



TRENDS, OPPORTUNITIES AND CHALLENGES OF OFFICE ADMINISTRATION IN THE ERA OF AUTOMATION AND ARTIFICIAL INTELLIGENCE

Prof. Lawrence F. Ademiluyi, PhD

*Department of Business and Entrepreneurship Education,
Kwara State University
Malete, Nigeria*

Dr. Abosede B. Ademiluyi,

*Department of Office Technology and Management,
Osun State Polytechnic Iree*

Abstract

The advent of artificial intelligent has meant that a number of hitherto cast-iron realities have had to be reconceived, and a lot of processes reconfigured, with great implications for production, training and development, and procedures. In the field office administration and management, the transformation that artificial intelligence-driven automation is engendering has been profound. This paper discusses the trends, opportunities and challenges of office administration and management in the era of automation and artificial intelligence. It posits that the world stands at the threshold of great transformations in the field of office administration. The paper discusses the concept of office administration, requisite competencies and personality qualities of the contemporary officer, evolution of the office from the invention of the typewriter to the development of the internet and submits that artificial intelligence, which is already driving great transformations in all realms of human endeavour, is poised to radically innovate the office beyond mankind's current comprehension. The paper identifies artificial intelligence system integration, robotic process automation, augmented reality and virtual reality, Internet of things, collaborative cloud tools, blockchain and personalized learning as AI-enabled tools driving the ongoing revolution in office administration and management. This revolution promises fundamental transformation in processes, with significant implications for productivity, efficiency and employee engagement. Automation however also constitutes significant challenge in the areas of asset security and privacy, job loss and the need for continuous financial deployment to catch up with endless changes. The paper also provides the panacea to these challenges: continuous training for reskilling and upskilling. The Nigerian government is also advised to put in place infrastructures and policies to encourage the deployment of AI in government and industry.

Key words: Office administration, Automation, Artificial Intelligence.

Introduction

The world stands today at the threshold of new possibilities and hitherto unimaginable opportunities. The advent of information technology has engendered new realities in all aspects of human life. Information technology has impacted commerce, health, education, aviation, research and management, among several other realms. No aspect of human life has managed to evade the pervasive encroachment of information technology. Information technology has fundamentally transformed management practice. It has changed the traditional office of the 1960s and 1970s far beyond recognition especially in the developed world. Forty years ago, clairvoyants were predicting the paperless office. Now with millions of workers reporting for duty



from their sitting room desks, the reality of the virtual office is here; and the revolution has only just started.

Information technology has led to the replacement of the typewriter with the computer, shorthand with voice transcription software, duplication machines with high speed photocopiers, postal letters with emails. Desktop publishing has replaced the hitherto arduous task of duplicating. As a result, the discipline hitherto known as Secretarial Studies, is now, called Office Technology and Management. The beautiful, pliant, smiling secretary is being rapidly replaced by the IT savvy youth, who is much more comfortable in the computational realms than in stenography (whatever is left of it). Those, however, are preliminaries. The acceleration of the digital revolution accentuated by the reality of artificial intelligence is promising far more complex and comprehensive transformations at short notice. This demands of office educators to stand on their toes in order to catch up with the breathless pace of development.

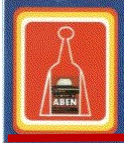
This paper describe the new trends, promises and challenges of automation and artificial intelligence in office management, so that office administrators to help them keep abreast of developments and to anticipate future possibilities.

Office Administration: Concept and Practice

The term "office" is universally understood to refer to a place where clerical work is undertaken; a place where all kinds of paperwork - files, records, briefs, letters, correspondence - is managed. In the words of Mills and Standingford (1986), the office is a place where all forms of clerical work are done to coordinate and control the affairs of the whole organization. The office is the administrative nerve centre of the organization (Agboola, 2016). Its main purpose is to provide communication service and safeguard records and assets. It is also the primary meeting point of organizational functionaries (Ademiluyi, 2021). In other words, it is the place where the control mechanisms for an organization are located, where records are initiated for communication, control and effective management of the operations.

