HIGH TECHNOLOGY MANAGERS RATINGS OF THE BENEFITS AND CHALLENGES OF AUTOMATION AS STRATEGIC RECORD MANAGEMENT INNOVATION IN THE 21ST CENTURY BUSINESS ENVIRONMENT IN ANAMBRA STATE

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Abstract

The study investigated high technology managers' ratings of automation as a strategic record management innovation in the 21st century business environment in Anambra State. Two research questions guided the study and two hypotheses were tested at 0.05 level of significance. The population of the study comprised 158 high-technology managers in Anambra State. The instrument for data collection was a questionnaire. The questionnaire was validated by experts in the field. The application of Cronbach Alpha reliability method on the questionnaire yielded coefficient values of 0.88 and 0.82 for cluster 1 and 2 with an overall reliability coefficient of 0.84 indicating high internal consistency. Mean, standard deviation and t-test were used to analyze data for the study. The findings of the study revealed that the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State are that it minimizes the risk of human errors, reduces time spent on data retrieval, reduces time spent on data entry, enhances data security by implementing robust encryption, and mitigates the risk of data loss due to disasters such as fires, floods among others. Findings also showed that the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Nigeria include limited internet connectivity, unreliable power supply, financial constraints, shortage of skilled employees with knowledge of automation and lack of data regulatory compliance among others. Gender did not influence the respondents' opinions. The researchers concludes based on the findings that automation if properly utilized is a strategic record management innovation for managing the 21st century business environment. The researcher therefore recommended among others that managers of business organizations should conduct an assessment of their organization's record management procedures, methods and technology.

Keywords: Automation, Record, Record Management, Innovation, Business Environment

Introduction

The 21st century business environment has over the last decade experienced evolutionary changes as a result of developments in information and communication technology. Businesses in the 21st century have experienced a surge in employing technology to innovate, promote ideas to consumers, and spread brand messages globally. This reliance on digital resources has propelled the economy into unprecedented levels of globalization, enabling companies to swiftly engage with distant businesses and potential clientele. One area in which 21st century businesses places high priority on is records management.

A record is any document, data, set of data, or collection of information generated or received throughout the course of an organization's operations. The International Organisation for Standardisation (ISO) 15489 in Ailakhu (2023) defined records as information generated, received, and preserved for legal compliance or commercial purposes. It can be in any format, such as paper, electronic, or video, and can be saved on a variety of media, including paper, electronic records, pictures, videos, sound recordings, databases and other data compilations (Ailakhu, 2021). Records might be official, temporary, or convenient, and they can contain sensitive information or crucial information that is required for the functioning of a department or the business organization as a whole. Thus, records management refers to how an organisation controls, manages, and utilises its records (Ajibola, 2022). This process covers the complete life-cycle of a record, from creation to disposal. Ailakhu (2022) defined records management as the process of controlling an organization's records throughout their lifecycle, including creation, categorization, usage, filing, retention, storage, and destruction, to meet operational demands. Consequently, strategic record management entails supervising and administering digital or paper records in any format to ensure proper creation, reception, maintenance, usage and disposal. It emphasizes leadership, accountability and responsibility within a business organisation. Strategic record management as a comprehensive record management plan is vital for defining objectives, assuring compliance with legal obligations, and providing efficient access to information when needed (Kirvan, 2023). In order for strategic record management to be successful it is expected that business managers understand records to enhance organization and accessibility, conducting regular audits to ensure accuracy and compliance with regulations, preparing for disasters with backup plans, transitioning to digital record-keeping systems for efficiency and security, integrating record management into daily operations for improved workflow, ensuring scalability and future-proofing the system as the business grows, and implementing cost-effective solutions like digitizing documents to save time and resources Attainment of this key goals require automation.

