UTILIZATION OF ARTIFICIAL INTELLIGENCE-BASED EMAIL MANAGEMENT TOOLS BY SECRETARIES IN PUBLIC ORGANIZATIONS IN EBONYI STATE: EFFECTS ON JOB PERFORMANCE

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Abstract
The integration of Artificial Intelligence (AI) tools in organizational operations has created new opportunities for improving administrative efficiency and job performance, particularly among secretaries who manage communication and records in public organizations. This study investigated the extent of utilization of AI-based email management tools by secretaries in public organizations in Ebonyi State for effective job performance. One research question and one null hypothesis guided the study. A descriptive survey research design was adopted. The population comprised 527 secretaries in 32 ministries in Ebonyi State, and census sampling was used. Data were collected using a structured questionnaire titled "*Questionnaire on Extent of Utilization of AI-Based Email Management Tools for Effective Job Performance by Secretaries (QEUAIEMT-EJPS)".* The instrument was validated by three experts in the field of education and yielded a reliability coefficient of 0.76 using Cronbach's alpha. Mean and standard deviation were used to answer the research question, while two-way Analysis of Variance (ANOVA) was employed to test the hypothesis at 0.05 level of significance. Findings revealed that secretaries in public organizations in Ebonyi State rarely utilize email management tools for effective job performance. The results also showed significant differences in utilization based on gender and years of job experience. The study concluded that the overall utilization of AI-based email management tools among secretaries is low and is significantly influenced by gender and experience. It was recommended, among others, that government and management of public organizations should provide regular training, evident and up-to-date ICT infrastructure, and gender-sensitive capacity-building programmes to enhance secretaries' utilization of AI-based email management tools for improved job performance.

Keywords: *Artificial Intelligence, eMail Management Tools, Utilization, Secretaries, Public Organizations.*

Introduction
The integration of Artificial Intelligence (AI) tools in organizations has become increasingly important for improving administrative efficiency, service delivery, and employee job performance. AI tools are digital technologies designed with human-like intellectual abilities such as reasoning, learning, and decision-making, enabling them to perform tasks that normally require human intelligence (Builtin, 2024; Singh, 2022). These tools have become a transformative force across many sectors, providing innovative solutions to complex problems and supporting automation, creativity, speech recognition, and problem-solving (Byrne, 2024; Copeland, 2024). Secretaries are administrative professionals who provide executive and clerical support, coordinate office activities, manage information, and ensure effective communication and smooth daily operations in organizations. They are known by various titles such as office managers, administrative assistants, executive assistants, personal assistants, and confidential secretaries. Secretaries handle routine and sensitive tasks including correspondence, scheduling of appointments, document preparation, email management, meeting organization, and records keeping, which are essential to organizational efficiency (Merriam-Webster, 2024; Indeed, 2024; Lewis, 2024).

Secretaries contribute significantly to effective workflow, support executives, and help sustain the overall functioning of organizations through their secretarial, communication, and multitasking skills. To further strengthen their roles in today's digital environment, the integration of Artificial Intelligence (AI) tools has become increasingly important. AI tools assist male and female secretaries in carrying out routine and repetitive tasks. These tasks include managing correspondence and email,

scheduling appointments, organizing files, and maintaining diaries. Others are taking dictations, transcribing meetings, and preparing minutes, thereby enhancing efficiency and reducing stress (Amar, 2024; Kovalskiy, 2024).AI is a rapidly emerging field that is significantly improving productivity and attracting the attention of investors, policymakers, and industry leaders (Nsude, 2022).

As secretaries are responsible for managing communication, records, scheduling, and other administrative functions that ensure smooth organizational operations, they occupy a central position in public organizations. Public organizations in Nigeria contribute significantly to national development and governance, accounting for about thirty percent (30%) of the country's Gross Domestic Product (World Bank, 2020). However, these organizations continue to face challenges such as obsolete systems, inefficient processes, limited digital skills, and heavy reliance on manual procedures. These, according to Transparency International (2020), negatively affect productivity and service delivery. With the advancement of AI, secretarial work has shifted from purely clerical duties to more technology-driven responsibilities, particularly in managing electronic communication. Secretaries now serve as organizational gatekeepers who ensure efficient information flow and communication management (Sharma, 2020; Leonardo, 2024).