In the opinion of Roche (2014), given the reality of the information age and the increasing dominance of information technology, it may be erroneous to think of the office as a specific place. It may be safer to assume that an office exists wherever certain kinds of work are performed. It is preferable to regard the term Office as denoting a function or related set of functions rather than a specific place. When regarded as a function, an office can plan, organise, coordinate, standardise and supervise paperwork, irrespective of person or place. But if viewed as a certain place only, the paper work done outside the boundaries of that place called the Office would not be under its control. Many executives do official work at home, in cars, trains, aircrafts and other automobiles. According to Leffingwell and Robinson (2008:7) "the essential feature of the office is the work itself, not who does it or where it is done." It may, in summary, therefore, be said that an "office" refers to the functions performed by a certain set of persons rather than the place, where clerical work is done. It similarly refers to the act of collecting, processing, storing and distributing information, all of which constitute the functions of an office.

If the office is beyond the physical setting, it goes without saying that office management transcends the management of the four-dimensional office structure. Office management is the technique of planning, organizing, directing, controlling, and staffing office activities for the purpose of achieving organizational objectives of accomplishing effective and efficient office work (Agboola, 2016). Office administration refers to a set of practices that ensure smooth administrative and financial functioning of office work and the workplace. It refers to the daily functions completed within an office or in respect of office tasks. It may involve communication with clients and team members by phone, email, maintaining an organized filing and record system, planning events and meetings, creating schedules, monitoring finance, booking



appointments and other tasks applicable to the individual office. It is focused on creating an organized and efficient workplace and work process (Libby, 2017). Office administrators are responsible for the day to day functioning of the office. They ensure that the workplace runs smoothly. They act as the office leader and liaise with senior management to ensure goals are met and work is completed in timely manner (Trios College, 2022)

The duties and responsibilities of an office manager may vary depending on the organization (Pillai & Bagavathiu, 2018). Such tasks may include but are not limited to assisting with scheduling meetings, making travel arrangements for business trips, performing accounting tasks, planning and organizing events, keeping an inventory of office supplies, conducting research and creating reports on various situations, conducting or supervising clerical works, managing office and organisational communications including text messaging, preserving and managing documents physically and electronically.

The office manager is the coordinator of the work system. An office manager plays the lead role for planning, organization, and controlling the clerical aspects of the organization, including the preparation, communication, coordination and storage of data to support production and other important operations of an industrial establishment. Often he also engages in marketing. His tasks are to monitor the work processes and to evaluate the outcome.

The office manager also has the following glossary of functions to perform: Budget development and implementation; purchasing; printing; records management; forms management; payroll; facilities management; space management; risk management; grants administration; information technology and telecommunications; management of health and safety in the company office; assisting senior managers in identifying health and safety needs in their departments; responsibility for the day to day running of the office; liaising with senior managers to ensure that staffers in the division have appropriate information technology equipment, and planning, consulting and managing office moves for the division and other units within the department (Steve, 2017).

Broadly speaking, Administrative Office Manager either at the board, executive or department level, engages in a common set of functions to meet the organization's goals. These functions were described by Henri Fayol as "the 5 elements of administration". The common sets of functions include: planning, organizing, staffing, directing and controlling

Competencies and Personality Qualities of the Office Manager

Considering the variegated nature of his functions, an office manager is expected to demonstrate many competencies and personality endowments. Some of the competencies/skills he or she is expected to possess are problem solving skills and decision-making abilities, integrity, assertiveness, flexibility, accuracy and psychic durability.

The office administrator is also expected to demonstrate adequate problem-solving skills if he is to be able to solve the different problems that land on his desk on a daily basis. Even if the office manager cannot solve the problem on his own, he must know where to go to address the problem.

An office manager should also be personable in nature. Since he is an individual required to deal with others, inside and outside of the office environment, it is pertinent for an office manager to be a good conversationalist. He must be at ease while conversing with others as this will enable him to get the job done in the most efficient way possible.

Good mathematical skills are positive requisites for the office manager as he will be working with numbers on a frequent basis. Not only does he have to perform payroll duties, he may also need to perform accounting tasks as well. An administrative Office Manager with good mathematical skills will be able to accomplish the task swiftly and efficiently..



An office manager should also have good multitasking skills. Frequently an office manager will be pulled in different directions so it is important for him to know how to do multiple things at one time.

One final requisite of the office administrator is leadership skill. He should be comfortable with filling a lead position and be able to resolve all problems which come his way. By being a natural leader, the office manager will be able to complete his daily duties in a timely and efficient manner.

