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A Bibliometric Analysis of Sociological Studies on the Social Impacts of Algorithmic Management

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Abstract

This study examines the social aspects and societal impacts of algorithmic management from a sociological perspective through bibliometric analysis. The research analyzes literature related to algorithmic management and governance using co-occurrence network analysis and thematic mapping. The findings reveal the wide-ranging effects of algorithms on workforce management, platform economy, and governance processes. Specifically, the terms algorithmic management and algorithmic governance occupy a central position in the literature, with increasing attention being directed toward these areas. Algorithmic management has established strong connections with platform work, gig economy, and algorithmic control, leading to significant transformations in the business world. Meanwhile, algorithmic governance is closely linked to artificial intelligence, blockchain, and transparency. This study incorporates critical sociological theories, such as Foucault's panopticism (Foucault, 1977), Giddens' structuration theory (Giddens, 1984), and Weber's rationalization theory (Weber, 1922), to provide a more comprehensive analytical framework. In conclusion, the study provides an in-depth analysis of the impacts of algorithms on social structures and workforce dynamics, suggesting that these themes require further exploration in future research.

Keywords: *Algorithmic management, social impact, sociology, bibliometric analysis.*

Algoritmik Yönetimin Sosyal Etkileri Üzerine Yapılan Sosyolojik Çalışmaların Bibliyometrik Analizi

Bu çalışma, bibliyometrik analiz yoluyla algoritmik yönetimin sosyal yönlerini ve toplumsal etkilerini sosyolojik bir bakış açısıyla inceler. Araştırma, eş zamanlı ağ analizi ve tematik haritalama kullanarak algoritmik yönetim ve yönetişimle ilgili literatürü analiz eder. Bulgular, algoritmaların işgücü yönetimi, platform ekonomisi ve yönetişim süreçleri üzerindeki geniş kapsamlı etkilerini ortaya koymaktadır. Özellikle, algoritmik yönetim ve algoritmik yönetişim terimleri literatürde merkezi bir konuma sahiptir ve bu alanlara giderek daha fazla dikkat çekilmektedir. Algoritmik yönetim, platform çalışması, geçici iş ekonomisi ve algoritmik kontrol ile güçlü bağlantılar kurmuş ve iş dünyasında önemli dönüşümlere yol açmıştır. Bu arada, algoritmik yönetişim yapay zeka, blok zinciri ve şeffaflıkla yakından bağlantılıdır. Bu çalışma, daha kapsamlı bir analitik çerçeve sağlamak için Foucault'nun panoptismi (Foucault, 1977), Giddens'ın yapılandırma teorisi (Giddens, 1984) ve Weber'in rasyonalizasyon teorisi (Weber, 1922) gibi kritik sosyolojik teorileri içermektedir. Sonuç olarak, çalışma algoritmaların sosyal yapılar ve işgücü dinamikleri üzerindeki etkilerine dair derinlemesine bir analiz sunmakta ve bu temaların gelecekteki araştırmalarda daha fazla araştırılması gerektiğini ileri sürmektedir.

Anahtar Kelimler: *Algoritmik yönetim, sosyal etki, sosyoloji, bibliyometrik analiz.*

1. INTRODUCTION

We inhabit a social world characterized by an unprecedented acceleration of technological change and transformation since the dawn of the modern era. These changes have permeated every facet of our lives, influencing both individual behaviors and institutional structures. Technological advancements have enabled the more active development of scientific endeavors and the enhancement of corporate performance through the implementation of algorithms. Algorithmic management, a management approach grounded in algorithms, leverages big data analytics and artificial intelligence to support or fully automate decision-making processes within organizations. The cornerstone of algorithmic management in businesses is the maximization of efficiency through the creation of datasets encompassing both the firm's core financial perspectives and employees' production performance. Consequently, the obtained data facilitate the development of more functional decision-making mechanisms to enhance financial discipline and improve employee performance levels. Algorithmic management, which streamlines business administration and reveals employees' capacity levels based on datasets, contributes to the emergence of a novel and unprecedented situation facilitated by platform economies and artificial intelligence. Moreover, algorithms are employed to gather and analyze data, thereby informing the decision-making process (Newell & Marabelli, 2015).

This new management approach is bound to affect not only businesses but also social structures. The transformations experienced in working life, the manipulation of the masses, and the instrumental role of algorithmic decision-making

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in addressing societal challenges illustrate how algorithms shape social structures. From another perspective, surveillance and control mechanisms, coupled with algorithmic calculations, contribute to the development of algorithmic management practices. Therefore, algorithms significantly impact various dimensions of social life. Sociology provides a valuable perspective for examining how algorithmic management influences social interactions, power relations, inequalities, and cultural shifts.

Despite its transformative potential, algorithmic management raises fundamental sociological questions concerning surveillance, power dynamics, and social inequalities. Drawing from Foucault's theory of panopticism (Foucault, 1977), this study explores how algorithmic control mechanisms reinforce hierarchical structures in digital labor markets. The pervasive nature of algorithmic surveillance creates a digital panopticon where workers are continuously monitored, fostering self-discipline and compliance with managerial expectations. Additionally, Giddens' structuration theory (Giddens, 1984) provides a lens to examine the reciprocal influence between algorithmic governance and social practices. This perspective highlights how algorithms do not merely dictate social interactions but are also shaped by the behaviors and responses of individuals engaging with them. Finally, Weber's concept of rationalization (Weber, 1922) sheds light on the bureaucratic efficiency that algorithmic systems introduce, along with its implications for human agency. While these systems optimize decision-making and administrative functions, they also raise concerns regarding the dehumanization of labor and the potential entrenchment of rigid bureaucratic structures.

The aim of this study is to analyze the sociological studies conducted on algorithmic management through bibliometric methods, thereby revealing the development of this field and identifying future research directions. Bibliometric analyses provide insights into the structure, development, and impact of a research area by examining the quantitative and qualitative characteristics of scientific publications. In this context, bibliometric analysis will focus on how the keywords algorithm, artificial intelligence, machine learning, automation, decision-making, and management are addressed in the context of algorithmic management, their historical development, and the degree of variation across different countries. At the same time, by linking the concept to keywords such as social interaction, organization, culture, power, inequality, and behavior within sociology, the study will examine emerging research trends and thematic areas of interest. Through this analysis, the relationship between algorithmic management and sociology will be clarified.

In addition, the number of publications related to algorithmic management in this study will be determined according to the following criteria: authors, countries, citations, journals, and changes over time. To conduct the evaluation, this study primarily addresses the following research questions: Which countries and institutions have contributed the most to this field? Who are the key authors in algorithmic management research? Which studies are the most cited in this field? What are the core concepts and research topics in this area? How have studies on algorithmic management evolved over time? The answers to these and similar questions will be provided in the analysis and evaluation section. Thus, by conducting a bibliometric review using the keywords "algorithmic management" and "sociology" in the Scopus database, this study will present the obtained data and analyze it through bibliometric tools.

2. ALGORITHMIC MANAGEMENT

Algorithmic management, in its broadest sense, is a management approach that involves the automation of business processes, the analysis of data or datasets, and the use of technologies such as artificial intelligence to support or fully automate decision-making processes through algorithms. In algorithmic management, algorithms are used to collect and analyze data, as well as to contribute to the decision-making process (Newell and Marabelli, 2015). In terms of process, algorithmic management goes beyond simple analytics and has replaced some tasks that were previously managed by humans in the early stages of modern industrial production, particularly those within the purview of middle managers (Jarrahi and Sutherland, 2019).

A significant deficiency in traditional industrial production decision-makers was the lack of substantial data or datasets to aid in decisions regarding production processes (Agarwal and Dhar, 2014). As these deficiencies were directly linked to the absence of complete and competent data or datasets, the potential for real-time improvement of the decision-making mechanism was hindered. Even small-scale manufacturing enterprises struggled to obtain real-time and long-term data for processes ranging from automation to product storage and even employee recruitment and performance evaluation. Moreover, processing this data was often impractical. The presence of these limitations highlighted the importance of algorithms, which, in conjunction with artificial intelligence-based programs, have become a crucial factor in both decision-making and enhancing inter-firm competition. Simply put, algorithmic

management involves integrating algorithms into business processes to improve efficiency, decision-making, and competitive advantage. This subject has become a focal point for the field of sociology, particularly industrial sociology. This is because industrial sociology, as a discipline, examines not only workers but also the impact of managerial decisions on working life.

Working life constitutes a part of everyday social life. Certain changes or transformations experienced in working life also lead to changes and transformations in specific aspects of social life; the reverse is also true. In other words, the changes and transformations occurring in the flow of daily life can cause changes and transformations in the dynamics of working life. For example, the desire or will for changes in consumption demands within the context of everyday life causes transformations in the centers where technological production is developed. The notion that only technology causes changes in these areas where mutual interaction practices occur is not the fundamental hypothesis of this article. Rather, this article emphasizes the importance of the interplay between technology and everyday practices. Indeed, the one-dimensional perspective often expressed in explaining social changes falls short in clarifying and understanding social phenomena; thus, interactivity will form the core starting point of this article. In this sense, algorithmic management should be examined not only as a technological innovation observed in businesses but also as a reflection of certain demands for change observed in working life. As indicated in the brief definition of algorithmic management mentioned above, the situational phenomena created by various factors actively contribute to generating changes and transformations. This becomes an inevitable change for both decision-makers and employees, socially impacting their working and daily lives, thus giving rise to new and different structures based on production and consumption.