Automation is the process of using technology to manage and run jobs, machines, and processes without requiring human intervention. It uses control methods and modern technologies to allow various systems to work independently (Alam & Rahman, 2020). Automation is the use of technology to carry out operations that were previously completed by people. By substituting robots, computers, and other technology for jobs that were previously performed by people, automation is changing the nature of employment. As a result, maintenance is decreased and efficiency is increased (Maung et al., 2015). Automation is the conversion of a procedure, equipment, or work process to automatic rather than human operation or control. Automation entails a thorough reorganisation of the work process, in which the roles of the machine and the human are redefined (Zhang et al., 2020). Automation is not just the transfer of human functions to machines. Automation encompasses a wide range of computer technology applications. One technology that can help with archival and records management tasks in the office is automation. Dosunmu and Bukki (2017) defined office automation as the integration of computer applications into office processes to improve productivity, consistency, and efficiency. Onoja (2020) defined automation as the process of making a processing system automatically handle office tasks. According to Olatunde (2022), office automation refers to the use of technology to improve office tasks such as storage and management of office records. Automated office equipment can store vast amounts of data in their memory units. For example, consider a microcomputer with software such as Microsoft Access and Microsoft Excel. Oni et al. (2016) averred that automation of office records management involves recording and managing records, activities, and transactions using computerised and ICT-based systems and tools. Electronic records enable records managers, administrators, and administrative heads to effectively command, control, communicate, plan, set policies, and make choices for organisational success and progress. This requires that certain factors have to be considered for automation of record management in the 21st century business environment to be successful.

Effective planning for electronic records management necessitates consideration of various factors. These include allocating space for electronic storage facilities and ensuring ease of access facilitated by extensive metadata, search techniques, protocols, and unhindered access regardless of distance, time, or boundaries (Oni et al., 2016). Ejeka (2015) stated that records management in Nigeria faces challenges such as insufficient personnel, insufficient funds, low priority, lack of policies, and inadequate data storage facilities. Abah (2023) emphasized the importance of specialized handling, care, and maintenance for electronic records. Furthermore, factors like gender could be an influencing factor in shaping the views of high-tech managers of on the role of automation in records management. Jurgen (2019) stated that because women are more likely to work in industries that need social skills, such as health and education, they will be less harmed by automation, if at all. Jurgen further asserted that men under 25 are more likely than women to have their occupations potentially automated (46% vs. 26%). According to Carmignani (2022), women in areas including education, care work, and nursing are more likely to reject automation than males. This brings to questions the influence of gender on the opinions of high technology managers.

High-tech managers are experts who oversee the operations of high-technology industries characterized by highly skilled workforces and products requiring extensive research, particularly in the ICT (Information and Communication Technology) sector. These industries utilize the most advanced methods involving electronic equipment and computers. Okeke and Akiti (2018) defined a high-technology industry as a company with a strong capacity for creating, implementing, and popularizing various innovations and information processing techniques. In this context, high-tech managers are individuals tasked with managing the daily operations of high-tech companies. They possess a deep understanding of automation in the business environment. It is therefore against this background that the study investigated the high technology managers' ratings of automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Statement of the Problem

In the traditional method of record-keeping in business offices in Anambra State, manual processes have been predominantly utilized. These practices often involve the use of physical paper documents, ledgers, and filing cabinets to store important information related to business transactions, operations, and other relevant data. However, this approach has proven to be slow and cumbersome, hindering the efficient management of records within organizations. The inefficiency of manual record-keeping methods has posed significant challenges in facilitating the realization of business objectives. The reliance on paper-based systems has led to difficulties in accessing and retrieving information promptly, resulting in delays in decision-making processes and hindrances to overall productivity. Moreover, the risk of misplacement and loss of office records due to carelessness, environmental factors such as floods or fire, has been a persistent issue. Instances of misplaced or destroyed records have led to severe consequences, including financial losses, legal disputes, and even the closure of businesses in the state.

These challenges not only threaten the growth of businesses but also pose a significant threat to the national economy. The inability to efficiently manage and safeguard business records undermines investor confidence, hampers business expansion, and stifles economic development. As such, there is an urgent need to seek innovative solutions to address these pressing challenges.

