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Artificial Intelligence and Automation in Office Administrative Procedures: A Systematic Literature Review

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Abstrak

Pemanfaatan AI ke dalam proses administrasi kantor merupakan terobosan teknologi besar yang menjanjikan untuk mengubah cara kerja, meningkatkan kecepatan penyampaian layanan, dan mendefinisikan ulang peran yang dimainkan oleh keterampilan manusia di tempat kerja saat ini. Penelitian bertujuan untuk melakukan studi literature yang ekstensif terhadap artikel yang ada yang berkaitan dengan penggunaan artificial intelligence pada prosedur di lingkungan administrasi kantor. Metode review pada penelitian ini menggunakan pendekatan sistematis, dengan mengimplementasi metode PRISMA. Sintesa dan analiska dilakukan terhadap total 155 publikasi yang bersumber dari database Scopus pada tahun 2019-2024. Setelah proses sintesis, maka 18 artikel publikasi terpilih untuk ditinjau. Hasil yang didapatkan adalah implementasi artificial intelligence dilingkungan administrasi perkantoran adalah dapat mengotomasi rutinitas, mendukung keputusan dalam hal administrasi dan proses otomatis dokumen kantor dengan tulisan tangan.

Kata Kunci: *Otomasi; Artificial Intelligence; Prosedur Administrasi Perkantoran*

Abstract

The utilization of AI into office administration processes is a major technological breakthrough that promises to transform ways of working, increase the speed of service delivery, and redefine the role played by human skills in today's workplace. The research aims to conduct an extensive literature study of existing articles related to the use of artificial intelligence on procedures in an office administration environment. The review method in this study used a systematic approach by implementing the PRISMA method. Synthesis and analysis were carried out on a total of 155 publications sourced from the Scopus database in 2019-2024. After the synthesis process, 18 publication articles were selected for review. The results obtained show that the implementation of artificial intelligence in the office administration environment can automate routines, support decisions in terms of administration, and automatically process office documents with handwriting.

Keywords: *Automation; Artificial Intelligence; Office Administrative Procedure*

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INTRODUCTION

The use of AI, along with automation, is making an important difference in how work is done at different offices; this is achieved through improving the way companies conduct everything concerning work tasks. The application of automated management assistance and decision-making support indicates that AI may facilitate the decision-making ability of managers by offering evidence-based insights, albeit at the expense of reducing human influence on guiding decisions. While the use of robotic process automation for documentation portrays the practical examples of AI in play, it makes document work easier and improves the quality of work but creates problems of introduction. Moreover, research on AI's broader economy says that automation would improve efficiency because workers are able to produce much more within a day without being limited, the physical strengths such as through machines as well as its privity causing job displacement due to this here is the rise of new job creation strategies. Beyond that, blending AI in workplaces results in chain dynamics in offices, which in turn brings advantages over personalized working environments, but it also raises concerns about privacy breaches or lack of employee confidence. Those studies, taken together, illustrate how AI and automation have complicated and transformed office administrative procedures by introducing a major change toward more technologically involved workstations (Acemoglu & Restrepo, 2019; Fukumura et al., 2021; Gružauskas & Ragavan, 2020; Leyer & Schneider, 2021).

Office administration has undergone massive changes due to Artificial Intelligence (AI) and automation. These developments in workplace dynamics and employee roles have been widely discussed in several research papers. The impact of these new trends goes beyond making office work easier or faster; they are also transforming both the structure of labor markets as well as what constitutes work. Tyson and Zysman (2022), for example, outline the potential effects of AI on wages and polarization of employment across skills levels, through speeding the routine-biased technological changes. Additionally, Fukumura et al. (2021) observe that AI in offices serves a double purpose where it serves to better the office atmosphere while at the same time causing anxiety due to privacy concerns and less involvement in workspaces. The idea of popularizing oneself was described by Braganza et al. (2022) and they also mentioned that AI-driven automation can improve employee job satisfaction and engagement while endangering traditional job security. These surveys thus present a nuanced view on how artificial intelligence affects office administration with potential positive outcomes but certain stumbling blocks too.