Nevertheless, algorithms are gaining significant importance in today's working life. This is because algorithmic management based on algorithms is taking over tasks performed by human managers (Duggan et al., 2020). This situation extends not only to businesses but also to practical decision-making processes formed through algorithms at significant moments in social life. For example, in travel or dining situations, these algorithms have become functional, and individuals are developing their preferences based on the influence of these algorithms at the decision point (Orlikowski and Scott, 2014). However, this innovation is particularly commonly observed in the management of businesses, especially in the field of the flexible economy. For instance, global platforms like Uber, Deliveroo, and UpWork manage and closely monitor the global labor market with algorithms (Ajunwa and Greene, 2019). The aspect that can be expressed regarding the changes brought about by algorithms in the global platforms in terms of the labor market is the assignment of tasks on these platforms and the rating of employee performance. Feedback and suggestions on how to improve employee performance are provided through algorithms (Kellogg et al., 2019).

In terms of working life, algorithmic management cannot be limited to the flexible economy in the sense of employees being managed solely through algorithms. Moreover, algorithms are becoming functional in terms of providing individuals with different social, cultural, and economic preferences and demands. Individuals' demands, desires, and decisions can also be regulated through these algorithms, strengthening their role as intermediaries and helpers in overcoming problems that individuals may encounter in their daily lives. Moreover, algorithms are strengthening their role as a tool in helping traditional businesses and even organizations to discover the benefits of increased efficiency and data-driven decision-making. For example, big data and automation are at the top of the agenda of most businesses and institutions. Therefore, businesses and institutions are also being directed towards data-driven decision-making through these algorithms (Cowgill, 2019).

2.1. Understanding Algorithmic Management

Algorithmic management is fundamentally dependent on the availability of big data and datasets. These data are crucial in shaping individual decision-making and the structure of work. Data collection, in this context, involves gathering vast amounts of data from diverse sources both within and outside the organization, such as customer data, production data, and marketing data. Algorithms offer the promise of enhanced productivity by enabling computers and data to perform increasingly complex tasks more quickly and cost-effectively than humans (McAfee and Brynjolfsson, 2014).

The analysis of data obtained from the processing of algorithms constitutes another important issue in algorithmic management. At the heart of this situation is the analysis of collected data using statistical methods and machine learning algorithms. Through these analyses, businesses acquire a range of information. Moreover, the analysis of this data provides decision-makers with crucial information for areas such as employee performance, production capacity, and future projections (Yeung, K. 2017). As data is analyzed and supported by artificial intelligence-

powered programming, businesses, managers, and employees can experience improvements in the functionality of their decision-making mechanisms (Veen, et al., 2019).

Based on the information obtained from analyzed data, specific algorithms are developed to automate or improve certain business processes in algorithmic management. These algorithms are said to be necessary for improving the determination of strategic goals, making predictions, and increasing efficiency, especially in businesses. A similar situation was actually considered useful for ensuring the functionality of the management and bureaucratic mechanisms of traditional businesses (Weber, 1968). However, this idea has shortcomings in terms of the functional use of data due to the development of big data and data sets. Therefore, it has become an important topic to develop special algorithms with artificial intelligence technologies to actively use the data obtained from data analysis and to increase the decision-making capacity and performance of businesses. Consequently, special algorithms have become a source element in fulfilling the intermediary function of regulating the internal and external activity levels of businesses and, consequently, working life.

Algorithms generated from data analysis are employed in a multitude of decision-making scenarios within businesses, particularly by those in managerial roles. Applications include predicting potential equipment failures in production lines, delivering personalized product recommendations to consumers, and optimizing product launch timing. Algorithmic management thus enables foresight, spanning from production processes to customer preferences (Schweyer, 2018).

2.2. Advantages of Algorithmic Management

Diverging from traditional industrial work and management principles, algorithmic management, underpinned by algorithms derived from data processing and augmented by artificial intelligence, shapes a distinct structure for both decision-makers and employees within businesses. In the realm of productivity enhancement, where traditional production methods, hindered by vast datasets, fell short, algorithmic management has emerged as a pivotal force. By automating business processes, it facilitates faster and more accurate task execution. Notably, the scale of the workforce on 'sharing economy platforms' has prompted decision-makers to increasingly embrace algorithm-based decisions to streamline management through automation (Jarrahi and Sutherland, 2018).

Cost reduction is another significant advantage that algorithmic management offers businesses. By integrating artificial intelligence with algorithms to streamline production processes, product distribution, and marketing, businesses can optimize resource utilization, leading to substantial cost savings. For example, artificial intelligence can process large datasets to generate insights that human analysts cannot, while chatbots can provide instant responses to customer queries. These applications enable both businesses and consumers to access products more efficiently, reducing the likelihood of disruptions and associated costs in production and consumption processes (Frey and Osborne, 2017).

A notable advantage of algorithmic management lies in its ability to enhance decision quality. This is particularly evident in scenarios where data-driven decision-making is employed to minimize risks. By leveraging large datasets, decision-makers in organizations can extract valuable insights to improve the quality of their decisions (Fayyad et al., 2002). For instance, integrating artificial intelligence into processes such as recruitment, performance evaluation, and employee experience can mitigate risks associated with algorithmic management and ensure higher quality decision-making. Specifically, in recruitment, biases based on profession and skills can lead to incorrect hiring decisions. However, by employing AI-powered algorithms for employee selection, organizations can make more informed decisions, reducing the likelihood of errors based on social capital or other subjective factors.

It can also be said that algorithmic management creates a competitive advantage for businesses through algorithms created by data analysis. It allows for a faster and more flexible structure compared to competitors (Davenport and Harris 2007). Especially in production processes, algorithmic management provides improvements in production process optimization, quality control, and maintenance management; in marketing processes, it facilitates improvements in customer segmentation, personalized marketing, and pricing; and in financial terms, it is an important component in increasing the efficiency of businesses and highlighting their competitive advantages in areas such as risk management, credit evaluation, and fraud detection.

Algorithmic management is becoming increasingly influential in businesses and the workforce as it is a critical management approach that enables organizations to be more efficient, intelligent, and competitive.

2.3. Risks of Algorithmic Management

Despite the outlined advantages of algorithmic management, it is essential to recognize its potential drawbacks. The processes involved in data acquisition, processing, and analysis can introduce biases into algorithms. For example, a recruitment algorithm trained on historical data that shows certain genders or ethnicities have been less successful may perpetuate these biases in future hiring decisions. Algorithms designed to predict criminal behavior could also be susceptible to similar biases (Hannah and Moffat, 2018). This underscores the potential for bias in AI-driven and machine learning-based algorithms.

The lack of transparency in the data and datasets used to develop algorithms poses significant risks within the realm of algorithmic management. The intricate and often enigmatic nature of algorithmic decision-making processes can hinder decision-makers and consumers from fully understanding and interpreting the rationale behind algorithmic outputs. Notably, many algorithms, particularly deep learning models, are characterized as "black boxes" due to their complex structures (Brin, 1998). This opacity impedes our ability to comprehend the decision-making processes of algorithms and consequently undermines accountability.

While the lack of transparency in algorithms is a significant concern, the rise of big data in data processing and analysis exacerbates privacy issues. The collection and processing of vast quantities of data can lead to the dissemination of sensitive information, including data derived from decision-makers' choices and employee experiences, potentially resulting in a loss of control over personal information. Consequently, ensuring data security and privacy in algorithmic management necessitates an ethical framework. Given the ethical implications of data privacy in this context, the processing and storage of big data in algorithmic management must be conducted with the utmost sensitivity towards personal information.

Another aspect to consider within the context of the aforementioned risks is accountability. Today, there are significant social and political debates about the role of artificial intelligence-based algorithms as decision-makers in algorithmic management. At the heart of these debates is the comparison between human intelligence, which makes decisions based on different foundations, and artificial intelligence, which can process large amounts of data and make active decisions quickly based on specific algorithms (Leicht and Deobald et al., 2019). Consequently, the placement of artificial intelligence in a decision-making role within algorithmic management raises the question of who should be held accountable if the algorithms make incorrect decisions. In other words, this problem can be further expanded by the question: Should the designer, the user, or the algorithm itself be held accountable for the decisions made? The level of responsibility for the risks that may arise when autonomous systems controlled by algorithms (such as autonomous vehicles) make incorrect decisions represents an ethical dilemma that needs to be addressed in a context that is not evaluated in human terms.

While algorithms pose problems in terms of both accountability and transparency, another problematic area is social inequality. In algorithmic management, machine learning and artificial intelligence processing of data can discriminate against certain groups, deepening social inequalities and perpetuating these discriminatory processes through the created algorithms (O'Neil, 2016). Although algorithms are said to make accurate matches and comparisons as a result of data analysis, the possibility of these data hiding discriminatory policies at certain points is a source of deep concern (Eubanks, 2018). For example, if discriminatory practices are followed in algorithms developed for hiring, performance evaluation of some employees, credit scoring, assessment of criminals or the poor by local authorities/governments, or evaluation of employee experiences, this will create problematic areas both for businesses and for the content of social life. Since algorithms are regulated according to a certain principle of confidentiality, the possibility that artificial intelligence using these algorithms can discriminate in this unknowability and take a place in the decision-making mechanism is a source of great concern.

Driven by technological advancements, algorithmic management is in a constant state of flux. Organizations are increasingly turning to algorithmic management to gain a competitive edge and make more informed decisions. However, the ethical dimensions and potential risks inherent in algorithmic management cannot be overlooked. Therefore, it is crucial to prioritize ethical principles throughout the development and application of algorithms.