Purpose of the Study

The main purpose of the study is to investigate high technology managers' ratings of automation as a strategic record management innovation in the 21st century business environment in Anambra State. Specifically, the study;

1. Ascertained the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State.
2. Determined the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Research Questions

The following research questions guided the study:

1. What are the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State?
2. What are the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference in the mean ratings of male and female high-tech managers on the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State.
2. There is no significant difference in the mean ratings of male and female high-tech managers in medium scale enterprises on the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Methods

The study was a descriptive survey involving a population of 158 high-technology managers from ICT training centers in Anambra State. Data collection was carried out using a structured questionnaire. The questionnaire was titled: Automation as Strategic Record Innovation in the 21ST century Business Environment Questionnaire (ASRICBEQ). The instrument was structured on a four point questionnaire of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The questionnaire was face validated by 2 high-tech experts in the Department of Computer sciences and one lecturer in the department of Vocational Education all in Nnamdi Azikiwe University, Awka,. To ensure the reliability of the instrument, it was tested on 10 high-technology managers in Enugu Metropolis, Enugu State, who were not part of the study population. The Cronbach Alpha reliability method yielded coefficient values of 0.88 and 0.82 for cluster 1 and 2 with an overall reliability coefficient of 0.84 indicating high internal consistency. The researcher personally administered copies of the questionnaire to the respondents with the assistance of three research assistants. Out of the 158 copies of the questionnaire distributed, 133 were returned, resulting in a return rate of 84%. Data analysis was conducted using mean, standard deviation and t-test. The mean values were used to address the research question, while the standard deviation was utilized to assess the consistency of respondents' ratings. The decision rule was based on the real limits of numbers on the 4- point rating scale as shown below;

Response	Values	Real Limit of numbers
Strongly Agree	4	3.5 – 4.00
Agree	3	2.5 – 3.49
Disagree	2	1.5 – 2.49
Strongly Disagree	1	0.5 – 1.49

For the hypotheses, t-test was used at 0.05 level of significance. Where the p-value was less than the significant alpha level of 0.05, it means that the variable significantly affected respondents mean ratings and the hypothesis was rejected. Conversely, where the p-value was equal to or greater than the significant alpha level of 0.05, it means that the variable did not significantly influence the respondents' mean ratings and hypothesis was accepted.

Results

Research Question 1

What are the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State?

Table 1: Respondents' Mean Ratings on the Benefits of Automation as a strategic Record Management Innovation in the 21st Century Business Environment in Anambra State (N=133)

S/N	Benefits of Automation	Mean	SD	Remarks
1	Reduces time spent on data entry	3.30	.82	Agree
2	Reduces time spent on data retrieval	3.32	.76	Agree
3	Minimizes the risk of human errors	3.38	.83	Agree
4	Reduces labour costs	3.18	.70	Agree
5	Reduces cost-effectiveness of records management	3.15	.77	Agree
6	Provides convenient access to information from any location	3.28	.72	Agree
7	Enhances data security by implementing robust encryption	3.29	.78	Agree
8	Automated record management systems mitigate the risk of data loss due to disasters such as fires, floods.	3.20	.84	Agree
9	Automation enables record management systems to scale seamlessly in response to increased data quantities.	3.11	.87	Agree
	Cluster Mean	**3.25**		**Agree**

Data in Table 1 reveal that the respondents rated items 1-9 as the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State with mean ratings between 3.11 and 3.38. The standard deviation scores ranging between .70 and .84 indicate that the respondents' opinions were related. The cluster mean of 3.25 indicate that the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State are that it minimizes the risk of human errors, reduces time spent on data retrieval, reduces time spent on data entry, enhances data security by implementing robust encryption, provides convenient access to information from any location and mitigates the risk of data loss due to disasters such as fires, floods among others. The respondents' opinions were very closed based on the SD scores.

Research Question 2

What are the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State?

Table 2: Respondents' Mean Ratings on the Challenges Encountered in Integrating Automation as a strategic Record Management Innovation in the 21st Century Business Environment in Anambra State (N=133)

S/N	Challenges of Automation	Mean	SD	Remarks
10	Limited internet connectivity	3.33	.87	Agree
11	Unreliable power supply	3.17	.76	Agree
12	Financial constraints	3.08	.80	Agree
13	Resistance to change among employees	2.54	.68	Agree
14	Shortage of skilled employees with knowledge of automation	3.00	.74	Agree

15	Data security concerns like hacking	2.78	.71	Agree
16	Lack of data regulatory compliance	2.85	.75	Agree
17	Poor attitude of management towards integration of automation in record management	2.55	.84	Agree
	Cluster Mean	**2.91**		**Agree**

Data in Table 2 reveal that the respondents rated items 10-17 as the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State with mean ratings between 2.54 and 3.33. The standard deviation scores ranging between .68 and .87 indicate that the respondents' opinions were related. The cluster mean of 2.91 indicate that the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State include limited internet connectivity, unreliable power supply, financial constraints, shortage of skilled employees with knowledge of automation and lack of data regulatory compliance among others. The respondents' opinions were very closed based on the SD scores.