Artificial Intelligence refers to the ability of digital systems to perform tasks that normally require human intelligence, such as automation, learning, reasoning, and decision-making (Singh, 2022; Copeland, 2024). AI tools have been shown to automate routine tasks, improve accuracy, enhance productivity, and support informed decision-making in organizations (Morandini et al., 2023; Practically Perfect, 2024). Among the various AI tools available to secretaries, **email management tools** are particularly critical because email remains the primary medium for official communication in most organizations in recent times.

AI-powered email management tools can prioritize messages, categorize emails, flag important correspondence, suggest responses, schedule follow-ups, and reduce inbox clutter (Normand, 2024; Office Dynamics, 2024). Email management tools such as Sanebox, Boomerang, and Superhuman support efficient email organization and communication management (AI Horizon, 2023; Conley, 2024). SaneBox supports email filtering, prioritization, automation, and inbox decluttering by identifying and organizing important emails, offering features such as reminders and snooze to improve focus and productivity (Costen, 2024; Office Dynamics, 2024; Conley, 2024). These functions contribute to effective task automation, customer engagement, and overall job performance (Manyika, 2017). Boomerang assists with email scheduling, follow-ups, reminders, and message optimization, using machine learning features such as Respondable to improve email effectiveness (AI Horizon, 2023; Office Dynamics, 2024). Superhuman, on the other hand, is an AI-driven tool that enables faster email processing through smart inbox sorting, shortcuts, and AI-assisted responses, helping secretaries manage large volumes of communication efficiently (Conley, 2024).

Utilization of email management tools can significantly enhance secretaries' effectiveness, accuracy, and timeliness in handling correspondence, thereby improving overall job performance. Utilization is defined by Mburu and Oboko (2028) *as* the **actual use of a tool or system to achieve specific objectives**. In technology research, utilization is understood as the behavior of using technology to carry out tasks and accomplish goals in real settings for example, completing duties or improving performance, rather than merely possessing access to the technology. In this study, **utilization** is measured by how often secretaries use AI-based email management tools, the range of features they use, and how well the tools are integrated into their daily work for effective job performance.

Effective job performance involves the accurate and effective use of digital technologies, skills, knowledge and attitude by secretaries in public organizations to achieve desired organizational goals which hinges on efficiency and productivity. It is the proficiency in the use of modern technologies especially AI tools for the efficient performance of secretarial duties in offices for smarter decision-making and smooth running of the organization.

Despite the potential of AI-based email management tools, evidence suggests that utilization of AI tools in public organizations remains limited, especially in the public sector where technology adoption is often slow (Mikalef et al., 2019). **Abideen et al., (2024) f**ound that the level of usage of modern office technology was alarming. Similarly, **Owusu (2020)** observed that challenges such as inadequate infrastructure, training needs, and resistance to change affect secretaries' utilization of digital technologies for effective job performance. **Ile and Ojohwhoh (2020)** disclosed that electronic records protection systems were utilized at a low extent among secretaries.

The utilization of email management tools for effective job performance in public organizations in Ebonyi State may be influenced by gender and years of experience. Studies show that males generally report slightly higher AI and ICT usage than females (Madgavkar, 2021; Spiceworks, 2020), and that fewer women in Nigeria use ICT due to poor digital literacy, cyber insecurity, and limited access (Aguboshim et al., 2022). These are generalized findings relating to ICT and social media use in Nigeria and is not particular to male and female secretaries on the utilization of email management tools for effective job performance in public organizations in Ebonyi State hence the need for inclusion of influence of gender in this study. Years of experience may also affect secretaries' utilization of email management tools. Experience is classified as 1 – 5 years are regarded as less experienced; 6 – 10 years as more experienced; and 11 years and above as most experienced (Okolocha & Ihionkhan, 2015). However, some studies report that experience does not significantly influence ICT utilization, as attitude and willingness are more important (Ezenwafor & Nwaokwa, 2017; Emeasoba, 2014). Since these results are based on lecturers, years of experience is included to determine its influence on secretaries' utilization of AI tools.