3. The Relationship Between Algorithmic Management and Sociology

The main focus of this study is to analyze the relationship between algorithmic management and sociology within the context of academic research on algorithmic management. One of the key questions in this discussion is how algorithmic management influences and is influenced by social structures. Among the most prominent aspects of this relationship is the social impact of algorithmic management, as algorithms shape decision-making processes across various domains, from business operations to social media platforms, thereby indirectly influencing social interactions, cultural norms, and structural inequalities. These transformations necessitate sociological inquiry into

how algorithms contribute to the reproduction of social hierarchies and whether they reinforce or mitigate existing inequalities.

One critical dimension of this process is surveillance and control. Algorithmic management functions as a modern mechanism of oversight, where digital monitoring systems establish a pervasive form of observation that fosters self-regulation among individuals. This notion aligns with Foucault's (1977) theory of panopticism, which conceptualizes surveillance as a disciplinary mechanism that instills self-discipline among subjects. In contemporary work environments, algorithmic surveillance creates a digital panopticon, wherein employees are constantly tracked, assessed, and guided by automated decision-making systems. As a result, power is redistributed from traditional managerial hierarchies to algorithmic structures, leading to a transformation in workplace governance.

Another essential aspect of algorithmic management's social impact is its role in shaping power dynamics. Algorithms are instrumental in defining workplace expectations and determining employee performance metrics, often reinforcing asymmetric power relations. As Gerber and Krzywdzinski (2019) argue, algorithmic decision-making in labor markets can heighten pressure on workers, creating a new hierarchy of control wherein performance evaluations and employment security become contingent on opaque algorithmic assessments. The increasing reliance on these systems necessitates sociological studies that interrogate how workers navigate and resist algorithmic control and whether these mechanisms contribute to new forms of labor exploitation or empowerment.

Additionally, algorithmic management is intertwined with issues of inequality and bias. Scholars such as Edelman et al. (2017) have demonstrated that artificial intelligence-driven hiring algorithms can reinforce systemic discrimination by encoding existing societal biases into automated processes. For instance, recruitment algorithms may inadvertently disadvantage specific demographic groups by perpetuating historical inequalities embedded in training datasets. This underscores the necessity of regulatory measures to ensure that algorithmic systems do not exacerbate existing disparities but rather serve as tools for promoting fairness and inclusivity.

Lastly, algorithmic management is deeply connected to cultural transformations. The algorithms employed in business environments and global platform economies influence consumption patterns, access to information, and interpersonal interactions. Seaver (2017) highlights that the increasing personalization of algorithmic recommendations can create "filter bubbles," wherein individuals are exposed only to content that aligns with their previous behaviors and preferences. This phenomenon can limit exposure to diverse perspectives, thereby intensifying social polarization. At the same time, digital labor platforms foster new cultural norms regarding flexibility, autonomy, and precarity in work arrangements, necessitating further sociological exploration into how these shifts reshape social identities and collective behaviors.

4. METHOD

4.1. Research Design

This study employs bibliometric analysis to examine the research trends, key contributors, and thematic developments in the field of algorithmic management from a sociological perspective. Bibliometric analysis is a quantitative research method used to evaluate academic literature by analyzing publication trends, citation patterns, and co-occurrence of keywords. This approach allows for an objective and systematic mapping of the intellectual landscape of a given research domain (Zupic & Čater, 2015).

4.2. Data Collection

The dataset for this study was obtained from Scopus, one of the largest and most comprehensive academic databases, covering peer-reviewed journal articles, conference proceedings, and book chapters. The search query included keywords such as algorithmic management, algorithmic governance, digital labor, gig economy, platform work, artificial intelligence, and sociology as seen in Figure 1. To ensure a representative sample, only peer-reviewed journal articles published between 2005 and 2024 were included. The initial dataset consisted of 175 articles, which were refined based on relevance, citation impact, and thematic alignment with the study's objectives.

4.3. Analytical Techniques

To examine the intellectual structure and evolution of algorithmic management research, multiple bibliometric techniques were applied. Co-occurrence network analysis was conducted to identify key themes and research clusters. This technique visualizes the relationship between frequently occurring keywords, allowing for the identification of dominant research topics. Citation analysis was used to determine the most influential studies and authors in the field. This method highlights foundational and high-impact works that shape the discourse on algorithmic management.

Thematic mapping was applied to trace the development of research trends over time. By mapping emerging and declining topics, this approach provides insights into the shifting focus of algorithmic management research. Collaboration analysis was used to examine international collaborations and institutional affiliations, revealing how knowledge production is distributed across regions and research communities.

4.4. Data Processing and Visualization

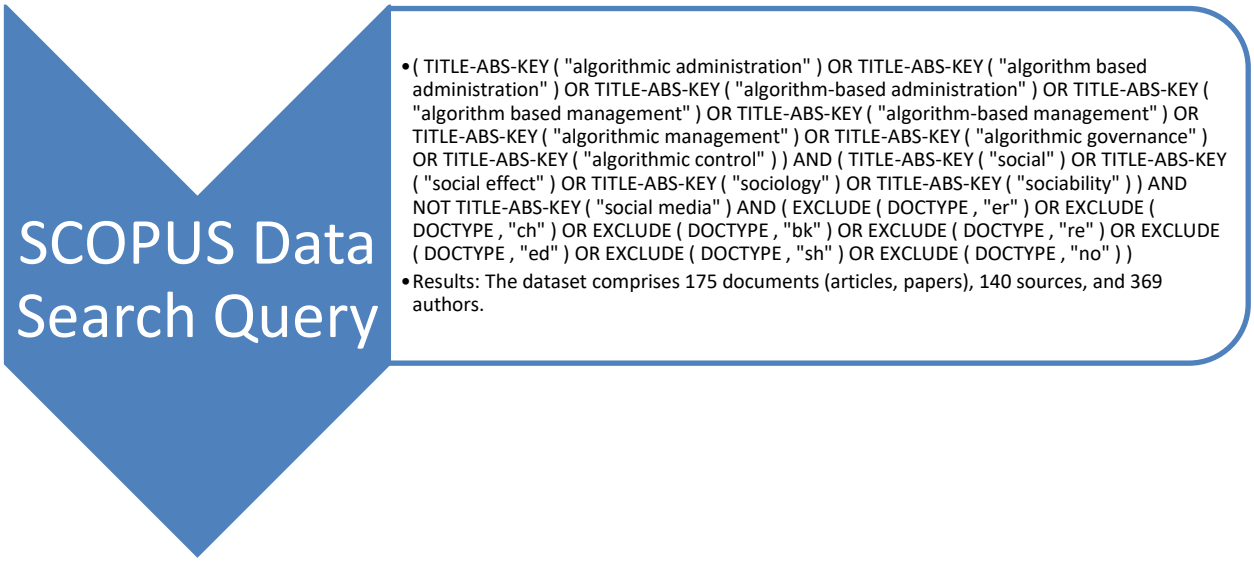
The bibliometric data were processed using R's bibliometrix package, which provides robust tools for performing quantitative analyses of scholarly publications. The results were visualized using VOSviewer, a widely used tool for constructing and visualizing bibliometric networks. Graphical representations, including keyword co-occurrence maps and citation networks, were generated to facilitate interpretation and discussion of findings.

4.5. Validity and Limitations

To ensure the validity of the results, multiple data verification steps were implemented, including cross-checking extracted metadata and removing duplicate records. However, this study has some limitations. While Scopus is a comprehensive database, it does not index all academic sources, and some relevant works may have been excluded. Additionally, bibliometric analysis provides quantitative insights but lacks qualitative depth in interpreting the nuances of theoretical and empirical contributions. Future studies may complement this analysis with systematic literature reviews or qualitative meta-analyses to provide a more interpretative understanding of the field.

This study conducts a bibliometric analysis of literature that employs big data in governance. Bibliometrics is a qualitative research method designed to analyze and visualize large, unstructured datasets (Donthu et al., 2021). Common databases for bibliometric analysis include Web of Science, Scopus, and Google Scholar (Karagöz and Şeref, 2019). Given its comprehensive nature, the Scopus database was selected for this study. The bibliometrix (Aria and Cuccurullo, 2017) package in R was used to conduct a bibliometric analysis of the retrieved data. Figure 1 illustrates the data filtering applied to the search criteria in Scopus to include and exclude specific data.

Figure 1. Flowchart of inclusion and exclusion of data.



As illustrated in Figure 1, the search query was designed to identify academic articles focusing on the social aspects of algorithmic management, excluding specific document types and those unrelated to social media. This Scopus-based search aimed to locate published research for a focused bibliometric analysis. The search yielded a dataset comprising 175 articles and papers, 140 sources, and 369 authors published between 2005 and 2024. Detailed information regarding this dataset is presented in Table 1.

Table 1. Fundamental Concepts of Data

Features	Results
Publication interval	2005:2024
References (Journals, Books, etc.)	140
Documents	175
Percentage Annual Growth Rate	21.1
Average Publication Age	2.45
Average Citations Per Publication	22.65
Published Content	
Keywords Plus (ID)	527
Author-provided keywords (DE)	679
Authors	
Number of Authors	369
Number of single authors	73
Author collaborations	
Single-author publications	75
Number of co-authors per publication	2.33
International Co-author Index (%)	21.71
Types of Documents	
Research article	147
Conference Proceedings	28

As shown in Table 1, the data used in the analysis consists of documents from a total of 175 studies published in 140 sources (journals, books, etc.) between 2005 and 2024. The average annual growth rate is observed to be 21.1%. This situation can be interpreted as a rapid development of the research area and increasing interest in this field. The average document age of 2.45 indicates that the literature is relatively new and the topic is of current interest. On average, each document has 22.65 citations, indicating a high academic impact of the studies. In total, there are 527 Keywords Plus (ID) and 679 author keywords. There are 369 authors, of which 73 are unique, meaning that many authors have appeared in more than one publication. There are 75 single-authored publications; in collaborative publications, the average number of co-authors per publication is 2.33. The international co-author index is 21.71%, indicating significant international collaboration in the studies. In terms of document types, 147 are research articles

and 28 are conference papers. These data reveal that the field is a rapidly developing topic with high academic impact, supported by international collaborations.

