emerging fields of research or isolated research that has no presence in the scientific network.

Thus, it can be concluded that there is no link between citation and TLS. High citations show individual impact while high TLS reflects scientific interconnectedness and thematic integration. Documents with both high citations and TLS can be considered the intellectual anchors of the field.

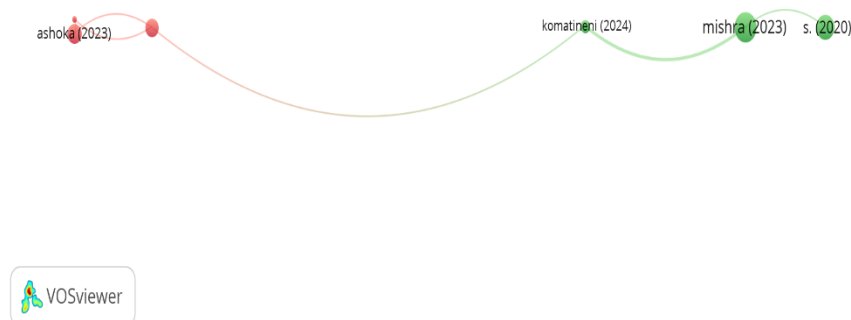


Table 8: Bibliographic Coupling: Documents

Document	Citations	TLS	Document	Citations	TLS
Maurya (2025)	4	0	Mishra (2023)	19	5
Saha (2025)	6	3	Hussain (2023)	33	0
Upadhyay (2025)	6	3	Yadav (2023)	8	0
Piska (2025)	1	0	Kaur (2023)	1	0
Vatkar (2025)	1	0	Sahoo (2023)	1	0
Mora (2025)	1	0	Bhoomika K.M. (2023)	2	0
Patel (2024)	1	0	Dakwala (2022)	2	1
Komatineni (2024)	4	5	Rout (2022)	5	0
Polwaththa (2024)	6	0	Mukherjee (2022)	20	0
Luwei (2024)	4	0	Haj-Hosseini (2022)	22	0

Ren (2024)	14	0	Akseer (2022)	53	0
Warbhe (2024)	1	2	Daniya (2022)	4	0
Nautiyal (2024)	8	3	P. Johare (2022)	4	0
Ghate (2024)	1	0	Bonsay (2021)	20	0
Ravi (2023)	3	0	Madhav (2021)	66	1
Ashoka (2023)	9	2	Radhakrishnan (2021)	6	0
Singh (2023)	2	0	Mohan (2021)	13	0
Bhavya (2023)	12	0	Hammer (2021)	25	0
Dev (2023)	2	0	Yoganandham (2021)	1	0
Shinde (2020)	17	0	Yadav (2020)	29	0
Reddy (2020)	2	0	S. (2020)		

Conclusion

A bibliometric analysis of research on Artificial Intelligence (AI) and labour in India shows an area that is growing at an increasing pace and also becoming increasingly interdisciplinary. From 2016 to 2025, publications and citations show both sustained growth as well as diversification, with spikes coinciding with technological developments, government policies and global concerns regarding automation.

Some of the seminal works include those by Sudha (2016), Madhav (2021), and Akseer (2022), while newer works that are less cited show newer trends being researched. Patterns in authorship and institutions suggest a mix of domestic and foreign research, with India being ahead in productivity as well as other nations making considerable contributions, namely the US, Brazil and Switzerland.

In terms of co-authorship and co-citation patterns, while a small number of sources and authors make up the anchor of this knowledge domain, with prominent journals being Computers and Electronics in Agriculture and authors including Akseer, Black, and Hoddinott. There is also widespread production of knowledge, with several clusters of influence. The main observation derived from the bibliographic coupling analysis is that there is a gap between citation counts and network connectivity where authors and documents with many citations but weak TLS include Sudha (2016). Those with citations and coupling like Komatineni (2024) and Mishra (2023) indicate more recognition and embeddedness. This means that while citation counts reflect recognition, TLS reflects thematic and structural integration.

Generally, the conclusions made from the analysis is that the discipline of AI and labour has begun moving from a state of isolation to an interconnected one. The influence of important works still shapes the field, but the newer works have started building up thematic links leading to intellectual integration. Moving forward, with the evolution of this field, there is potential for future collaboration in the converging fields of technology, policies, and labor studies.

Implications

Several implications can be drawn from this bibliometric research related to the field of interaction between Artificial Intelligence (AI) and labour research.

- Implications for theory: Firstly, it was shown that citation impact does not always correlate with bibliographic coupling, which means that academic influence is multidimensional. High-citation yet low-coupling articles indicate the necessity for a more complex consideration of the influence of scholarly articles by using not only citations, but also structural indicators like Total Link Strength (TLS). Secondly, thematic clusters identified, such as automation and employment, AI-based human resource management, skill development, can serve as a basis for further elaboration of theoretical models combining technology and labour research.
- Implications for practice: Practitioners working in the fields of human resource management, technology development, and organizational strategy should note that interdisciplinary knowledge becomes increasingly important. Central position of agricultural, sustainable and healthcare-related journals shows that the applications of AI to labour are not limited to one industry only.
- **Policy Implications :** At the policy level, the results demonstrate the leading role that India plays in AI and labour research as well as the necessity for the international cooperation in this field. Policymakers are recommended to promote cross-border collaboration in research to take advantage of knowledge worldwide, illustrated by significant contributions made by such

countries as Brazil, Switzerland, and USA. The emergence of themes related to skill development and labour transformation also means that national and regional policies should pay attention to adjusting curricula to the new needs of AI-based economy.

- Research implications: Bibliometric analysis provides information about existing as well as newly emerging fields of research. Although some of the works are classic ones, new papers with coupling strength suggest further research opportunities in this area. Researchers are advised to work on the connections found and develop an integrative framework.