In the report for 2023, the National Audit Office (NAO), a UK independent agency, pointed out several expected consequences connected with artificial intelligence (AI) application in administrative offices. Performance issues become the centre of attention in the autumn of 2023 when discussing anticipated effects on government bodies using AI, as shown by the bar chart (Figure 1). Ninety-two percent of government bodies anticipate that this will be the case; following closely behind are those expecting artificial intelligence to assist in cutting down on the costs associated with service provision thereby releasing some resources for other duties while noticeable among the institutions are those waiting for enhanced service speed which eighty-four percent reflects. Though AI has played a part in creation of new services, personalizing services, and altering existing services are not as significant as developing them from scratch. These are all 38%, 25%, and 16% impactful. The figure

is however very low in case of "other" which is 3% meaning it has not been specifically specified. It will be demonstrated by this set of data that AI has potential in improving efficiency and improve the performance of public sector services with hidden impacts present (Davies, 2023).

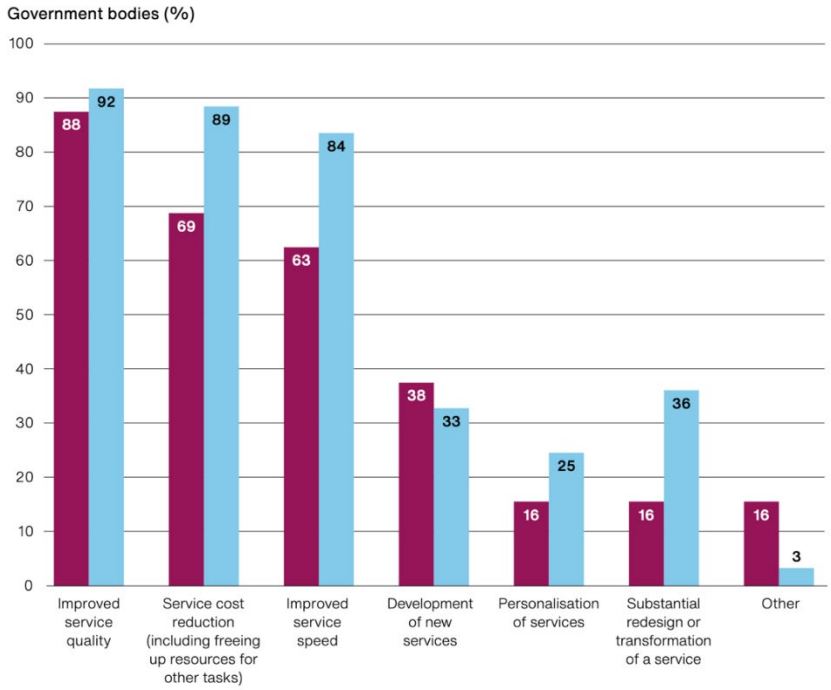

Figure 1. Usage of AI in UK Government(Davies, 2023)

