Office Automation: Tools for Alleciating Maual Task and Errors in Document Handling in Federal University of Agriculture, Abeokuta, Ogun State, Nigeria

Boladale Ruth Oluwasina[1*], Adeola Idiat Adepoju[2], Rasidat Iyabo Olore[3] (ID)

[1] Business Education Department, Tai Solarin University of Education, Ijagun, Ogun State, Nigeria
[2] Technology and Management Department, Oyo State College of Agriculture and Technology, Igboora, Oyo State, Nigeria
[3] Technology and Management Department, Oyo State College of Agriculture and Technology, Igboora, Oyo State, Nigeria

A R T I C L E   I N F O

A B S T R A K

Permasalahan terkait beban kerja manual dan kesalahan dalam pengelolaan dokumen oleh manajer kantor di suatu organisasi sangat bergantung pada ketersediaan alat otomasi kantor serta keterampilan dan kompetensi yang diperlukan untuk menggunakannya. Penelitian ini bertujuan untuk mengkaji penggunaan otomasi kantor sebagai alat untuk mengurangi tugas manual dan kesalahan dalam pengelolaan dokumen di antara manajer kantor di Universitas Federal Pertanian Abeokuta, Negara Bagian Ogun, Nigeria. Penelitian ini menggunakan desain survei dengan populasi yang terdiri atas 100 manajer kantor (sekretaris) di area penelitian. Instrumen penelitian berupa kuesioner yang dikembangkan sendiri telah divalidasi untuk mengumpulkan data yang relevan. Data yang dikumpulkan diolah menggunakan program Statistical Packages for Social Sciences (SPSS). _Rata-rata tertimbang dan standar deviasi digunakan untuk menjawab pertanyaan penelitian dengan indeks skor 2,5 sebagai batas persetujuan. Hasil penelitian menunjukkan bahwa alat otomasi kantor digunakan oleh manajer kantor untuk mengurangi tugas manual dan kesalahan dalam pengelolaan dokumen. Otomasi kantor memberikan dampak positif dalam mengurangi beban kerja manual dan kesalahan, meskipun manajer kantor menghadapi berbagai tantangan dalam penggunaannya. Berdasarkan temuan ini, direkomendasikan agar calon manajer kantor mengikuti pelatihan yang memadai dan mengembangkan keterampilan untuk memastikan adopsi dan pemanfaatan alat otomasi secara efektif. Selain itu, organisasi bisnis disarankan untuk menyediakan alat otomasi kantor guna meningkatkan produktivitas manajer kantor mereka._

A B S T R A C T

The issue of manual workload and errors in document management by office managers in an organization heavily relies on the availability of office automation tools as well as the necessary skills and competencies required to use them. This study aims to examine the use of office automation as a tool for reducing manual tasks and errors in document management among office managers at the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. The study employed a survey design with a population consisting of 100 office managers (secretaries) within the research area. The research instrument was a self-developed and validated questionnaire used to collect relevant data. The collected data were processed using the Statistical Package for Social Sciences (SPSS). Weighted mean and standard deviation were applied to answer the research questions, using an index score of 2.5 as the agreement threshold. The findings revealed that office automation tools are utilized by office managers to alleviate manual tasks and errors in document management. Office automation has a positive impact on reducing manual workload and errors, although office managers face various challenges in its utilization. Based on these findings, it is recommended that prospective office managers undergo adequate training and skills development to ensure effective adoption and utilization of office automation tools. Additionally, business organizations are advised to procure and provide office automation tools to enhance the productivity of their office managers.