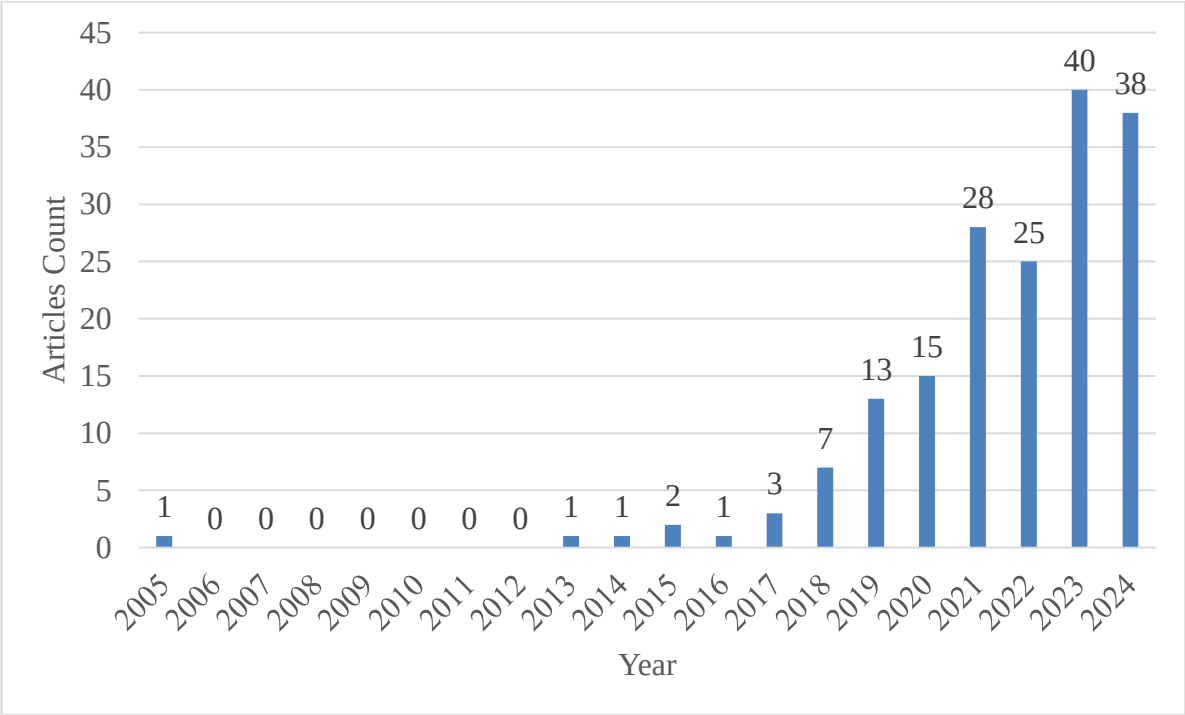
5. FINDINGS

5.1. General Publication Trends

The analysis of publication trends reveals a significant increase in research on algorithmic management over the past two decades. The number of studies in this field has grown exponentially, particularly after 2020, indicating a surge in academic interest. This increase corresponds with the rise of artificial intelligence, the expansion of digital labor markets, and heightened debates on algorithmic governance and transparency. The growing body of literature suggests that algorithmic management has become a critical area of inquiry, not only in management and business studies but also in sociology and labor studies. The increasing volume of publications underscores the urgency of addressing the societal and organizational implications of algorithmic decision-making.

Figure 2 shows the number of published articles over the years. It can be observed that there has been a significant increase in the number of publications since 2015. In particular, there has been a remarkable increase in the number of academic publications since 2020. This increase can be explained by the growing importance of social, ethical, and managerial issues related to algorithmic management. The increased presence of digitalization, artificial intelligence, and algorithms in daily life may have led researchers to investigate these issues more. In conclusion, there is a strong interest in this field after 2020, and it can be said that the topic will continue to be a productive research area for academic studies in the coming years.

Figure 2. Number of Publications by Year



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5.2. Keyword Co-occurrence Analysis

Figure 3. Author Keyword Cloud

Table 2. Author Keyword Usage Frequencies

Keyword	f
algorithmic governance	44
algorithmic management	42
artificial intelligence	20
platform work	13
gig economy	12
gig work	10
Transparency	10
platform economy	9
big data	8
Algorithms	7

Figure 3 displays a word cloud of the keywords employed by the authors in their publications. Furthermore, Table 2 presents the frequency of the top 10 terms identified as author keywords. In essence, Table 2 and Figure 3 highlight the core concepts underpinning research on algorithmic management. The most recurrent keywords are "algorithmic governance" (44 occurrences) and "algorithmic management" (42 occurrences), suggesting that the control functions of algorithms within management and management processes are central topics of discussion. "Algorithmic management" and "algorithmic governance," fundamental concepts examining how digital platforms operate and influence social control mechanisms, are the most frequently focused-on keywords in the studies. The third most frequent keyword, "artificial intelligence," can be interpreted as the underlying technology of algorithmic management. The fact that artificial intelligence is addressed in 20 publications indicates a significant contribution to research investigating how this technology is integrated with algorithms and utilized in management processes. Additionally, the frequent occurrence of the keywords "platform-based work" and "gig economy" reveals how algorithmic management plays a role, particularly in flexible and short-term work (gig work). It can be inferred that

the main focus of these studies is how workers on digital platforms are managed by algorithms and how this alters labor dynamics. Moreover, "transparency" and "platform economy" are also among the most frequently used keywords. Furthermore, the term "big data," which enables the storage and processing of a large amount and variety of data, has been used in 8 publications. This can be interpreted as indicating that research on the role of big data in algorithmic management, data-driven decision-making processes, and its societal impacts is centered around this keyword. This suggests that big data, which plays a crucial role in the development of artificial intelligence applications, is also utilized in algorithmic management studies for data collection and processing.

The most frequently occurring terms, "algorithmic governance" and "algorithmic management," examine the governance and control functions of algorithms. Terms such as artificial intelligence, platform work, gig economy, and transparency highlight the societal impacts of algorithmic management, particularly how it shapes the business world and the transparency issues within these processes. The frequency of terms like gig economy and platform work, in particular, indicates the significance of these management styles in flexible work environments within academic discussions. This literature, which examines the impact of algorithmic management on labor, management processes, and social structures based on technologies such as data collection (big data) and artificial intelligence, is gaining increasing interest.

Figure 4. Keywords Cloud (Keywords Plus)

Table 3. Keyword Index Frequencies (Keywords Plus)

Keyword	f
algorithmics	24
artificial intelligence	18

decision making	13
algorithmic management	12
algorithm	10
human resource management	10
human	8
algorithmic governance	7
economic and social effects	7
workers	7

Figure 4 presents a word cloud of index keywords for the publications. These keywords, termed "keywords plus," are obtained through content analysis of the articles and are independent of the keywords specified by the authors in their publications. These keywords are derived from the titles of the sources cited in an article but are not present in the article's own keywords. The data for the top 10 most frequently used keywords obtained in this context are presented in Table 3, and the word cloud for these words is shown in Figure 4. Accordingly, the most frequently used Keywords Plus term is "algorithmics," which points to the fundamental theoretical and technical aspects of algorithms. The high frequency of this term indicates a strong academic interest in the technical infrastructure and functioning of algorithms, beyond their applications in management and social impacts. Artificial intelligence, which ranks second, emerges as a key element for both algorithmic management and the general use of algorithms. This term, which also ranks high in author keywords, once again emphasizes the importance of artificial intelligence as the building block of algorithmic systems. One of the most important roles of algorithms in management is their impact on "decision-making" processes. The fact that this keyword appears 13 occurrences indicates studies that examine how algorithmic management makes decisions and the effects of these decisions on the business world, social life, and economy. Although this keyword does not appear in the author keywords, it ranks high in the keywords plus table. The term "human resource management," which is ranked 6th in the keywords plus list but not in the top 10 of the author keyword list, is related to how algorithms manage the workforce and their impact on employees. The frequency of this keyword indicates studies that examine the impact of algorithms on recruitment, performance evaluation, and workforce management processes. Another keyword that emerges in the keywords plus list, "economic and social effects," points to studies examining the economic and social impacts of algorithms. The impact of algorithms on managerial and decision-making processes is another dimension that is important in terms of its consequences for society and the economy. The frequent use of this term indicates that the broad impacts of algorithms are being deeply researched. Additionally, the presence of the keyword "workers" in the list is also a situation encountered in the keywords plus list. The effects on workers are closely related to algorithmic management. This term points to studies examining the effects of algorithms on the working class, working conditions, and labor rights. It shows that the relationship between labor rights and algorithmic control is emerging as an important research topic in this field.