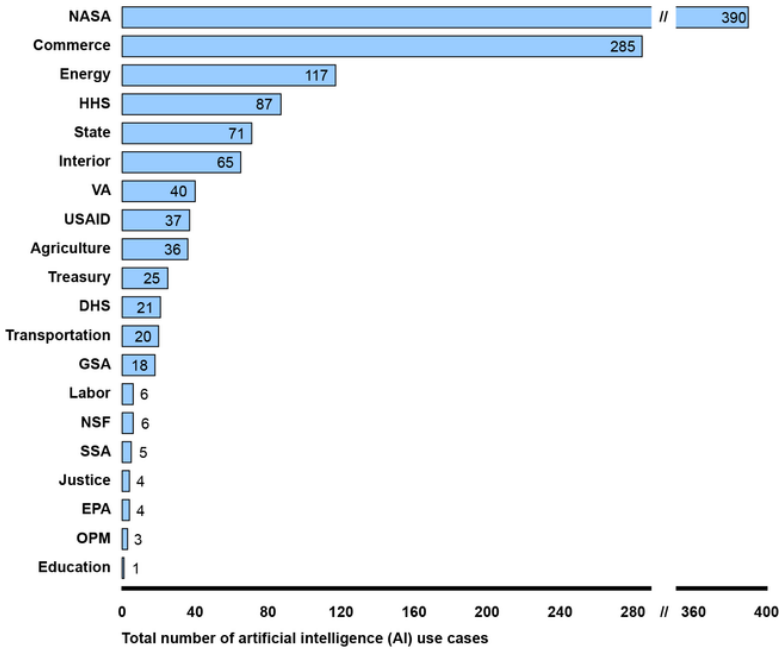

Figure 2. Usage of AI in American Government (Walsh & Government Accountability Office (GAO), 2022)

A chart in Figure 2 here which is based on the usage of artificial intelligence (Al) technologies in different American governments in 2022. NASA takes the lead in the number of AI technologies deployed with a total of 390 uses; Department of commerce stands second after NASA with 285. NASA is closely followed by the Department of commerce that has managed only 285 cases among other early adopters; Ministry of energy (117); Health and human services (87); State (71); Interior (65). Among other organizations with similar figures are the Departments of Veterans Affairs, Agriculture, and Treasury. A total of only one known case belongs to the Department of Education, which has the lowest with respect to artificial intelligence. There are different levels of AI adoption and application across various government sectors. This is particularly common in agencies such as NASA and Commerce, where the focus is usually on technology and innovation. This information has been compiled by the Government Accountability Office (GAO) after analyzing use cases sent by agencies. GAO is an independent organization lacking allegiance to any party working for Congress. The majority of the mentioned AI applications were in the process of development and had not been implemented at that time. Agencies stated approximately 200 cases currently utilizing AI, as seen in Figure 3 (Walsh & Government Accountability Office (GAO), 2022).

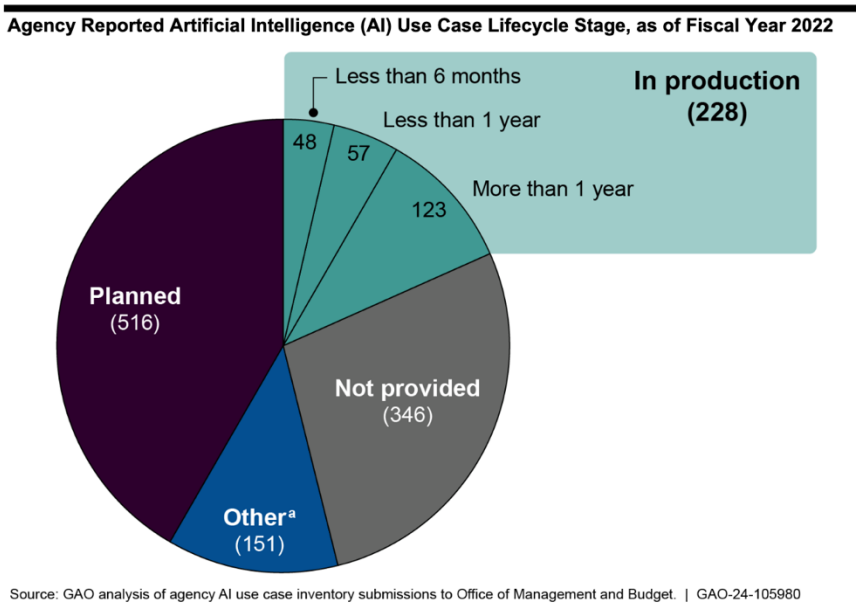

Figure 3. Use Case of AI Lifecycle State in American Government (Walsh & Government Accountability Office (GAO), 2022). This study aims to perform a comprehensive literature review on the use of Artificial Intelligence in office administrative procedures.

METHOD

The research methodology employed to address the objectives of this study is PRISMA 2020. The previous method, PRISMA 2009, is being substituted by this method. One notable distinction lies in the revised framework, which incorporates two distinct portions that may be employed if deemed appropriate: prior study and identification study utilizing an alternative methodology. The procedural sequence of

this procedure is visually represented in Figure 3, and it has been modified to suit the requirements of this study.