Other relevant competencies include: Listening openly and non-judgmentally, expressing disagreement tactfully and sensitively, summarising input, listening without interrupting, using correct grammar, spelling and punctuation. The office administrator should also have strong interpersonal skills, enthusiastic attitude, ability to work in a team, time management and effective communication skills, strong organisational skills and an ability to maintain a high level of accuracy in preparing documents.

Evolution of the office: The Office Yesterday and Today

Several decades ago, a typical business office presented a gloomy picture. Housed in one or two small rooms, it was poorly lit and ill-ventilated. There was a small volume of paperwork, which was handled by a few clerks manually and without the aid of mechanical and labour-saving devices. However, the introduction of commercial typewriter in 1870 and the invention of the telephone in 1880 were among the early developments of the late 19th Century which culminated in the evolution of the modern office. The introduction of increasingly more complex devices set office management on a road to sophistication which endures till today. The process accelerated with the introduction of electric typewriter, (1920), duplicators, dictaphones and intercoms (1930), calculators, computers and photocopiers (1950), word processing equipment (1964), computerized telephone networks, (1980), personal computers, microprocessing equipment, electronic mail, fax machines, modems, pagers, cellular phones and internet systems (1990), internet telephony, internet banking and internet trading (2000) among others. Until the introduction of personal computer and office internet systems, the office was a tough place headed by a secretary or administrator who juggled stenographic, communication and office management tasks: a difficult task, sometimes best-manned by difficult men and impossible women.

Office activities have undergone vast changes in the last five or six decades. A Modern Office is well-planned, well-laid out and well-organised. The scope of office activities has widened tremendously following spectacular developments in science and technology, industrialisation, transport and communication. These developments have led to expansion in the scale of production and business activities, to greater governmental and legislative interference and control, and the consequent enlargement of the volume of office work. A greater and wider use of machines has resulted in greater saving of time and labour. The internet has eased communications with great implications for office activities and management.

While the much anticipated expectations of a paperless office have not been fully realized, there is, undoubtedly, a tremendous decrease in the use of paper for office communication, given the quantum of messages being churned out, thanks to the internet and the email. The idea of the virtual office is now being swiftly realized, especially in developed countries, accentuated by the Covid-19 Pandemic and its aftershocks. Many people now work from home, with great implications for office administration and management. Most corporate meetings now take place on line; decision points are no longer in the conference rooms, but on internet-enabled platforms. Many sophisticated facilities and equipment are now at the beck and call of office workers and their managers thanks to office automation. Now, the advent of artificial



intelligence is threatening to create a stampede in the pace of office revolution.

Office Automation and Artificial Intelligence

Automation involves using various equipment and control systems in productive or management processes. The term, Office Automation is used to describe the different types of computer systems and software used to collect digitally, store, manipulate transfer and utilize office information to implement office tasks and assignments. An automated system simplifies daily office tasks by providing email software, document management tools and scheduling apps that help with communication and organization.

There are two types of office automation, back office and front office automation. Back office automation describes automated processes for finance, human resource management and IT among others while front office automation refers to automated processes for sales, marketing, customer relations management, and other front office activities. Automation promotes efficiency, productivity, cost-savings, customer and employee satisfaction (Ganesh, 2020). It also minimizes paper-based processes. Automation and artificial intelligence are like Siamese twins; they support and promote each other.

Artificial intelligence refers to the operations of computer systems that try to model and apply the intelligence of human mind. It is a domain of computer science which deals with the development of intelligent computer system. Bellman (1978) describes artificial intelligence as the automation of activities that we associate with human thinking such as decision making and problem solving. Kurzweil (1990) describes artificial intelligence as creating machines that performs functions that require intelligence when performed by human beings. It is concerned with intelligent behavior in artifacts (Nilsson, 1998).

AI has been used to develop many state of the art machines, facilities and processes. These include facial recognition apps, voice assistant apps, robotics, social media search engines, among others. Artificial intelligence is the ultimate tool of automation. The development of AI-powered robotics implies that routine office works can now be handed out to robots, leaving executives free to concentrate on decision making and problem solving.