Although 'platform work' and 'gig economy' are prominent in the author keyword list with 13 and 12 occurrences, respectively, they are absent from the Keywords Plus list. This disparity indicates that while authors have a specific focus on platform-based work and the gig economy, these topics are less emphasized in the broader content analysis. While authors directly address these concepts, the content analysis highlights broader themes. The term 'decision making', which appears 13 times in the Keywords Plus list, is absent from the author keyword list. This suggests that authors may not have explicitly highlighted the role of algorithms in decision-making processes, but content analysis reveals it as a significant theme. This underscores algorithms' critical role in management processes and is uncovered through deeper content analysis. Similarly, 'human resource management', appearing 10 times in the Keywords Plus list, is absent from the author keywords, indicating a potential oversight despite its significance within the content.

This finding highlights the prominence of algorithms' impact on workforce and human resources management in the content analysis, yet it is not frequently indicated as a direct keyword by authors. This reflects that algorithmic management is also a significant research topic from a human resources perspective. While the terms "human" (8 times) and "workers" (7 times) appear in the Keywords Plus list, they are absent from the author keywords. This suggests that although authors do not directly emphasize the effects of algorithms on the human element and the situation of workers as keywords, these themes play a significant role in the overall content of the articles. This term, which appears 7 times in the Keywords Plus list, is not included in the author keywords. The prominence of algorithms' economic and social impacts in the content analysis indicates a broader perspective on the societal implications of these studies. Although authors may not have explicitly stated this as a keyword, content analysis reveals that these impacts are addressed in the articles.

A comparison of the author keywords in Table 2 and the index keywords (KeyWords Plus) in Table 3 reveals some disparities. Author keywords generally concentrate on specific technologies and concepts like algorithmic management, algorithmic governance, artificial intelligence, platform work, and the gig economy. Conversely, Keywords Plus, derived from a broader content analysis, encompass more general and process-oriented terms such as decision-making, human resource management, and human workers. This discrepancy suggests that while the articles delve into deeper societal and managerial processes, the authors may not fully capture these nuances in their chosen keywords.

6. Collaboration and Institutional Contributions

The analysis of academic collaborations reveals that research on algorithmic management is highly interdisciplinary, involving scholars from sociology, computer science, law, and business studies. Leading research institutions and universities across North America and Europe have made substantial contributions to the field, with notable clusters of collaboration observed among institutions in the United States, the United Kingdom, and Germany. The bibliometric mapping also indicates increasing international research partnerships, reflecting the global significance of algorithmic management as a field of study. The growing academic collaborations suggest that researchers are approaching algorithmic management as a complex, multi-dimensional issue that requires interdisciplinary insights.

These findings provide valuable insights into the evolution of algorithmic management as a research domain. The increasing scholarly interest, the refinement of key research themes, and the expansion of academic collaborations underscore the need for continued exploration of the social and ethical implications of algorithmic decision-making. The following discussion section will further analyze these trends, connecting the bibliometric findings with the theoretical perspectives outlined earlier in the study.

Figure 5. Map of the Number of Scientific Publications on Algorithmic Management by Country

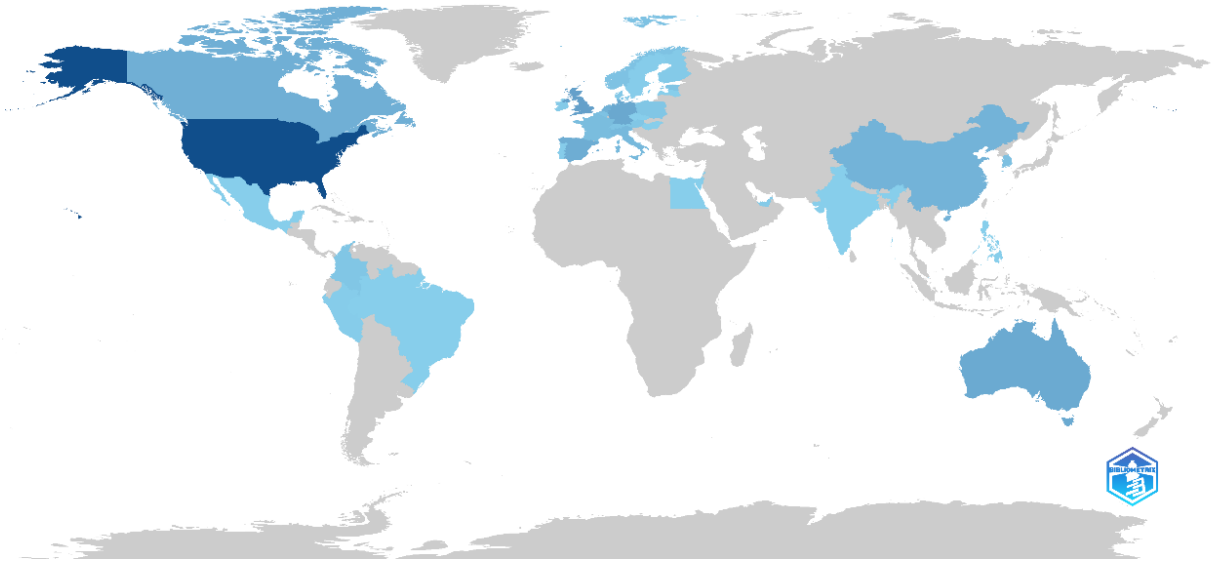


Table 4. Frequency of Scientific Production by Country

Country	**f**
USA	72
UK	25
Germany	21
Australia	20
Spain	18
Canada	17
Netherlands	16
China	15
Italy	12
France	10

Figure 5 presents a distribution map of the number of scientific studies on algorithmic management and its social impact. Table 4 also presents data on the scientific production of the top 10 countries in terms of publication volume. According to this data, it is seen that publications in the field of algorithmic management are largely centered in the United States, and there is a significant research ecosystem. Other countries, especially in Europe and some Asian countries, contribute to this field to a certain extent, but they are lagging behind the publication numbers led by the United States. This situation helps to understand in which countries the topic of algorithmic management is of greater interest in the academic field and where the research is concentrated.

Figure 6: International Scientific Publication Collaboration Map in the Field of Algorithmic Management

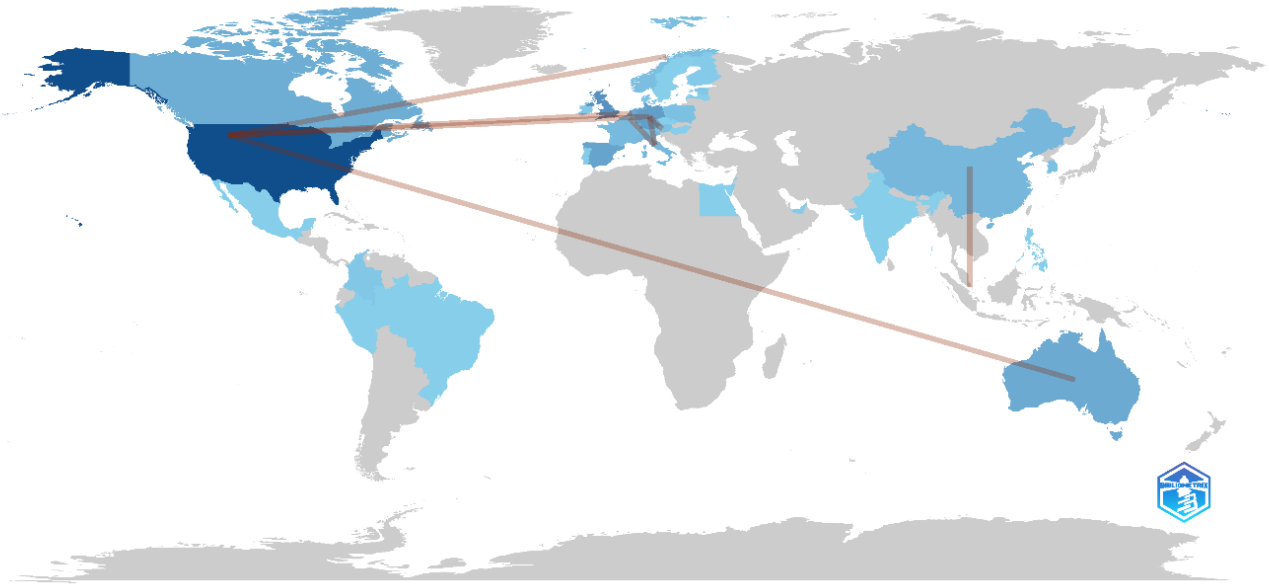


Figure 6 presents a network of collaborations among countries involved in research on algorithmic management and its societal implications. The map reveals frequent collaborative patterns between specific countries, such as the US and Australia, Germany and Italy, and Australia and the Netherlands. The widespread nature of these collaborations underscores the international character of academic research in this domain. Countries like Denmark, Germany, the Netherlands, and the UK have demonstrated particularly strong collaborative networks, suggesting a more active and diverse research strategy. These collaborations, often focusing on topics like artificial intelligence, algorithmic management, and platform work, bring together researchers from various disciplines across different countries. The growing number of collaborations from countries like China and Singapore highlights their increasing visibility in this field of academic research.