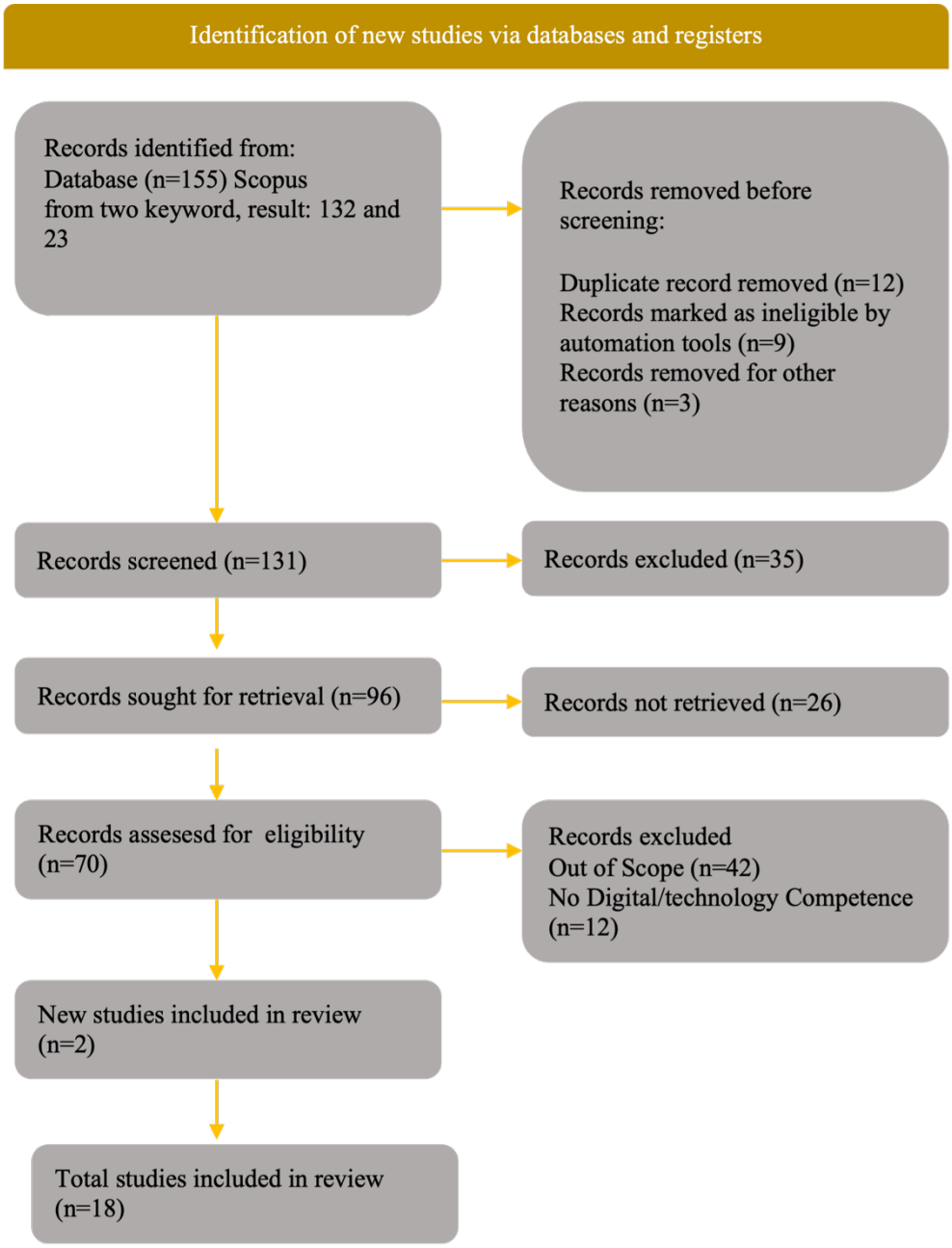

Figure 4. This Research Flow was Conducted using PRISMA 2020, adopted from (Page et al., 2021)

According to the data presented in Figure 4, a total of 18 studies have been included in the review from 2019-2024. These studies were sourced from the databases. There are 23 documents from the search term for scholarly articles is "office administrative and artificial intelligence," as seen in figure 5. There are 132 documents from the search term for scholarly articles is "office automation and artificial intelligence" as seen on Figure 6. Table 2 comprehensively compiles the 18 articles, along with their respective descriptions. Figures 7 illustrate the bibliometric analysis and the interrelationship among variables within the Scopus databases.