In Ebonyi State, public organizations face similar challenges of inefficiency, limited resources, and traditional work practices (World Bank, 2020). This study therefore focused on determining the extent of utilization of AI–based email management tools by secretaries in public organizations in Ebonyi State for effective job performance**.**

Statement of the Study

Secretaries are indispensable to the effective functioning of public organizations because they manage communication, records, and administrative activities. In modern offices, most of this work is carried out through email, making effective email management a critical aspect of secretarial job performance. The emergence of Artificial Intelligence (AI)–based email management tools has made it possible to automate email sorting, organization, archiving, retrieval, and security, thereby improving efficiency and productivity.

Despite the availability of these tools, there are indications that secretaries in public organizations in Ebonyi State may not be performing optimally in areas related to email handling and digital records management. Problems such as delayed responses, poorly organized mailboxes, and reliance on basic or manual email practices still exist. This raises concern about the extent to which secretaries actually utilize AI-based email management tools in their daily work. Moreover, there is limited empirical evidence on the level of utilization of AI-based email management tools by secretaries in public organizations in Ebonyi State. This lack of information makes it difficult for administrators and policymakers to design appropriate training and support programmes. Therefore, this study specifically determined the extent of utilization of (1) email management tools by secretaries in public organizations in Ebonyi State for effective job performance

Purpose of the Study

The main purpose of the study was to determine the extent of:

1. Utilization of email management tools by secretaries in public organizations in Ebonyi State for effective job performance.

Research Question

The following research question guided the study:

1. To what extent do secretaries in public organizations in Ebonyi State utilize email management tools for effective job performance?

Research Hypothesis

The following null hypothesis was tested at 0.05 level of significance:

1. Secretaries in public organizations in Ebonyi State do not differ significantly in their mean ratings on the extent they utilize email management tools for effective job performance based on their gender alongside their years of job experience as secretaries.

Methods

The study adopted a descriptive survey research design. The study was carried out in public organizations in Ebonyi State, which is in South-East Geo-political Zone, Nigeria. The population of the study consisted of 527 secretaries in the 32 Ministries in Ebonyi State (Source: Office of the Secretary to the State Government, Ebony State as of January 24, 2026). The entire population was studied due to its manageable size; therefore, census sampling method was adopted. The instrument for data collection was a structured questionnaire titled "Questionnaire on Extent of Utilization of AI-Based Email Management Tools for Effective Job Performance by Secretaries" (QEUAIEMT-EJPS). The instrument was divided into sections: A and B. Section A contained two items of the respondent's demographic information such as gender and years of job experience. Section B contained 7items structured on a 5-point rating scale of Very Frequently Utilized (VFU) - 5, Frequently Utilized (FU) - 4, Occasionally Utilized (OU) - 3, Rarely Utilized (RU) – 2 and Not Utilized (NU) - 1.

The face and content validity of the instrument was determined through the judgments of three experts, two from Business Education and one from Measurement and Evaluation. The reliability of the instrument was established through a trial-test, and the data obtained were calculated using Cronbach's alpha, which yielded a reliability coefficient of .76. The questionnaire was administered personally by the researcher with the assistance of 10 research assistants who were adequately briefed on the procedures for administration and retrieval. Out of527 copies of the questionnaire distributed, 518 (98%) were properly completed and returned, and used for data analysis. Data collected were analyzed using mean, standard deviation, and two-way Analysis of Variance (ANOVA). Mean scores were used to answer the research question, while standard deviation was used to determine the homogeneity of respondents' mean ratings. The null hypothesis was tested using two-way ANOVA at the 0.05 level of significance with SPSS Version 27. A null hypothesis was accepted where the p-value was equal to or greater than 0.05 and rejected when the p-value was less than 0.05.

Results

Research Question 1: To what extent do secretaries in public organizations in Ebonyi State utilize email management tools for effective job performance?

Table 1*: Mean ratings and standard deviation on the extent secretaries in public organizations utilized email management tools for effective job performance*

S/N	Utilization of Email Management I utilize;	$\bar{x}$	SD	Remarks
1	Sanebox to automatically filter spam emails.	2.68	.72	Moderately Utilized
2	Superhuman to achieve quicker email response	2.13	.85	Rarely Utilized
3	Boomerang to prioritize important messages	2.28	.81	Rarely Utilized
4	Boomerang to compose perfect email message by predicting the recipient's reactions.	2.30	.86	Rarely Utilized
5	email tracking tools to know when emails are read for proper follow-up.	2.08	.71	Rarely Utilized
6	spam filters to block unwanted emails and focus on important tasks.	1.87	.94	Rarely Utilized
7	email categorization tools to retrieve emails easily.	2.98	.81	Moderately Utilized
	Cluster Mean	**2.33**		**Rarely Utilized**

Data in Table 1 shows that respondents moderately utilized items 1 and 7 with mean scores which ranged between 2.68 to 2.98, while the remaining 5 items are rarely utilized with mean scores which ranged from 1.87 to 2.30. The cluster mean score of 2.33 shows that generally, secretaries in public organizations in Ebonyi State rarely utilized email management tools for effective job performance. The standard deviation for all the items is within the same range, indicating that the respondents are not far apart in their mean ratings.