There is a global consensus that while AI can accelerate progress in all areas of human imagination and endeavor, it may ultimately be a dangerous tool and a potential Nemesis of the human race. Autonomous cars, drones and pilotless planes are AI-enabled developments which in addition to AI medical innovations, promise to astronomically expand the possibilities of the homo sapiens. Robonauts are being developed by NASA (National Aeronautics and Space Administration) to drive the exploration of the outer space. Some scientists are predicting that by the dawn of the next century there would be a merger of the human race with AI-powered machines, so that mankind would be half man and half machine. The implication is that mortality may become a rarity, immortality a reality, since there would always be a machine to replace the heart, the lungs, the brain, the liver: any organ that goes wrong (Marsden, 2018). A human being and his system may have computer backups, forever annulling the saying that life has no duplicate.

This prospect is so realistic that it already has a name: Singularity. According to Prabkhar (2017). Singularity refers to a hypothetical point in time when the development of artificial general intelligence becomes so advanced that it will irreversibly change human civilisation. This would mark the dawn of mankind's inseparability from machines.

In 2018, researchers in University of Seattle, USA, created a network, named BrainNet, which allowed three people to communicate by thoughts alone, using electrodes attached to their brains. According to Marsden (2018), this raised the possibility of future brain to brain interfaces



that enable cooperative problem solving by human beings. In February, 2024, a man implanted with computer chips by Neuralink was able to control a computer mouse by his thoughts alone. Elon Musk's firm Neuralink, is developing a product for anyone who wants to have superhuman cognition. "Your phone is already a part of you. You are already a cyborg." Musk foresees the merging of artificial intelligence as an "inevitable and sensible option. If you cannot beat it, join it."

This promise of AI-driven limitless possibilities is fraught with titanic challenges. What if mankind's creation become self-aware and it turns against us? What if a hostile power unleashes an army of indestructible robots against its enemies?? Well, that is far into the future, and for now, it has nothing to do with office administration,

Technology-Powered Trends in Office Administration

Given the established realities and future potentials of artificial intelligence in human affairs, it is evident that office administration would not be left out of its influence. The automation revolution has liberated office administrators from the tedium of repetitive tasks like data entry and shorthand note taking which are now entrusted to artificial intelligence. This affords the office administrator the time to focus on creativity and innovative thinking. Cloud technology has similarly opened hitherto unimaginable space for document storage and management. For generations, file management, especially storage and retrieval, was a major challenge especially for big organisations. Today, localized data storage in form of physical file cabinets have been replaced by the limitless expanse of clouds, which enable seamless storage retrieval and all the year round accessibility, irrespective of location (Steve, 2017).

Technology has similarly engendered fluid information sharing, coordination communication through android telephones, social media platforms, and video conferencing apps. New and more efficient data analytical tools also enable administrators to forecast future trends, needs and to take actions based on the predictions emanating from the analytical tools. According to Mukherjee (2023), mobile apps facilitate instant communication, coordination and control, ensuring that administrators remain in command even while on the move. Finally, advancement in cyber security architecture helps to protect the organisation's cyber assets "from the ever-evolving landscape of digital threats, p.5."

Trends in Office Administration

Office administration is technologically enhanced by the following systems and capabilities:

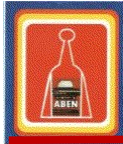
Artificial Intelligence Systems Integration

Artificial Intelligence Systems Integration seeks to make individual software components interoperable with other components in order to create larger, broader and more efficient AI systems Baun, (2022). This is achieved through message routing or communication protocols that the software components use to communicate with each other. often through a middleware blackboard system.

Integrated artificial intelligence capabilities help to augment human capabilities and frees office administrators to face the most important tasks. AIAs can assist customer queries, sales and marketing analysis, work-time management, income analysis, budget planning and expenditure analysis, among others. Resultantly, the busy executive's should no longer be consumed by such mundane assignments.

Robotic Process Automation

Robotic Process Automation is the software that makes it easy to build, deploy and manage software robots that emulate human actions interacting with digital systems and software. This enables repetitive, rule-based tasks to be executed promptly and efficiently. Robotic Process Automation can assist the office administrator with data transfers, onboarding payroll process,



customer complaints, processing orders on ecommerce, data entry, file management, report generation, credit card application, and call centre operation Baun, (2022). This enables the busy executive to focus on tasks that demand critical thinking, man management skills, and emotional intelligence.