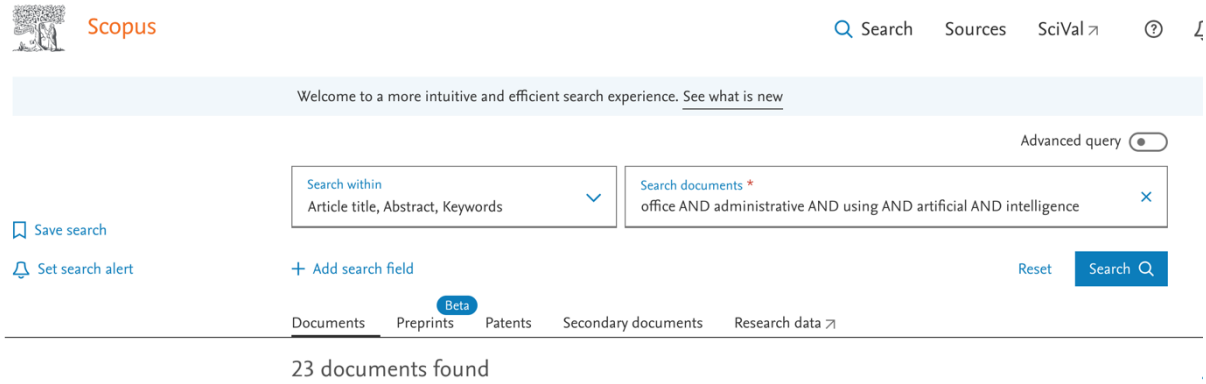

Figure 5. Keyword office administrative and artificial intelligence

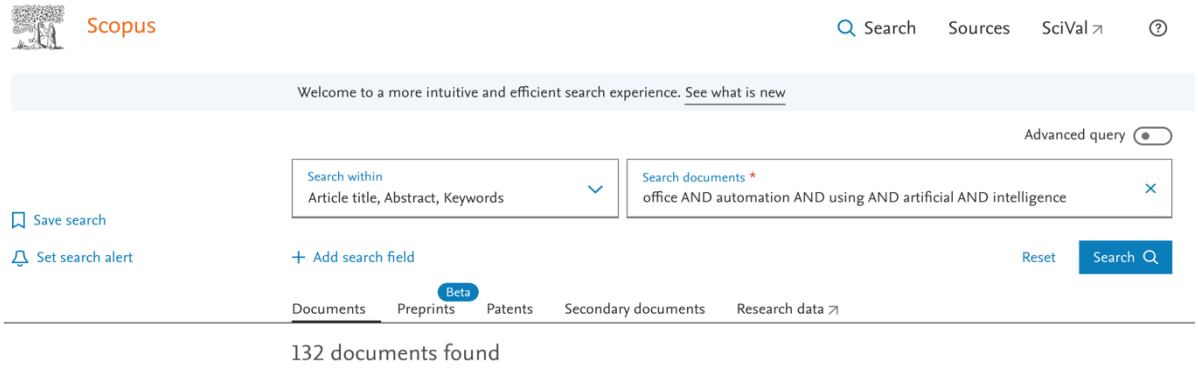

Figure 6. Keyword office automation and artificial intelligence

Table 2. Total studies included in the review.