*Corresponding author.
E-mail addresses: oluwasinayo@gmail.com (Boladale Ruth Oluwasina)

1.   INTRODUCTION

Advances in technology are rapidly changing today's modern business around the globe and have seriously affected every aspect of the office. The effects are generally felt in science, commerce, industry, education, and politics particularly in the business world (Donthu & Gustafsson, 2020; Friday et al., 2024). He stated further that these new technologies have facilitated new business procedures from the traditional office of yester years to the electronic office. Automation is an innovation and a consequence of the industrial revolution. It is a collection of methods for controlling machinery and production process by mechanical method, usually with electronic equipment (Huang et al., 2024; Zhang, 2023). He proceeded further that it is also the process of replacing human work with work done by machines or system designed to perform a specific combination of action. Office automation according to previous reseearch is an aid to the Office Manager (secretary) who makes constant use of the machines, hence the machines can carry out routine work or clerical jobs quickly, accurately and automatically more than the ordinary human being can do, thereby freeing the office manager in working out payroll, and other numerous letters and calculations which need an expert and excellent touch to be done correctly (Dosunmu et al., 2018; Lesi, 2020). Some of these machines have large storage facilities and can store information in their memory unit.

Office automation can also be defined as utilizing personal computers such as word Processors and electronic intercom mail plus other technologies used to upgrade workers' productivity and efficiency. It is the technique of making a processor system automatic in the office (Etampawala et al., 2022; Oteng & Seidu, 2016). Office Automation Systems (OAS) is a computer-based automated information system that is used to execute a variety of office operations (Chinthamu & Karukuri, 2023; Javed et al., 2024). These different office automation systems allow the automation of much administrative work in the office and typically focuses on the more repeatable and predictable aspects of individual and group work. Office automation tools have taken over the entire activities of very many organizations. Various electronic equipment such as: computer, electronic typewriters, photocopiers, tele-printers, fax recorders, telephones with cellular, GSM/Mobile attachments, electronic switch boards, laminating machines, scanners, Dictaphones, magnetic and non-magnetic tapes etc. All these equipment, as a matter of fact are used to speed up the processing of correspondence, but not to replace secretarial function of the secretaries. The introduction of sophisticated telecommunication equipment, computer and word processors, information technology machines coupled with the new management techniques have changed old work habits, thereby resulting in complete job re-designation and acquisition of new skills.

Office automation tools are the best to reach helpful solutions in order to save and efficient use of time in organization according to previous research, he went further to suggest that Mechanized solutions accelerate correspondence circulation of organization and permit management of workflow. In this process, it is practical removing paper correspondence and efficient use of time and in fact office automation is a mechanism in the event of improving the efficiency of the organization through correspondence electronic circulation across the organization, easy search in the stored information, rapid and timely response to clients, removing paper from official correspondence cycle, apply an appropriate control on users, optimal registration and maintenance of information and improving communication within the organization.

The ability to assume responsibilities without direct supervision to provide communication support services on matters of routine and administrative issues (Inyang, 2022; Rogers, 2022). Office managers are now referred to as modern professional secretaries by some people because of their activities, education, skill acquisition, knowledge and even expectations from their bosses, customers, clients and even the general public (Azi & Lamle, 2015; Ozomenam & Asogwa, 2023). Office manager as a professionally trained and qualified information technologist and psychologist with mastery of office and administrative management process of institutions for instantaneous comprehension of ideas and issues in human and organizational behaviors. It means that a qualified office manager should have a wide knowledge of business acumen, versatile knowledge in accounting personnel, office practice and communication and inside knowledge of the operation of all departments within the organization where he works, unlike a half-baked office manager who posses only knowledge of shorthand, typewriting and basic office practices.

Manual task according to previous research is a task or activity that Requires the use of physical effort or labor, typically performed by hand rather than by using machinery or automation (Acemoglu & Restrepo, 2019; Lee et al., 2022). Manual task in office handling processes is not only time-consuming but also prone to human errors, leading to potential setbacks and challenges. Manual task is the address to issues while organizations are increasingly turning to office automation tools to streamline their office management processes and minimize manual tasks and errors. Previous research asserted that in the recent years, manual methods were used in processing documents; however, with the invention of modern equipment the tools are replaced (Gattullo et al., 2017; Sulaiman et al., 2019). Documents play a crucial role in various aspects of an organization, especially among office managers. They serve as tangible records that capture and communicate information in a structured format. According to previous research, document is

a written or printed-paper that provides information or proof of something (Kaminska, 2019; Mason, 2018). It can be a certificate or any official paper that serves as the basis or support for something.