Hypothesis 1

There is no significant difference in the mean ratings of male and female high-tech managers on the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Table 3: Summary of t-test Analysis on the on the Benefits of Automation as a strategic Record Management Innovation in the 21st Century Business Environment in Anambra State

Variables	N	Mean	SD	df	α	t- value	P-value	Decision
Male High-Tech Managers.	98	3.18	0.84					
				131	0.05	0.61	0.54	Significant
Female High-Tech Managers	35	3.28	0.81					

Data in Table 3 showed that the p-value of 0.54 is greater than 0.05 alpha level of significance. This means that there is no significant difference in the mean ratings of male and female high-tech managers on the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State, therefore the hypothesis was not rejected.

Hypothesis 2

There is no significant difference in the mean ratings of male and female high-tech managers on the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Table 4: Summary of t-test Analysis on the Challenges Encountered in Integrating Automation as a strategic Record Management Innovation in the 21st Century Business Environment in Anambra State

Variables	N	Mean	SD	df	α	t-value	P-value	Decision
Male High-Tech Managers.	98	3.00	0.88					
				131	0.05	0.69	0.48	Significant
Female High-Tech Managers	35	2.88	0.86					

Data in Table 3 showed that the p-value of 0.48 is greater than 0.05 alpha level of significance. This means that there is no significant difference in the mean ratings of male and female high-tech managers on the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State, therefore the hypothesis was not rejected.

Discussion

The finding of the study showed that the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State are that it minimizes the risk of human errors, reduces time spent on data retrieval, reduces time spent on data entry, enhances data security by implementing robust encryption, provides convenient access to information from any location and mitigates the risk of data loss due to disasters such as fires, floods among others. The findings indicate that automation is a strategic record management tool that could facilitate work process and ensure data safety and security. The finding of the study is in agreement with Oni et al. (2016) who reported that automation of office record is an important tool for ensuring quality management of office records. This is in consonance with Abah (2023) emphasized the importance of automation in record management. Abah noted that automation in record management offer enormous benefits for the 21st century office. This is in tandem with the findings of the hypothesis which revealed no significant difference in the mean ratings of male and female high-tech managers on the benefits of automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Furthermore, the findings of the study revealed that the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State include limited internet connectivity, unreliable power supply, financial constraints, shortage of skilled employees with knowledge of automation and lack of data regulatory compliance among others. This finding is in agreement with Ejeka (2015) who reported that records management in Anambra State faces challenges such as insufficient personnel, insufficient funds, low priority, lack of policies, and inadequate data storage facilities. Oni et al. (2016) noted that the challenges of automation in record management are hampered by financial constraints, expertise and commitment on the parts of management. Furthermore, the finding of the study revealed that there is no significant difference in the mean ratings of male and female high-tech managers on the challenges encountered in integrating automation as a strategic record management innovation in the 21st century business environment in Anambra State.

Conclusion

Based on the findings of the study, the researcher concludes that automation is a strategic record management innovation in the 21st century business environment in Anambra State. This is because automation offers a lot of benefits like reducing costs, increasing record security and safety among others. Despite the benefits of automation in record management in the 21st century business environment factors like financial constraints, lack of infrastructure and expertise impedes its integration. It is therefore imperative that efforts are made to improve the level of automation in the 21st century business environment in Anambra State.

Recommendations

The following recommendations were made:

1. Managers of business organizations should conduct an assessment of their organization's record management procedures, methods and technology. Determine how automation may increase efficiency, accuracy and accessibility.

2. Managers of business organizations should invest in current record management software and technology solutions that are appropriate for their organization's needs and goals.
3. Management of business organizations should set up clear policies and processes for maintaining records in the automated system. Management should define roles and duties, create criteria for data entry, retrieval, and security, and specify methods for routine maintenance and backup.

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