Augmented Reality and Virtual Reality

In the aftermath of the COVID-19 Pandemic crisis, the need and demand for augmented and virtual reality systems skyrocketed. Schools, offices and businesses had to operate virtually, for fear of the consequences of viral contamination. Augmented reality is an interactive experience which combines real world with computer generated contents (Mukherjee, 2023). The content can span multiple sensory modalities including visual, auditory and somatosensory modes

Virtual reality is the use of computer modeling and simulation that enables a person to interact with an artificial three-dimensional visual or other sensory environment. Meetings can now be held with partners across the globe. A man can present a paper in Moscow, and one hour later attend a seminar in Rio de Janeiro, all the while without leaving his home in Lagos, Nigeria. Skype, Zoom, Google Classroom, WhatsApp, have comprehensively enabled the busy executive to economise his time without significant deficit in efficiency. VR and AR have facilitated interaction, collaboration and have promoted cross cultural interactions and experience sharing.

Internet of Things

Internet of Things (IoT) refers to the collective network of connected devices and the technology that facilitates communication between devices and the cloud as well as between the devices themselves. Smart TVs, smart watches, autonomous cars, personal medical devices, heating and cooling systems, trackers are examples of IoT-enabled products which can be very useful to the administrator (Mukherjee, 2023). The devices can transfer data to one another without human intervention. The purpose is to create self-reporting devices that can communicate with each other in real time. In the office, smart office buildings can adjust lighting and temperature based on occupancy; smart doors can open at the approach of cleared client or staffer. This can enhance operational efficiency and reduce waste. It can boost productivity and promote job satisfaction.

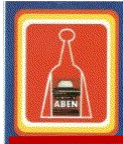
Collaborative Cloud Tools

Employees use cloud based collaboration tools and platforms to share, edit and work together on a project. Cloud collaboration enables employees to work together on documents and other types of data which are stored off premises and outside of the organisation's physical location. This enhances teamwork irrespective of the employees' different locations. Cloud collaboration tools include, Asana, Microsoft 365, Google Workplace, Microsoft Workplace, Dropbox, Google Drive, among others. They enable real time collaboration, document sharing, and communication across physical locations and time differences. This enhances collaboration, efficiency, sense of importance, unity and common purposes among members.

Blockchain for Enhanced Security

Blockchain technology is a decentralized, distributed ledger that stores the record of ownership of digital assets. Any data stored on blockchain cannot be modified, making it a guarantor of cybersecurity, ideal for payment, healthcare management and cybersecurity. The major elements of blockchain are, distribution, encryption, immutability, tokensation, and transparency.

Since security of assets are always a major concern of the administrator, especially those in highly sensitive government agencies and businesses, blockchain security would put the



administrator's mind at rest, allowing him to concentrate on other important assignments.-

Personalized Learning

Given this avalanche of technology- related issues, an administrator should, finally concern himself with the issue of personalized learning. Personalized-learning, whether in or outside the class room, focuses on tailoring learning experiences to suit the interests and needs of the worker (Prabkhar, 2017).

In a high-technology environment, workers interests and needs are bound to be widely varied. Personalised Instruction would be useful for orientation, induction, training, and lifelong learning. Personalised Instruction would structure learning time, type and process to the needs of the worker, saving expenses and time. It would be ideal in a highly technological environment where new knowledge, skills and attitudes have to be continually acquired.

Office Administration and the Promise of a New World

These technological new horizons promise positive viral impact on office administration. Thanks to technology, remote work and job flexibility are now realities, with great implications for workplace, communication, management, collaboration, training and development, resource management and corporate finances. The new technological implements have also brought the issue of employee well-being in a technological environment to the front burner of management discourse, with ecological and ergonomics concerns coming into prominence.

In the most sophisticated offices today, thanks to technology, decisions and actions are now data-driven with improved productivity and efficiency. Analytical tools transform raw data into actionable insights. Tools like Business Intelligence and Predictive Analytics help to identify future trends and potential outcomes enabling organisations to preempt challenges and optimise opportunities. The new technological environment has also highlighted the importance employee well-being, emphasizing the imperative of building healthy minds for healthy workplaces, whether physical or virtual. Forward-looking organisations now prioritise employee wellbeing, using implements like flexible work hours, training and other motivation techniques to build the competency and confidence of their workmen even as they prepare for the intriguing future of work.