Document is essential for effective decision-making and productivity of any organization, it depends largely on how they handle their document with error free, for these to be accomplished in this modern day, there is a need of an office automation that will be best suit to deliver an error free document by an office manager. Office managers in the organizations of yester years were dealing with papers and worked with manual machines, relied on postal services for external communications and kept office records in the cabinets. Technological innovations demand new skills, attitudes and the development of new professional and intellectual concepts among secretaries. However, the biggest difference between manual office processing and office automation is the workflow aspect, in manual office, processing important documents is being created, sent, signed, sent back, and stored manually but in office automation, software handles everything, all in the same place, the need for manual data entry, email reminders, printed paperwork, and other time-consuming steps is eliminated. The effect of office automation is to increase the organizational productivity by redefining the office work, improve the quality and accuracy of output. In today's fast-paced and technologically advanced work environment, office managers are face with the daunting task of handling a multitude of office tasks on a daily basis. Despite the advancements in technology, many office managers still rely heavily on outdated manual processes, which are not only time consuming but are also risky to health and prone to errors, which cause delay in organizational decision making. Other critical issues requiring immediate attention include inadequate support of top management to procure expensive office automation device that can be of help, training and retraining of office managers on the use of modern office automation tools, research on modern office automation that can be of help to alleviate manual task and handling of error. However, in view of the aforementioned challenges, this study examined Office Automation: Tools for Alleviating Manual Task and Errors in Document Handling among Office Managers.

The novelty of this study lies in its in-depth exploration of the role of office automation tools in alleviating manual tasks and reducing errors in document handling, particularly within the context of the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. This research focuses on how office automation technologies address challenges associated with traditional manual processes in document management, including inefficiencies, human errors, and time consumption. The study aims to explore and explain the impact of office automation tools on streamlining administrative workflows, enhancing accuracy, and fostering productivity in academic institutions. By identifying the challenges and opportunities associated with adopting office automation in the university setting, this research seeks to provide valuable insights into how these tools contribute to improved operational efficiency and decision-making processes. This study not only underscores the strategic importance of leveraging technology in modern administrative practices but also highlights its potential to transform document handling and management in higher education institutions. It is expected that the findings will inform the development of best practices and recommendations for adopting office automation tools to achieve greater efficiency and effectiveness in institutional management.

2. METHOD

This study adopts the descriptive research design. This method selects and studies samples in order to describe as well as discover the relationships between the variables. The population comprise of all 100 office managers (secretaries) in Federal University of Agriculture, Abeokuta (FUNAAB), Ogun State. The instrument use for data collection was questionnaire titled: Office Automation: Tool for Alleviating Manual Task and Errors in Document Handling among Office Managers with 15 items built on the four-point scale of Strongly Agree (SA), Agree (A), Disagree (DA) and Strongly Disagree (SD). Mean and standard deviation was used to answer the research questions while t-test analysis was used to test the null hypotheses at 0.05 level of significance.

3. RESULT AND DISCUSSION

Result

Table 1. Office Automation Tools used by Office Managers in Document Handling

S/n	Items	N	Mean	SD	Remarks
1	Displaying of computer screen content or video onto a larger screen or wall for large audience can be done with a project	100	3.49	0.559	Accepted

S/n	Items	N	Mean	SD	Remarks
2	Office managers perform a wide range of tasks, including document creation, data analysis, communication, and more with computer	100	3.46	0.593	Accepted
3	Production of hard copies of documents can be done through printer	100	3.35	0.657	Accepted
4	Converting of physical documents into digital format, making it easy to store, share, and edit them can be perform through electronic scanner	100	3.34	0.699	Accepted
5	Word processor can be use to produces, letters, term papers, scientific papers, legal briefs and any other type of word in an office	100	3.48	0.643	Accepted

Source: Field Survey 2024

The Table 1 revealed that all the five items (5) items is accepted indicating with the mean scores of 2.50 and above. The standard deviation of 0.522 to 0.699 all indicated that the respondents were close in their responses.