Null Hypothesis 1: Secretaries in public organizations in Ebonyi State do not differ significantly in their mean ratings on the extent they utilize email management tools for effective job performance based on their gender and their years of job experience as secretaries.

Table 2: *Two-way ANOVA analysis of significant difference in the mean ratings of secretaries on extent of utilization of email management tools for effective job performance based on gender and years of job experience*

Source	Type III SS	df	MS	F	Sig.	Decision
Corrected Model	984.81[a]	3	246.20	14.13	.00	
Intercept	7020.05	1	7020.05	402.95	.00	
Gender	77.97	1	77.97	4.48	.04	Significant
Years of experience	897.721	2	448.86	25.76	.00	Significant
Error	2003.51	509	17.42			
Total	31171.00	513				
Corrected Total	2988.33	512				

a. R Squared = .330 (Adjusted R Squared = .306)

Table 2 shows that there is a significant difference in the mean ratings of secretaries on extent of utilization of e-mail management tools for effective job performance based on gender, $F(1,509) = 4.48$, $p = .04$, $\eta p^2 = .037$**,** indicating that utilization levels differed significantly between male and female secretaries. There was also a significant difference in the mean ratings of secretaries based on years of job experience**,** $F(2,509) = 25.76$, $p < .00$, $\eta p^2 = .309$**,** suggesting that utilization varied significantly across different experience levels.

Discussion

The findings of the study revealed that secretaries in public organizations in Ebonyi State **rarely utilize email management tools** for effective job performance. This finding is consistent with Owusu (2020), who reported that secretaries encounter numerous challenges in utilizing email management tools for enhanced job performance. Similarly, Ugwunwoti (2021) observed that professional secretaries possess inadequate records management skills to effectively adopt digital records management tools, while Fagbola et al. (2020) documented a low adoption of email records management systems in public organizations. Olatunde (2022) further disclosed that secretaries possess limited email management skills required to highly integrate email management tools for effective job performance. Despite these challenges, email management tools are widely recognized for their significant contributions to digital records management, including automation of routine office tasks, improved productivity, efficient email classification, quick records retrieval, and seamless integration with other systems. Tran (2025) and Jera (2023) emphasized that email management tools strengthen information security through advanced access control and disaster recovery features, thereby mitigating cyber risks.

The findings revealed **significant differences in the mean ratings of secretaries** in public organizations in Ebonyi State regarding the extent of utilization of email management tools for effective job performance based on **gender and years of job experience.** Utilization levels varied between male and female secretaries, which may be linked to differences in technological confidence, exposure, and adaptability to digital tools, as reported by Olatokun (2017); and Okolocha and Nwadiani (2019), although Abosede and Akintola (2015) found that ICT utilization among secretaries was not gender specific. Differences based on years of job experience may be attributed to variations in familiarity with modern office technologies, with modern or less-experienced secretaries being

more exposed to recent digital training than older counterparts (Edeh, Okwelle and Ihedioha, 2020). These findings are further supported by Edeh et al. (2021), who reported that both gender and years of job experience significantly influence the usage of digital technologies.

Conclusion

The major conclusion drawn from the findings is that the utilization of AI-based email management tools by secretaries in public organizations in Ebonyi State is generally low and is significantly influenced by gender and years of job experience**.**

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Government and public organization management in Ebonyi State should organize regular training and retraining programmes for secretaries on the use of AI-based email management tools such as auto-filing, labeling, scheduling, and spam filtering to improve their digital competence and enhance effective job performance.
2. Government and public organizations management in Ebonyi State should implement targeted, gender-sensitive ICT training initiatives to bridge gaps in AI-technology confidence and usage among male and female secretaries, and ensure equal opportunities for skill development.

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