Year of Publication	Author(s)	Title	Publisher (Quartile)	Result
2022	(Tyson & Zysman, 2022)	Automation, AI & Work	Daedalus (Q1)	AI to automate routine tasks
2019	(Acemoglu & Restrepo, 2019)	The Wrong Kind of Ai? Artificial Intelligence and the Future of Labor Demand	International Political Economy: Globalization eJournal (Q1)	AI in production
2020	(Cui et al., 2020)	AI and Procurement	Manuf. Serv. Oper. Manag. (Q1)	AI for smarter procurement
2019	(Zhang, 2019)	Intelligent Process Automation in Audit	Accounting Technology & Information Systems eJournal (Q1)	AI in auditing
2019	(Overgoor et al., 2019)	Letting the Computers Take Over: Using AI to	California Management Review (Q1)	Marketing AI project

		Solve Marketing Problems		management framework
2021	(Fukumura et al., 2021)	Worker Perspectives on Incorporating AI into Office Workspaces	International Journal of Environmental Research and Public Health (Q1)	AI to adjust office environments
2021	(Leyer & Schneider, 2021)	Decision augmentation and automation with artificial intelligence	Business Horizons (Q1)	AI for managerial decision-making
2020	(López Jiménez & Ouariachi, 2021)	An exploration of the impact of AI and automation on communication professionals	J. Inf. Commun. Ethics Soc. (Q1)	AI in communication roles
2020	(Gružauskas & Ragavan, 2020)	Robotic Process Automation for Document Processing	Journal of Management (Q1)	AI and RPA for logistics service
2022	(Xiao et al., 2022)	Design and Implementation of Office Automation System Based on IoT	Wireless Communications and Mobile Computing (Q1)	IoT for office automation
2019	(Al-Mushayt, 2019)	Automating E-Government Services With Artificial Intelligence	IEEE Access (Q1)	AI in e-government services
2020	(Benzaid & Taleb, 2020)	AI-Driven Zero Touch Network and Service Management in 5G and beyond	IEEE Network (Q1)	AI for network management
2021	(Braganza et al., 2022)	Gigification, job engagement and satisfaction: The moderating role of AI enabled system automation in operations management	Production Planning & Control (Q1)	AI system automation in operations management
2021	(Pan & Zhang, 2021)	Roles of artificial intelligence in construction engineering and management	Automation in Construction (Q1)	AI in construction management
2021	(Williamson &	Artificial intelligence techniques for	Concurrent Engineering (Q1)	AI for smart systems in industry

	Vijayakumar, 2021)	industrial automation and smart systems		
2021	(Javaid et al., 2022)	Artificial Intelligence Applications for Industry 4.0	Journal of Industrial Integration and Management (Q1)	AI in Industry 4.0
2021	(Fejes & Futó, 2021)	Artificial Intelligence in Public Administration – Supporting Administrative Decisions	Public Finance Quarterly (Q4)	Expert systems are suitable for administrative decision support
2024	(Bonomi Savignon et al., 2024)	Automation in public sector jobs and services: a framework to analyze public digital transformation's impact in a data-constrained environment	Transforming Government: People, Process and Policy (Q1)	The impact of automation is significant