Table 2. Effects of Office Automation Tool on Document Handling Among Office Managers

S/n	Items	N	Mean	SD	Remarks
1	Office automation tools reduce the time spent on manual tasks, allowing office managers to focus on more strategic and high-value work.	100	3.54	0.500	Accepted
2	Office automation tools leads to increased accuracy and reliability of information, reducing the risk of costly mistakes.	100	3.49	0.541	Accepted
3	Office manager can improve overall efficiency and productivity within the office using office automation tools.	100	3.47	0.593	Accepted
4	Office automation tools centralize and store data in a structured manner, making it easily accessible to authorized personnel.	100	3.42	0.638	Accepted
5	With the use of office automation tools, office managers can mitigate risks and maintain the confidentiality of sensitive information.	100	3.45	0.609	Accepted

Source: Field Survey 2024

Table 2 shows the effect of Office Automation Tools on Document Handling among Office Managers. The table revealed that all the five (5) items is accepted indicating with the mean scores of 2.50 and above. The standard deviation of 0.541 to 0.638 all indicated that the respondents were close in their responses.

Table 3. Challenges Facing Office Managers in the use of Office Automation Tools

S/n	Items	N	Mean	SD	Remarks
1	Lack of adequate training and skill on office automation tools by office managers affect the use of office automation.	100	3.54	0.539	Accepted
2	Office automation often requires significant financial investment making it expensive to procure by business organizations.	100	3.44	0.624	Accepted
3	Lack of employees fully embracing and utilization of office automation tools provided makes it less encouraging for effective utilization.	100	3.49	0.628	Accepted
4	Lack of update about new office automation features affect its usage by office managers.	100	3.50	0.560	Accepted
5	Inadequate office automation tools.	100	3.47	0.576	Accepted

Source: Field Survey 2024

Table 3 shows the Challenges Facing Office Managers in the Use of Office Automation. The table revealed that all the five (5) items is accepted indicating with the mean scores of 2.50 and above. The standard deviation of 0.537 to 0.656 all indicated that the respondents were close in their responses.

Table 4. Summary of the T-test Result of the Mean Response of Male and Female Respondents on Office Automation Tools used by Office Managers in Alleviate Manual Task and Errors in Document Handling

S/N	Group	N	Mean	SD	T	Df	P-value	Decision
1	Male	37	32.74	56.7	-1.05	98	0.008	Sig
2	Female	63	33.47	57.8	-1.10			

Insignificance at p>0.05

The analysis of data in Table 4 reveals that there are 37 male and 63 female respondents in the study. The table shows the mean and standard deviation of male and female responses (x=32.74, SD=56.7) and (x=33.47, SD=57.8). Therefore, the null hypothesis is accepted, signifying that there is no significant difference between the mean responses of male and female student on office automation tools used by office managers in document handling (t96=P<0.05). Thus the null hypothesis that state that there is no significant difference between the mean responses of male and female student on office automation tools used by office managers in document handling was accepted. This implies that the male and female respondents do not differ in their responses regarding their responses on office automation tools used by office managers in document handling.

Table 5. Summary of the T-test of the Mean Response of Male and Female Office Managers on the Challenges Faced by Office Managers with the use of Office Automation in Alleviating Manual Task and Error in Document Handling

S/N	Group	N	Mean	SD	T	Df	P-value	Decision
1	Male	37	31.08	4.75	-1.25	94	0.21	NS
2	Female	63	53.15	5.25				

Insignificance at p>0.05

The analysis of data in Table 5 reveals that there are 37 male and 63 female respondents in the study. The table shows the mean and standard deviation of male and female responses (x=31.08, SD=4.75) and (x=53, SD=5.25), the result indicates the response values of P>0.05 which is 0.29. Therefore, the null hypothesis was accepted, signifying that there is no significant difference between the mean responses of male and female student on effects of office automation tools on document handling among office managers was accepted. This implies that male and female respondent do not differ in their opinion regarding the level of   challenges faced by office managers with the use of office automation in alleviating manual task and error in document handling.