Figure 7. Distribution of Single Corresponding Author (SCP) and Multiple Corresponding Authors (MCP) by Country

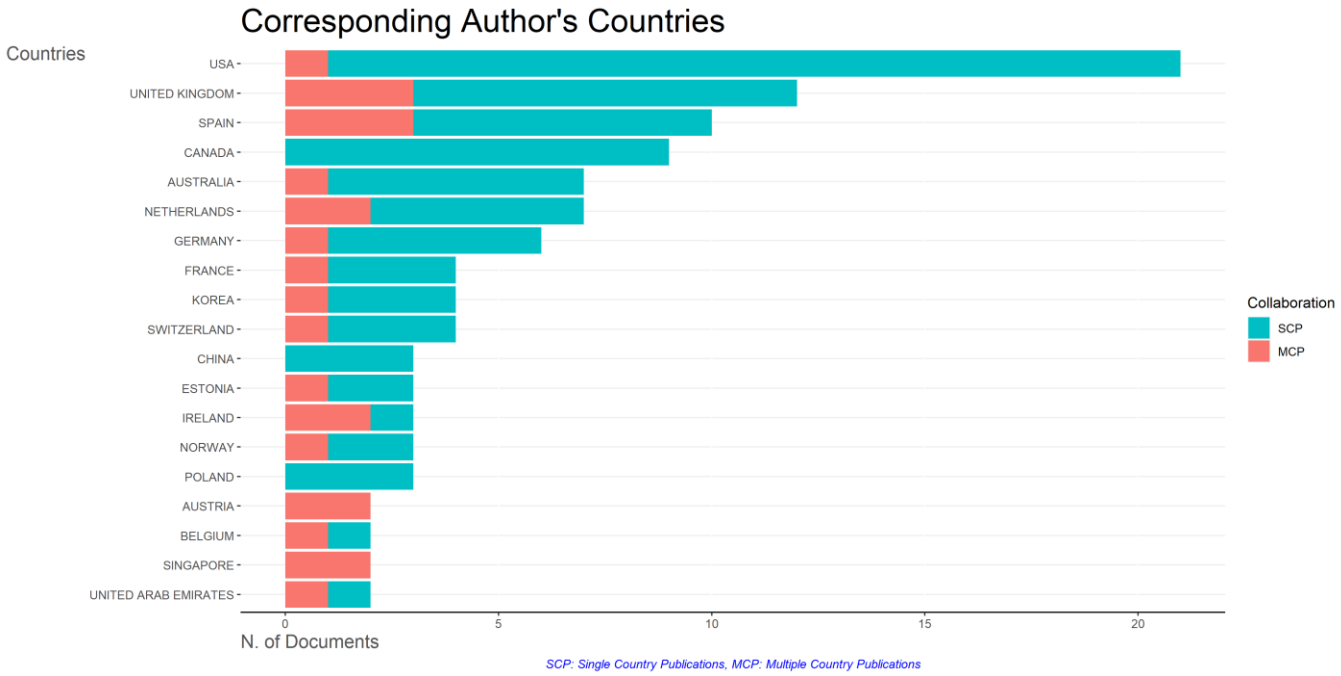


Figure 7 presents a graph showing the distribution of publications on algorithmic management and social impact by country, categorized by the number of corresponding authors: single corresponding author (SCP) and multiple corresponding authors (MCP). The graph indicates that a majority of the studies have a single corresponding author. Moreover, the United States has the highest ratio of single corresponding authors (SCP/MCP=20), followed by Australia (SCP/MCP=6). Denmark, Egypt, Italy, and India, which are not shown in the graph, each have one single-authored study but no multi-authored studies, resulting in an SCP/MCP ratio of zero.

Table 5. Sources and Number of Publications on Algorithmic Management and Social Impact

Sources	Number of Articles
ACM INTERNATIONAL CONFERENCE PROCEEDING SERIES	5
CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS - PROCEEDINGS	5
AI AND SOCIETY	4

BIG DATA AND SOCIETY	4
INTERNET POLICY REVIEW	4
NEW TECHNOLOGY, WORK AND EMPLOYMENT	4
PROCEEDINGS OF THE ACM ON HUMAN-COMPUTER INTERACTION	3
42ND INTERNATIONAL CONFERENCE ON INFORMATION SYSTEMS, ICIS 2021 TREOS: "BUILDING SUSTAINABILITY AND RESILIENCE WITH IS: A CALL FOR ACTION"	2
ACME	2
ANTIPODE	2

Table.5 above demonstrates that there are various academic sources and conferences on "Algorithmic Management" and "Social Impact". This table shows the top 10 sources where academic studies in this field are most frequently published. When we look at Table 5, it indicates that the subject is spread across multiple disciplines and that there are different research perspectives. When we look at the academic study topics accepted by the sources in general, it can be said that algorithmic management and social impact are examined from both technical and social science perspectives.

Figure 8. Cyclic Thematic Relationship Diagram

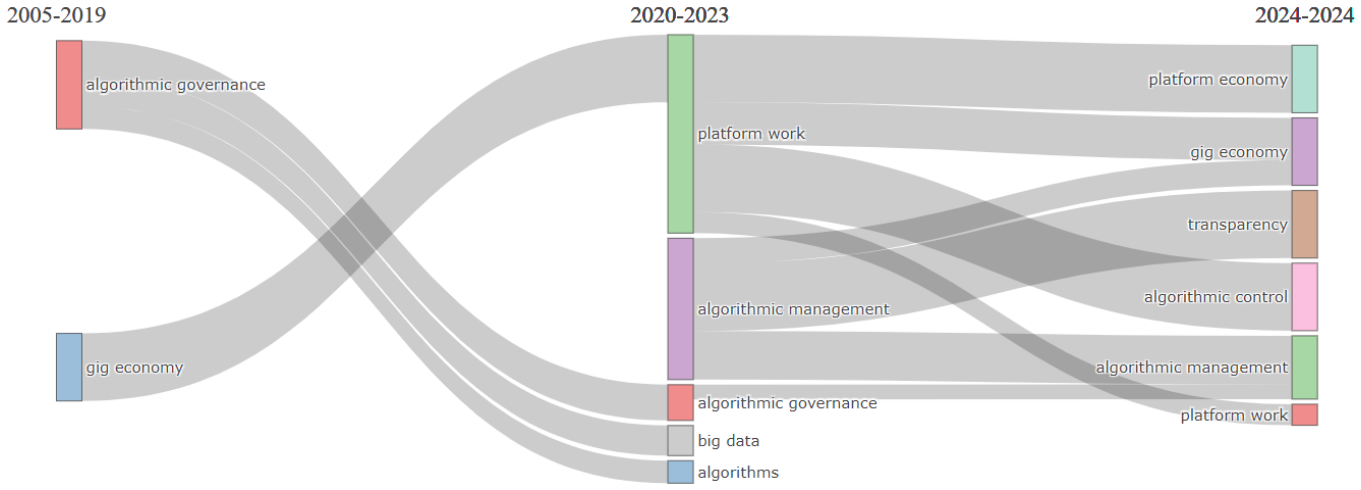
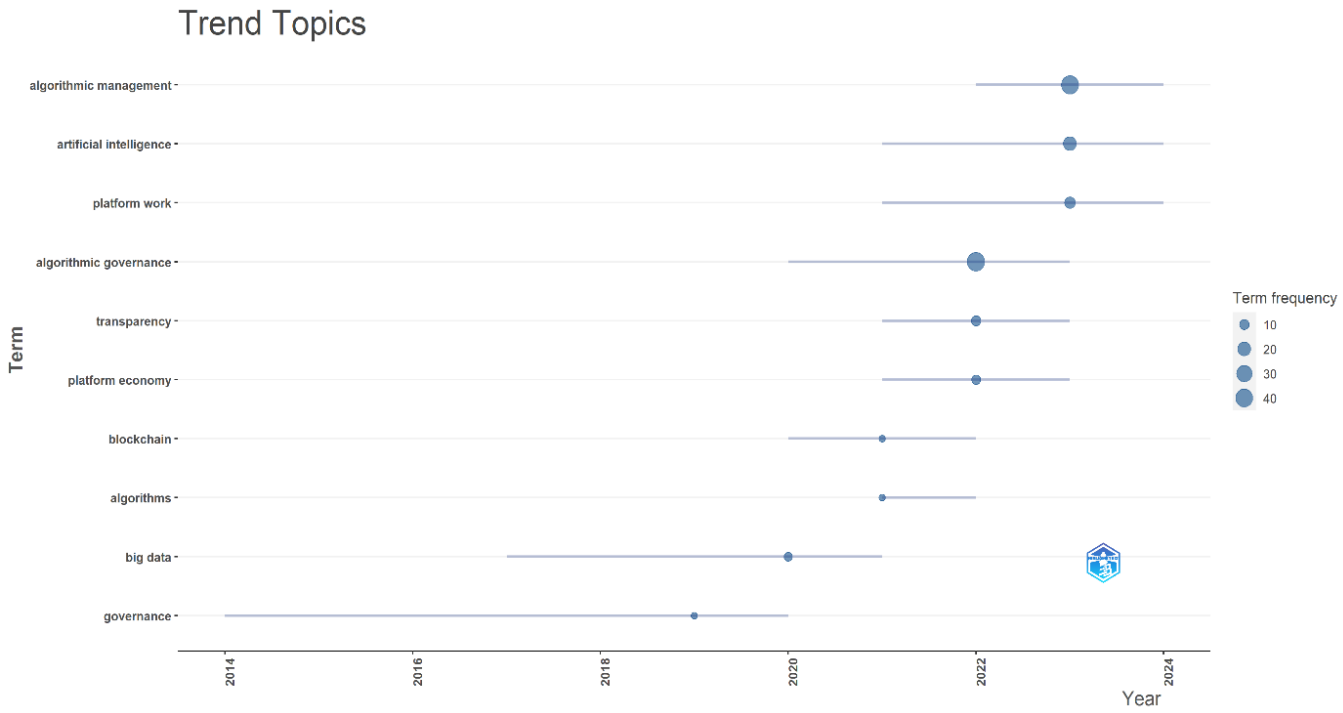


Figure.8 presents a thematic evolution diagram showing the relationships between author keywords across different study periods. According to this diagram, while the term "algorithmic governance" became prominent in the 2005-2019 period, terms such as "gig economy" and "platform work" gained significance alongside this concept in the 2020-2023 period. This indicates a shift in research focus, with algorithmic governance being considered alongside the platform economy and gig economy. In 2024, terms like "algorithmic management" and "transparency" emerged, suggesting a new focus on management and transparency. When the Weighted Coverage Index and Stability Index values are interpreted, it is observed that the 100% weighted coverage index associated with the term "gig economy" in the transition from the 2005-2019 period to the 2020-2023 period indicates very strong support for this concept. The connection between the terms "algorithmic governance" and "algorithmic management" in the 2020-2023 period suggests that these concepts have developed complementary and interactive relationships. When examining the relationships between keywords, a 100% coverage index was found between the terms "platform work" and "platform economy," indicating a strong correlation between the two concepts. This suggests that platform economy is a crucial

factor in understanding the impacts and transformation of the workforce. Additionally, the connection between "transparency" and "algorithmic management" in 2024 suggests that transparency will become increasingly important in algorithmic management in the future. Overall, it can be concluded that concepts such as algorithmic management, transparency, gig economy, and platform work have gained significance in 2024. This indicates that research in the field of algorithmic management and its social impacts has expanded and is moving towards new topics.