Figure 3. Articles Connection bibliometric

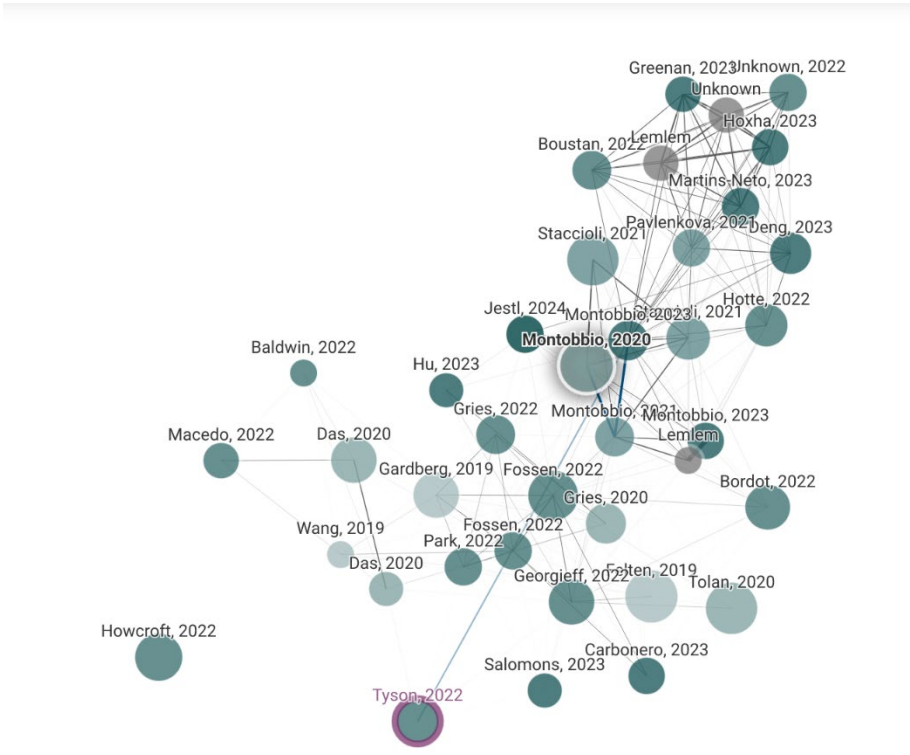

Figure 7. Articles Connection bibliometric on Scopus Database

RESULT AND DISCUSSION

After conducting a comprehensive analysis and synthesis of the 18 scientific studies, it is evident that artificial intelligence (AI) is currently being employed in office administrative processes. This result discusses the origins of AI and its application in office administrative procedures, as well as the resulting impact.

Automate Routines

Artificial intelligence and its associated cutting-edge tools and systems will take over many routine actions, changing the nature of existing jobs and creating new ones. This will often include fresh forms of partnership between people and machines, along with untested modes of doing work. When work is automated, specific duties can be done then moved to different areas or people. When intelligent workflows and algorithms indicate the best place for job completion, duties may be reassigned remotely. In terms of overall responsibility for job performance, proficiency in information processing is extremely important. (Braganza et al., 2022; Tyson & Zysman, 2022)

Support Administrative Decisions

AI can be utilized in several domains of administrative decision-making. The first one is front-office or specifically customer service. The administrator reviews the expert system's conversation petitions and engages in conversation with the customer to solve the issues raised by the expert system and finally comes out with a final response. When needed, the user can refer to the particular legal context to get more information as well as clarify their replies through the system's explanatory services throughout the entire process. The second is documenting and operation of vehicles for issue or replacement of driving license for example at prime minister office at Hungary. The third is back-office, applications that have been programmed with present day expert systems do not require high processing capability neither do they consume a lot of RAM. Ascertains in management, comments put in administration and the interpretation of legal regulations are equally applicable (Fejes & Futó, 2021; Gružauskas & Ragavan, 2020).

Handwritten Recognition

A significant effect on office automation is that of automating administrative papers authorization by converting them from handwritten into machine readable form. To date, postal operators' address recognition is dependent on people who manually read addresses and then place envelopes into separate department bins where items are sorted by destinations before being delivered to addressees. What's more, it has an ability of preserving hard copies and texts by turning them into soft copies (Al-Mushayt, 2019).

CONCLUSION

The exhaustive examination of 18 scientific studies reveals that artificial intelligence (AI) is deeply embedded in office administrative procedures, leading to a considerable

transformation in operational dynamics. The main effect of AI is clearly seen in the automation of repetitive work, the modification of job responsibilities, and the promotion of novel types of collaboration between humans and machines. These automated systems are able to move through occupations continuously with a view to increasing the yield. Furthermore, these systems can guide delicate decisions in regard to administrative issues involving clients and legal protocols. Furthermore, customer service delivery and operational effectiveness are improved as a result, since there is no be requiring for significant computational resources optimizing processes in areas where the public interacts or has any other business with concern but only such that involve computer technology. Another key area where AI has had an impact is the automation of document processing. This includes the conversion of handwritten texts into formats that can be read by machines. This technology helps to preserve documents and improves the efficiency of postal service operations. Together, these AI-powered modifications highlight a significant change in administrative processes, improving efficiency, precision, and adherence to regulations in office settings.

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