Discussion

The findings of the Research Question One Table 1 revealed the office automation tools used by office managers in alleviating manual tasks and errors in document handling. The findings collaborate with earlier findings of similar research which state that Office automation tools have taken over the entire activities of very many organizations (Dunmade et al., 2022; Yadin et al., 2021). Various electronic equipment such as: computer, electronic typewriters, photocopiers, tele-printers, fax recorders, telephones with cellular, GSM/Mobile attachments, electronic switch boards, laminating machines, scanners, etc. It is generally accepted that there are various office automation tools that can be used by office managers to alleviate manual task and error in document handling (Lacity & Willcocks, 2016; Spring et al., 2022).

The findings of Research Question Two, Table 2 revealed the effects of office automation tools in alleviating manual tasks and errors in document handlings among office managers. This finding is supported by previous research, who opines that Office automation tools are refers to the use of computer systems and applications to increase the productivity of the workforce in the organization and thereby reducing the need for human intervention (Parker & Grote, 2022; Shestakofsky, 2017). It plays an important role in the development of any organization and industry and help increase labor productivity. Similarly, previous research also stressed that, using office automation tools is effective in allocation of affairs in addition to increase the speed and accuracy and it raises staffs' efficiency dramatically and puts proper

facilities to the managers and operating staff to reach timely and accurate information easily when needed (Elegunde & Osagıe, 2020; Olufemi, 2020). Analysis shows that the concept of Office Automation Tools revolves on the fact that, it does not only alleviate manual task but office automation tools are effective in reducing the risk of costly mistakes, improves overall efficiency and productivity within the office using office automation tools, enable seamless communication and collaboration among office manager's, store data in a structured manner making it easily accessible to authorized personnel as well as reduction in the risk of data loss or misplacement with office automation tools. It is generally accepted there are many benefits of Office automation Tools among office managers most especially, alleviation of manual task and reduction of error in document handling.

The findings of Research Question Three Table 3 revealed the challenges faced by office managers in the use of office automation tools for alleviating manual tasks and errors. This findings is supported by previous research which says there are numerous problems militating against the maximum application of office automation by office manager in their respective organisations, which also affects their operational performance such as poor and inadequate telecommunication facilities, poor level of computer literacy, poor computer facilities, poor level of awareness of technologies facilities and importance of information as well as ignorance of decision policy makers on the power of information network (Leyer & Schneider, 2021; Raisch & Krakowski, 2021). Therefore, it is generally accepted that there are various challenges facing office managers in the use of office automation tools for alleviating manual tasks and errors.

The findings of this study provide significant contributions to understanding the role of office automation in reducing manual tasks and errors in document handling at the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. The research demonstrates that the implementation of office automation tools has a substantial impact on enhancing operational efficiency, reducing manual workloads, and minimizing administrative errors in document management.

Office automation not only accelerates the document management process but also strengthens accuracy and consistency in executing administrative tasks. Efforts to promote the adoption of automation technology are gaining increased attention, reflecting its recognized benefits in creating a more productive and organized work environment. The role of this technology in document management highlights how innovation can enrich modern administrative practices in higher education institutions.

These findings can serve as a foundation for further research on how automation technology can be more widely integrated into administrative processes to improve efficiency and productivity in the education sector. Furthermore, the study emphasizes the need for a more strategic and sustainable approach to adopting office automation technology, ultimately supporting a more holistic digital transformation in institutional management. One limitation of this study is its focus on a single institution, which may not fully represent the situation in other universities. Additionally, external factors such as global technology trends and institutional policies may not have been fully addressed in this research.

Recommendations for future studies include broader exploration of office automation adoption across universities with diverse backgrounds to gain a more comprehensive understanding. Subsequent research could also investigate how training and human resource development can enhance institutional readiness for adopting office automation. Furthermore, it is crucial to examine the impact of office automation technology on service quality and user satisfaction. Future studies may also consider interdisciplinary approaches combining information technology, management, and organizational studies to enrich the understanding of automation's role in institutional transformation.