Figure 9. Temporal distribution of the most mentioned concepts (Trend Topics)



The 'trend topics' analysis in Figure 9 examines the frequency and popularity of specific keywords over the years. According to the analysis of the frequency and distribution of author keywords over the years, the keyword "algorithmic governance" has the highest frequency with 44 occurrences and exhibits a significant trend between 2020 and 2023. This can be considered as an indicator of the growing interest in algorithmic management. "Algorithmic Management," on the other hand, ranks second with 42 occurrences and has gained popularity between 2022 and 2024. This indicates the integration of algorithmic management and algorithmic processes into business management. Additionally, both "Governance" and "Algorithms" appear 7 times each, with a focus on 2014 and 2021, suggesting that interest in these topics began in the early years. Looking at new trends, "big data" has gained popularity since 2017 with 8 occurrences, which can be interpreted as the importance of data-driven management and analysis. "Blockchain" has been on the rise since 2020, particularly as an important issue regarding the security and transparency of algorithmic processes.

The topics of 'transparency' and 'platform economy' have emerged as significant themes. The increase in these topics between 2021 and 2023 can be interpreted as a growing interest in the transparency of digital platforms and algorithmic systems. Beyond these two topics, 'artificial intelligence' is another notable trend. With a frequency of 20, it has shown a growing interest between 2021 and 2024, highlighting the role of artificial intelligence in algorithmic management and management processes.

Data collected on trending topics demonstrates how each keyword trends over a specific year (quarter, median, third quarter). This research shows that while "algorithmic governance" saw an increase in 2020, it garnered even more research and interest in 2022 and 2023. The growing interest in algorithmic management and governance, coupled with the rise of data security, transparency, and artificial intelligence, offers a comprehensive perspective on digital transformation and its impacts on management. This can be a guiding resource for identifying areas of focus in future research.

Figure 10. Thematic Map of KeyWords Plus

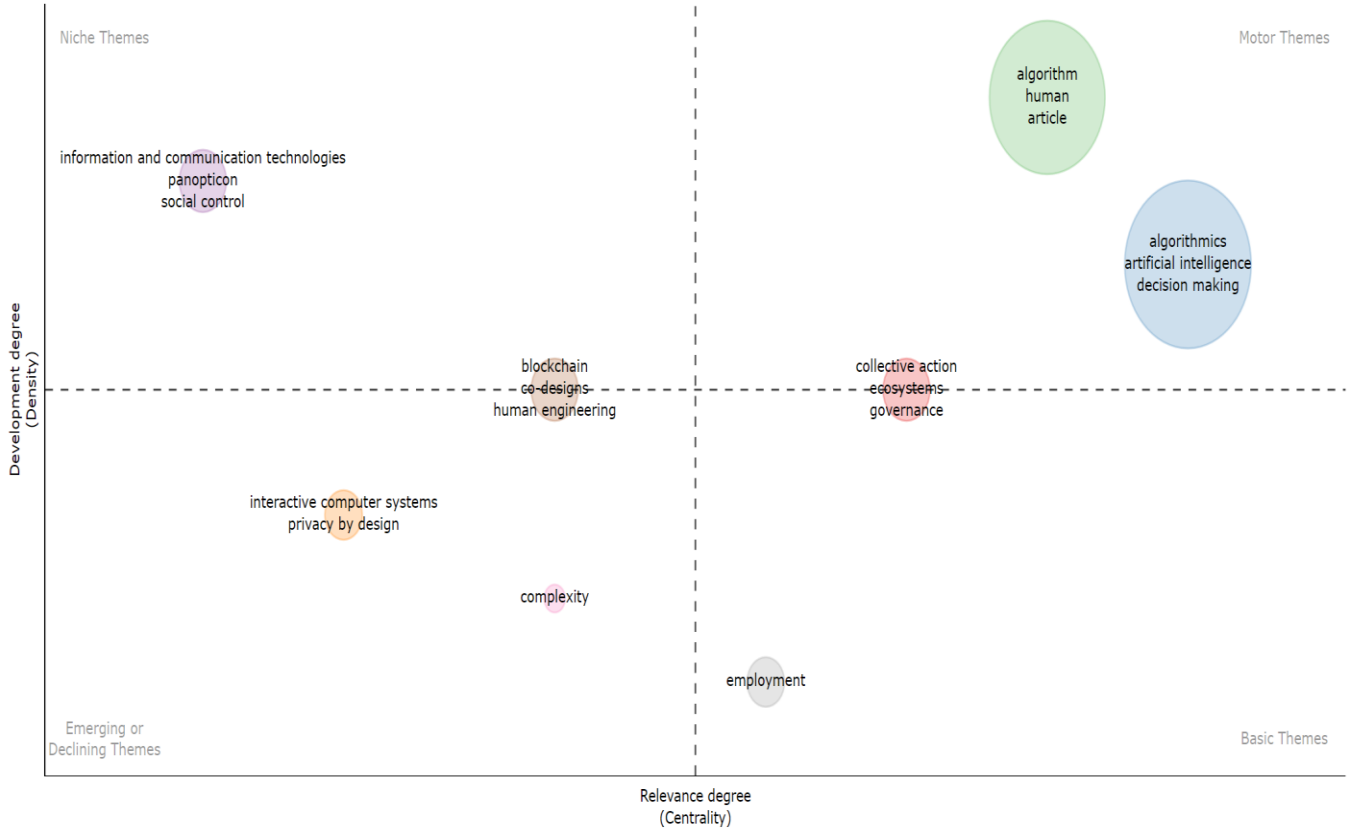


Figure 10 presents a thematic map that clusters publications on algorithmic management and social impact based on similar keywords from the KeyWords Plus index. Thematic map analysis, also known as knowledge mapping or co-word analysis, is a method used to visualize and examine the thematic structure of a research field (Waltman & van Eck, 2013). Accordingly, these keywords (KeyWords Plus) have been grouped into 8 clusters. These clusters have been found to be distributed across niche, core, and declining or popularizing themes.

Niche themes: These are topics that have a high degree of development but cater to a more specific research group. These themes are often researched in depth but may not have widespread dissemination.

Information and Communication Technologies, Panopticon, Social Control: Information and communication technologies and social control mechanisms form a specific research area focused on how algorithms monitor and manage society and individuals. The term 'Panopticon' refers to surveillance mechanisms and is used to examine how algorithms are employed in surveillance and control processes. Although these themes remain niche, they offer a rich area for in-depth investigations, especially at the intersection of social sciences and technology.

Given the focus on niche themes, it is evident that surveillance and social control have become increasingly prominent topics, particularly within digitalizing societies. These issues raise significant ethical and social concerns regarding the monitoring and control of individuals in the digital realm. Consequently, there is a clear need for more in-depth research in these areas, and these themes offer ample opportunities for further exploration.

Core themes are those that are highly important but are at a relatively lower stage of development. These themes represent topics that are widely accepted in the research field but are less developed.

Employment: Employment is a central theme for studies examining how algorithms shape labor dynamics and working conditions. There is a vast literature on how algorithms are used in the business world and their impact on the workforce, but development in this area may be more limited.

When considering fundamental themes, it can be said that studies on employment provide a very important foundation for researching the integration of algorithms into the workforce.

Core Themes: Core themes are those that exhibit high levels of development and importance. These themes represent the most influential topics within a research area and can have a significant impact on other themes.

Algorithm, Human, Article: These themes are the focus of research on human-algorithm interaction. Studies on the social impacts and applications of algorithms play a broad and influential role.

Algorithmics, Artificial Intelligence, Decision Making: Algorithmic management, artificial intelligence, and decision-making processes are the most critical components of algorithmic systems. These themes have been the focus of a wide range of research and have driven transformations in both the social and business worlds. Their high development and centrality indicate that these themes are defining features of the literature.

Considering the core themes, it's evident that algorithms have become an integral component of social structures, and researches are increasingly focused on this area.

Declining or emerging themes: Themes in this area have low development and importance levels, and they may either be experiencing declining interest in research or are just beginning to develop.

Interactive Computer Systems, Privacy by Design: Integrating interactive computer systems and privacy into system design could be part of studies on systems that are particularly sensitive to user privacy. These themes may be widely unexplored or previously popular but declining themes in the context of algorithmic management.