Office automation, particularly machine learning, natural language processing and robotic process automation have facilitated office administration by automating routine tasks, streamlining processes and enabling data-driven decision making. IT-driven tools like automatic scheduling systems, virtual assistants and chatbots are rapidly becoming indispensable instruments of the modern office environment with positive implications for integration, collaboration, communication, customer relations, and management activities.

Artificial intelligence continues to revolutionize the workplace. Due to its capacity to power systems that can swiftly and perfectly analyze large volumes of data, reducing the time required for such mundane tasks. AI-powered document-management systems, can organize and categorise documents efficiently, making information retrieval faster and relatively fool-proof. AI-enabled scheduling tools can make meeting schedules based on availability and members' preferences. Furthermore, AI-supported chatbots can automatically respond to customers' queries and staffers' enquiries in real time, with great implications for organisational economy, efficiency and personnel well-being.

In the long term, the promise is that scientists will continue to develop ever-improving and revolutionary software to automate mundane and not-so-mundane tasks which will free up valuable time for office leaders to focus more on strategic activities like man-management, problem-solving and decision making, with enhanced creativity and innovation as corporate benefits.



Ongoing advancements in robotics will ultimately introduce large numbers of robotic personnel into factory floors and similar workplaces, from the office to military units. This will create, positively and negatively, completely new frontiers for the administrator to address.

AI is projected to contribute 15.7 trillion dollars to global economy by 2030. It is expected to increase business productivity by forty per cent (BlueTree, 2024). The impact of all these on office administration will be very profound, challenging office administrators, like everyone in government and industry – indeed, everyone - to gird their loins.

Challenges of Automation and AI on Office Administration

The major challenge that automation and AI poses is the fear of job displacement among office administrators. There is the fear that as automative technologies advance, administrative tasks may become fully automated, to the detriment of human labour demand. The panacea to this challenge, however is for the administrator to reskill and upskill in order to remain relevant.

There is also the challenge of data security and privacy. The use of AI to collect and analyse large volumes of data raise the risk of data breaches and privacy violations. To address this, office administrators need to be aware of the risks and implement robust security protocols to safeguard important security information.

Office administrators also face the challenge of meeting new skills needs. Since they can no longer be satisfied with performing routine tasks but are also expected to contribute to problem solving, decision making and process improvement initiative, they have to develop skills in areas such as data analytics, project management and communication to effectively navigate the changing landscape of 21st century office management.

Conclusion

Artificial intelligence has transformed organizational operations by automating tasks, analyzing data and enhancing decision making. From automating repetitive processes and optimizing supply chains to predicting maintenance needs and offering personalized customer experiences, AI has continued to significantly boost operational efficiency. It has helped to identify new business opportunities, pin-point potential operational inhibitions, come up with effective ways to personalize outreach, and anticipate challenges based on data. AI has engendered increased productivity, efficiency, quality and innovation. It has similarly created new opportunities, employment and markets. While there are challenges associated with automation and artificial intelligence in office administrations, these challenges can be met by reskilling and upskilling the office administrator and upgrading equipment, facilities and processes. By embracing and optimizing automation and artificial intelligence, and equipping employees with the necessary facilities and skills, office administrators can continually enhance their productivity and effectiveness in the age of automation and artificial intelligence.

Recommendations

The following recommendations are proffered to encourage public and private organisations to take advantage of the offerings of artificial intelligence for office management:

1. Office administrators should continually keep abreast of development in the area of the application of artificial intelligence for automating office functions. This will enhance productivity, efficiency and confer competitive advantages on organisations.
2. Corporate leaders should provide state of the art facilities and software for their offices. Offices should also be designed to follow current ergonomics and ecological standards which are compatible with the deployment of artificial intelligence technology.



3. The Nigerian government should put in place mechanisms, facilities and policies which can accelerate development and optimal deployment of artificial intelligence for the Nigerian situation. AI may provide the silver bullet for addressing the challenge of technological and economic challenges in Nigeria.
4. Government, industry and learning institutions, particularly, business schools, should actively promote training and learning in all aspects of artificial intelligence. The public should be sensitized to the reality of artificial intelligence and prepare them for the implications, especially in respect of office and economic management.

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