4. CONCLUSION

Office automation tools have greatly impact the work of an office manager, contributing positively to their handling of manual task and error free document. To maximize these benefits, it is essential for office managers to be mindful of its potential challenges. Office automation cannot operate itself and so office managers should be properly trained to effectively use them as to enhance performance, educators and educational institutions can provide guidelines and training on the appropriate use of office automation in offices, to ensure that prospective office managers are aware of the benefits of using office automation in the office.

5. REFERENCES

Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: How technology displaces and reinstates labor. *Journal of Economic Perspectives*, *33*(2), 3–30. https://doi.org/10.1257/jep.33.2.3.

Azi, S., & Lamle, M. B. (2015). Assessment of factors affecting job performance of secretaries. *Journal of Professional Secretaries and Office Administrators*, *23*(1), 110–129.

https://doi.org/10.69984/jopsoa.v23i1.19.

Chinthamu, N., & Karukuri, M. (2023). Data science and applications. *Journal of Data Science and Intelligent Systems*, *1*(2), 83–91. https://doi.org/10.47852/bonviewJDSIS3202837.

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, *117*, 284–289. https://doi.org/10.1016/j.jbusres.2020.06.008.

Dosunmu, M. M., Bukki, A. O., & Akintola, O. A. (2018). Influence of Office Automation on Secretarial Administrators Effectiveness in Ogun State-Owned Universities. *NIU Journal of Social Sciences*, *4*(3), 57–64. https://ijhumas.com/ojs/index.php/niujoss/article/view/363.

Dunmade, E. O., Ajayi, M. A., & Oladejo, D. A. (2022). Office Automation And Its Impact On Service Delivery In The Kogi State Civil Service. *Bahria University Journal Of Management & Technology*, *5*(2). https://doi.org/10.62533/bjmt.v5i2.49.

Elegunde, A. F., & Osagıe, R. (2020). Artificial intelligence adoption and employee performance in the Nigerian banking industry. *International Journal of Management and Administration*, *4*(8), 189–205. https://doi.org/10.29064/ijma.734734.

Etampawala, E. R., Uluwita, Y. R., Jayasinghe, J. M. W. C., Abesekara, A. W. A. D. C., Amarasena, N., & Wellalage, S. (2022). OAS: An advanced undergraduate office automated system for automate bank work routing. *International Journal Of Engineering And Management Research*, *12*(6), 110–116. https://doi.org/10.31033/ijemr.12.6.15.

Friday, E. C., Onah, F. S., Onwudinjor, E. C., & Ezenwoke, M. L. (2024). Office Automation and Performance of Small and Medium Scale Enterprises in Anambra State, Nigeria. *Journal of Public Administration, Policy and Governance Research*, *2*(4), 156–173. https://jpapgr.com/index.php/research/article/view/151.

Gattullo, M., Uva, A. E., Fiorentino, M., Scurati, G. W., & Ferrise, F. (2017). From paper manual to AR manual: do we still need text? *Procedia Manufacturing*, *11*, 1303–1310. https://doi.org/10.1016/j.promfg.2017.07.258.

Huang, X., Yan, W., Cao, H., Chen, S., Tao, G., & Zhang, J. (2024). Prospects for purely electric construction machinery: Mechanical components, control strategies and typical machines. *Automation in Construction*, *164*, 105477. https://doi.org/10.1016/j.autcon.2024.105477.

Inyang, U. A. (2022). Professional Ethics in Secretarial Practice and the Level of Job Performance of Secretaries. *Open Access Repository*, *9*(2), 45–57. https://doi.org/10.17605/OSF.IO/KPQ69.

Javed, M. A., Alam, M., Alam, M. A., Islam, R., & Ahsan, M. N. (2024). Design and Implementation of Enterprise Office Automation System Based on Web Service Framework & Data Mining Techniques. *Journal of Data Analysis and Information Processing*, *12*(4), 523–543. https://doi.org/10.4236/jdaip.2024.124028.