Complexity: Complexity is a theme that examines how algorithms cope with dynamic processes. Low development and low importance levels indicate that this area is currently less researched. However, interest in this area may increase in the future.

It seems that themes such as 'Interactive Computer Systems', 'Privacy by Design', and 'Complexity' were once highly popular with the onset of technological advancements but now represent areas of interest that have declined or developed at a slower pace. While studies on privacy and system design continue to explore user privacy and interaction issues, the development of these topics may have been limited. Privacy and system design may have been popular themes with the widespread adoption of digital technologies. However, it is conceivable that these topics are still important for research and can regain momentum with innovative approaches.

Other (Central) Themes:

Blockchain, Co-Designs, Human Engineering: These themes are of a medium level in terms of both development and centralization. These topics are particularly important for studies on the interaction of blockchain technology with social structures and algorithms. Designs that encourage human engineering and user participation are also examined within this framework.

Collective Action, Ecosystems, Governance: These themes address social movements, ecosystems, and governance processes. They are of moderate importance and level of development. These areas can be central to understanding how social processes interact with algorithms.

These themes are at an intermediate level in terms of both development and centrality. It can be said that there is an increasing number of studies on understanding the effects of blockchain technology on social and economic structures and producing human-centered design and engineering solutions. However, it has been observed that these themes have not yet had as broad an impact as core themes.

Figure 11. (Co-occurrence Network)

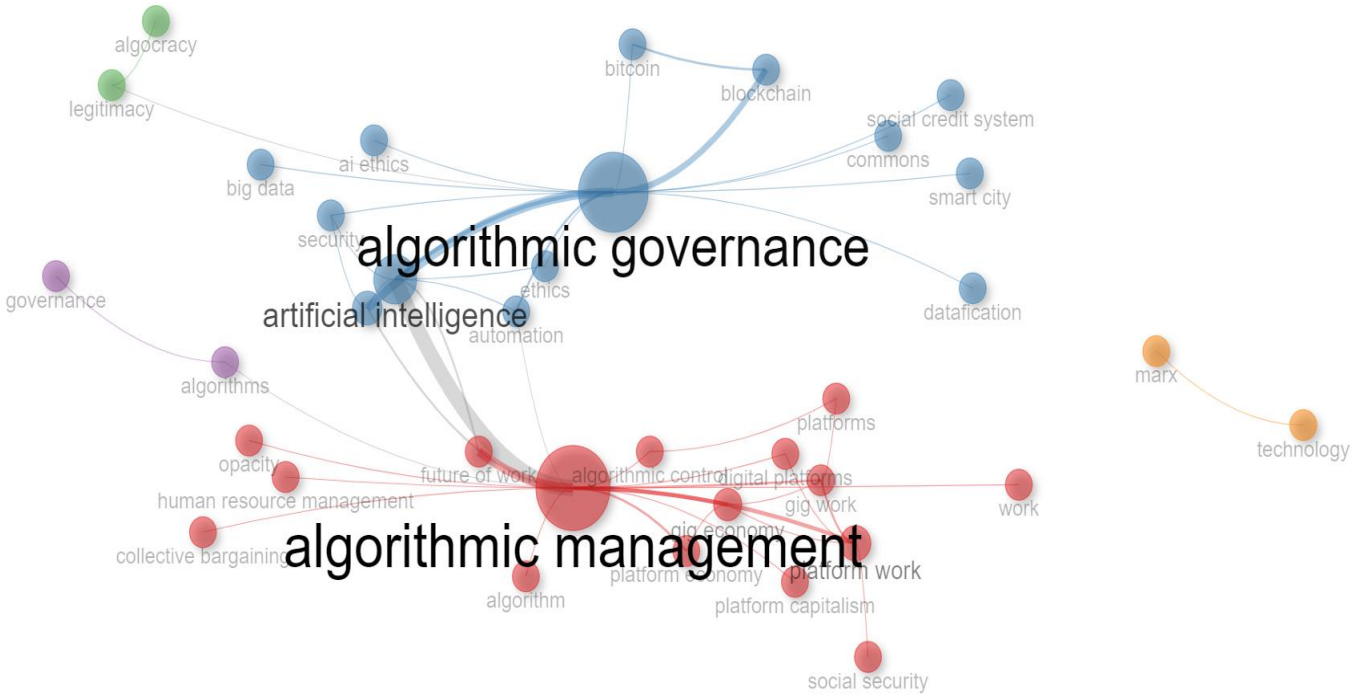


Figure 11 presents a network analysis of the co-occurrence of keywords identified by authors in publications on algorithmic management and governance. The term "Algorithmic Management" exhibits high centrality with betweenness (376.0044), closeness (0.016667), and PageRank (0.17103) values. This indicates that algorithmic management is strongly connected to other terms and occupies a central position in the network. This suggests that algorithmic management is significantly related to other research topics and is a central theme in the literature. The terms "Platform Work," "Gig Economy," and "Gig Work" are shown to be closely linked to algorithmic management. In particular, concepts such as platform work (betweenness: 33.208333) and gig economy (betweenness: 1.018219) highlight the impact of algorithmic management on the workforce and the platform economy. The relatively lower closeness and PageRank values of these terms suggest that they are more specific subfields and not as broad in scope as algorithmic management. Artificial intelligence, with betweenness (213.806149) and closeness (0.01739) values, holds a very strong position. These terms indicate that algorithms play a critical role in decision-making processes and management practices. Additionally, terms such as "Transparency", "Blockchain", and "Big Data" are related to algorithmic governance, suggesting an exploration of how transparency, data management, and blockchain technologies are used in governance. The high centrality values of these terms indicate their importance. Moreover, the impact of algorithmic management on the business world and the platform economy is evident. Its strong connections to terms like "platform work" and "gig economy" reveal how it has transformed the world of work. This network of connections demonstrates the widespread influence of terms like "algorithmic management" and "algorithmic governance", which occupy a central position in the field of algorithmic governance. These terms are at the center of the network, connected to many other concepts. Their strong relationships with terms like platform economy, artificial intelligence, blockchain, and transparency highlight both the technological and social dimensions of these themes.

7. CONCLUSIONS AND RECOMMENDATIONS

This study presents a bibliometric analysis of sociological research on algorithmic management, identifying key trends, influential studies, and evolving research themes. The findings indicate a substantial increase in scholarly interest in algorithmic management, particularly after 2020, as digital labor markets expand and artificial intelligence

becomes more embedded in organizational decision-making processes (Kellogg et al., 2020; Vallas & Schor, 2020). The bibliometric analysis has demonstrated that the dominant themes in the literature revolve around algorithmic governance, digital labor, surveillance, and platform work, reflecting broader concerns about the societal impacts of algorithmic control mechanisms (Kellogg et al., 2020; Mateescu & Nguyen, 2019).

The results highlight the increasing focus on power asymmetries, transparency, and bias in algorithmic management systems, emphasizing the need for interdisciplinary approaches to studying these phenomena. The citation analysis underscores the foundational role of key studies in shaping the discourse, particularly in relation to algorithmic decision-making's implications for worker autonomy and governance structures (Ajunwa, 2022; Kadolkar et al., 2024). Moreover, the analysis of academic collaborations reveals a growing international network of researchers, with major contributions emerging from North America and Europe, signaling the global relevance of this research area (Kadolkar et al., 2024).

By integrating sociological theories, this study contextualizes bibliometric findings within a broader theoretical framework. Foucault's panopticism (1977) helps to explain how algorithmic management intensifies surveillance and self-discipline in digital labor markets (Levy & Barocas, 2021). Giddens' structuration theory (1984) provides insight into the recursive nature of algorithmic governance, demonstrating how social actors both shape and are shaped by algorithmic systems (Schildt, 2020). Additionally, Weber's (1922) theory of rationalization elucidates how algorithmic management embodies bureaucratic efficiency while simultaneously reinforcing rigid control mechanisms that may erode worker autonomy (Griesbach et al., 2019).

Despite its contributions, this study has certain limitations. The reliance on Scopus as the primary data source, while comprehensive, may exclude significant studies published in non-English journals or interdisciplinary sources not indexed in this database. Furthermore, bibliometric analysis, by nature, provides quantitative insights but lacks the depth of qualitative methodologies needed to fully understand the complexities of algorithmic management (Zuboff, 2019). Future research should complement bibliometric techniques with qualitative approaches such as ethnographic studies and in-depth interviews to capture the human dimension of algorithmic governance (Wood et al., 2019).

Future studies should address the ethical and regulatory implications of algorithmic decision-making, with particular attention to issues of transparency, fairness, and accountability (Levy & Barocas, 2021; Pasquale, 2020). Comparative research across different industries and global contexts could provide deeper insights into how algorithmic management is implemented and contested in varying organizational settings. Additionally, as legislative frameworks around algorithmic governance continue to evolve, further research is required to examine how policy interventions shape the development and application of algorithmic management practices (Kadolkar et al., 2024; Pasquale, 2020).

This study underscores the importance of continued sociological inquiry into algorithmic management, as digital technologies increasingly mediate workplace dynamics and governance structures. Understanding the implications of these transformations is crucial for developing regulatory frameworks that balance efficiency with fairness, ensuring that algorithmic decision-making serves both economic and social objectives.

Research and Publication Ethics Statement
All processes of this article have been carried out in accordance with the research and publication ethics principles of the Manisa Celal Bayar University Journal of Social Sciences.

Authors' Contribution Rates
The authors contributed equally to the study.

Conflict of Interest Statement
The authors declare that they have no conflict of interest with any individual or institution.

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