Scope of Study

In this case, the study will be devoted to bibliometric analysis of research concerning the interrelation of Artificial Intelligence (AI) and labor issues in India, considering the period of time from 2016 to 2025. It will include analysis of publication trends, major sources, major authors, institutions contributing to research and international collaboration in the sphere. Besides, the study will be carried out through the analysis of co-citation, bibliographic coupling, and thematic clustering. Although there is going to be the focus on national and global contribution, the primary attention will be paid to revealing the patterns of development, influence, and integration.

References

1. Agadi, S. S., & Kinange, U. (2024). Artificial intelligence applications in human resource management: A bibliometric analysis. *International Journal of Human Resource Studies*, 14(2), 45–67.
2. Agadi, K., & Kinange, U. (2024). A bibliometric review of artificial intelligence in talent acquisition with respect to India. *GBS Impact: Journal of Multi Disciplinary Research*, 9(2), 162–174.
3. Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
4. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
5. Ganuthula, R., & Balaraman, R. (2025). Artificial intelligence and the labour market: Trends, challenges, and policy implications. *Journal of Future Work Studies*, 3(1), 22–41.
6. Ganuthula, V. R. R., & Balaraman, K. K. (2025). Skill-based labor market polarization in the age of AI: A comparative analysis of India and the United States. *arXiv preprint*. <https://arxiv.org/abs/2501.15809>
7. Georgieva, K. (2024, January 15). AI will impact 40% of jobs globally, says IMF chief. *The Hindu*. <https://www.thehindu.com/business/Economy/ai-will-impact-40-of-jobs-globally-says-imf-chief/article67742839.ece>
8. Gopinath, G. (2023, January 18). AI could impact 30% of jobs in India: IMF. *CNBC TV18*. <https://www.cnbctv18.com/technology/wef-2023-gita-gopinath-says-ai-could-impact-30-of-jobs-in-india-18816901.htm>
9. Goel, A., Mehra, R., & Kapoor, P. (2024). Digital labour platforms and artificial intelligence: A bibliometric mapping. *Asian Journal of Management Research*, 15(1), 102–121.
10. Goel, V., Unny, B. R., Shome, S., & Gupta, Y. (2024). Digital labour: A systematic literature review and bibliometric analysis. *International Journal of Organizational Analysis*, 32(5), 967–1007.
11. Herzog, C., Hook, D., & Konkiel, S. (2020). Dimensions: Bringing down barriers between scientometricians and data. *Quantitative Science Studies*, 1(1), 387–395. https://doi.org/10.1162/qss_a_00020
12. International Labour Organization. (2023). *The economics of artificial intelligence: Implications for the future of work*. ILO Publications. <https://www.ilo.org/publications/economics-artificial-intelligence-implications-future-work>
13. International Labour Organization. (2024, March 3). Latest ILO study links AI to dip in labour income. *The Hindu*. <https://www.thehindu.com/business/Economy/latest-ilo-study-links-ai-to-dip-in-labour-income/article68606087.ece>

14. International Labour Organization & Institute for Human Development. (2024). *India employment report 2024*. ILO Publications.
15. Ministry of Finance. (2024). *Economic survey 2023–24*. Government of India.
16. Moed, H. F. (2005). *Citation analysis in research evaluation*. Springer.
17. NITI Aayog. (2022). *India's booming gig and platform economy*. Government of India.
18. Pandey, N., Kumar, S., & Donthu, N. (2021). Bibliometric analysis: An overview and application in marketing research. *Journal of Business Research*, 131, 285–297.
19. Pandey, S., Verma, M. K., & Shukla, R. (2021). A scientometric analysis of scientific productivity of artificial intelligence research in India. *Journal of Scientometric Research*, 10(2), 245–250.
20. Prakash, A., & Rathi, S. (2025). Skill-based labor market polarization in the age of AI. *arXiv preprint*. <https://arxiv.org/abs/2501.15809>
21. Sehgal, M., & Thenmozhi, R. (2024). Diversity, inclusion, and artificial intelligence: A bibliometric exploration. *Journal of Organizational Change Management*, 37(2), 314–332.
22. Sehgal, W., & Thenmozhi, M. (2024). Artificial Intelligence (AI) in human resource management (HRM): A bibliometric research. *International Journal of Convergent Research*, 1(1).
23. Sharma, R., Gupta, V., & Thomas, A. (2024). Artificial intelligence, ethics, and workplace diversity: A bibliometric review. *International Journal of Ethics in Technology*, 9(3), 56–78.
24. Sharma, C., Srivastava, R., Rajput, A., Mukherjee, R., & Chandra, S. (2024). Evaluating AI's role in enhancing DE and I: A bibliometric approach. *International Research Journal on Advanced Engineering and Management*, 2(6).
25. Tiwari, S., Mishra, R., & Patel, K. (2023). Mapping research on Industry 4.0: A bibliometric study. *Technological Forecasting and Social Change*, 187, 122177. <https://doi.org/10.1016/j.techfore.2022.122177>
26. Tiwari, A., Bardhan, S., & Kumar, V. (2023). A bibliographic study on Artificial Intelligence research: Global panorama and Indian appearance. *arXiv preprint*.
27. van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
28. World Economic Forum. (2023). *The future of jobs report 2023*. World Economic Forum. <https://www.weforum.org/reports/future-of-jobs-2023>
29. World Economic Forum. (2025). *AI for India 2030: Blueprint for inclusive growth and global leadership*. World Economic Forum. <https://www.weforum.org/stories/2025/01/ai-for-india-2030-blueprint-inclusive-growth-global-leadership>.