Kaminska, A. (2019). Don't copy that: Security printing and the making of high-tech paper. *Convergence*, *25*(4), 590–606. https://doi.org/10.1177/1354856519845748.

Lacity, M. C., & Willcocks, L. P. (2016). A new approach to automating services. *MIT Sloan Management Review*, *58*(1), 41–49. https://doi.org/10.7551/mitpress/11633.003.0015.

Lee, J. S., Ham, Y., Park, H., & Kim, J. (2022). Challenges, tasks, and opportunities in teleoperation of excavator toward human-in-the-loop construction automation. *Automation in Construction*, *135*, 104119. https://doi.org/10.1016/j.autcon.2021.104119.

Lesi, O. B. (2020). Office automation and secretarial productivity in Rivers State University. *American International Journal of Nursing Education and Practice*, *1*(1), 22–34. http://acseusa.org/journal/index.php/aijnep/article/view/68.

Leyer, M., & Schneider, S. (2021). Decision augmentation and automation with artificial intelligence: Threat or opportunity for managers? *Business Horizons*, *64*(5), 711–724. https://doi.org/10.1016/j.bushor.2021.02.026.

Mason, S. (2018). Documents signed or executed with electronic signatures in English law. *Computer Law & Security Review*, *34*(4), 933–945. https://doi.org/10.1016/j.clsr.2018.05.023.

Olufemi, F. (2020). Influence of work automation on the performance of nigerian ports. *Journal of Management and Science*, *10*(3), 12–24. https://doi.org/10.26524/jms.10.3.

Oteng, P. A., & Seidu, P. A. (2016). The Impact of Modern Office Technology on the Secretary's Performance in Some Selected Business Organizations in the Takoradi Metropolis. *ADRRI Journal of Arts And Social Sciences*, *13*(12), 1–9. https://doi.org/10.55058/adrrijass.v13i12.258.

Ozomenam, N. P., & Asogwa, S. O. (2023). Secretarys' competencies coverge as hubs for optimum performance in contemporary offices. *Journal of Professional Secretaries and Office Administrators*, *30*(1), 88–97. https://doi.org/10.69984/jopsoa.v30i1.112.

Parker, S. K., & Grote, G. (2022). Automation, algorithms, and beyond: Why work design matters more than ever in a digital world. *Applied Psychology*, *71*(4), 1171–1204.

https://doi.org/10.1111/apps.12241.

Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, *46*(1), 192–210. https://doi.org/10.5465/amr.2018.0072.

Rogers, L. K. (2022). Is role change enough? District organizational supports for principal supervision. *Educational Administration Quarterly*, *58*(4), 527–560. https://doi.org/10.1177/0013161X221081828.

Shestakofsky, B. (2017). Working algorithms: Software automation and the future of work. *Work and Occupations*, *44*(4), 376–423. https://doi.org/10.1177/0730888417726119.

Spring, M., Faulconbridge, J., & Sarwar, A. (2022). How information technology automates and augments processes: Insights from Artificial-Intelligence-based systems in professional service operations. *Journal of Operations Management*, *68*(6–7), 592–618. https://doi.org/10.1002/joom.1215.

Sulaiman, A., Omar, K., & Nasrudin, M. F. (2019). Degraded historical document binarization: A review on issues, challenges, techniques, and future directions. *Journal of Imaging*, *5*(4), 48. https://doi.org/10.3390/jimaging5040048.

Yadin, D., Calil, S., Pallikarakis, N., Poluta, M., Bergamasco, S., Clark, D., & Morse, W. (2021). Is Clinical Engineering an occupation or profession? *Global Clinical Engineering Journal*, *4*(2), 26–35. https://doi.org/10.31354/globalce.v4i2.131.

Zhang, X. (2023). Exploring the Application of PLC Technology in Mechanical Electrical Control Devices. *Academic Journal of Management and Social Sciences*, *2*(3), 94–99. https://doi.org/10.54097/ajmss.v2i3.8744.