

Digitalization and Service Delivery In Standards Organization of Nigeria, South East, Nigeria 2012 - 2022

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Abstract: *The study is to examine the relationship between digitalization and service delivery in the Standards Organization of Nigeria in South East, Nigeria. The study's specific objectives were to ascertain the relationship between ICT and data management in the Standards Organization of Nigeria in South East, Nigeria, and to examine the relationship between ICT and management of the internal administrative processes in the Standards Organization of Nigeria in South East, Nigeria. The formulation of the research questions and hypotheses was guided by the specific aims of the study. The literature evaluation encompassed conceptual, empirical, and theoretical foundations, with the theoretical framework employed in this study being Everett Rogers' (1962) Diffusion of Innovations (DoI). A total of 189 respondents, who are employees of the Standards Organisation of Nigeria across the five Southeast states of Nigeria, constituted the population for this study. Data was gathered from both primary and secondary sources. The acquired data were analyzed using the statistical software program SPSS.23 for Social Sciences. The hypotheses were checked using the Pearson Product-Moment Correlation. The study's results indicate a correlation between information and communication technology (ICT) and data management within the Standards Organisation of Nigeria (SON) located in the South East region of Nigeria, among other findings. From the findings, the study recommends that the Standards Organization of Nigeria should de-emphasize manual data collation and paper filing system in favour of digitalization in the data management process of the organization. The study also recommended that the internal administrative processes at the Standards Organization of Nigeria should be digitalized such that memos and other internal correspondence should be sent and received through official email channels. Meetings can also be scheduled online to bridge distance and time barriers toward enhancing efficiency and effectiveness.*

Keywords: Digitalization, Information and Communication Technology, Service Delivery

INTRODUCTION

In the 21st century, public service reforms have focused on the implementation and use of Information and Communication Technology (ICT) in the public sector. The objective of this endeavour is to enhance both efficiency and effectiveness. ICT has emerged as a crucial tool for business and government agencies and institutions in various regions of the western world. It provides an effective, convenient, timely, and user-friendly means of delivering goods and services (Asoya, Ewuim, Obi, & Chiaha, 2021). According to Asoya, Ewuim, Obi, and Chiaha (2021), the Nigerian government, similar to other governments in developing nations, has acknowledged the significance of technology in enhancing service delivery. Consequently, they have devised strategies to harness the capabilities of information and communication technology (ICT). The National Information Technology Development Agency Act was enacted by the Nigerian parliament in 2007 with the aim of establishing a legislative structure for the digitization and adoption of information and communication technology (ICT) within the public sector of Nigeria. As a result, the adoption of information and communication technology (ICT) has become commonplace in numerous federal and state government institutions and agencies, exhibiting varied levels of achievement.

The standards organisation of Nigeria (SON) is a governmental entity entrusted with the responsibility of ensuring the quality and adherence to standards of products and services, encompassing aspects such as quality, safety, and certification. The problem of inferior, counterfeit, and detrimental products can arise as a result of unfettered capitalism, which can unintentionally endanger the health, safety, and welfare of the population. The agency is additionally tasked with the responsibility of advancing the certification of products on a national, regional, and international scale. This is achieved through effective dissemination of information and enlightenment efforts, which aim to promote the adoption of standard products by highlighting substandard and counterfeit items.

The organization's activities encompassed a wide range of industries and items, such as lubricants, tyres, iron, rods, cement, electrical appliances, roofing sheets, gas cylinders, and various others, by its purpose. Based on the above information, it is evident that the agency bears significant obligations that are directly or indirectly linked to the survival, security, and welfare of the majority of the population in Nigeria. When a building experiences a collapse, numerous inquiries arise, encompassing inquiries about the calibre of the materials employed in the construction process. The Standards Organisation of Nigeria (SON) is burdened with significant duties, necessitating the utilisation of technology to streamline processes and enhance operational efficiency and effectiveness.

The Standards Organisation of Nigeria (SON), like other public sector organisations in Nigeria, has limited and underutilised technology uptake and use. To begin, a preliminary examination of the organization's website reveals that, similar to numerous other government agencies of a similar nature, the official webpage lacks interactivity. This is evident in the absence of real-time channels for citizen engagement, particularly in the domains of information acquisition and reporting on sensitive matters pertaining to product quality and standards, among other aspects. Webpages that are designed to be easily accessible on digital devices offer various features such as messaging, video calls, picture sharing, and video uploads. The response time for emails sent to the organisation via the contact section on the webpage is often several days before they are noticed or responded to.

Furthermore, their phone support desk lines are either inaccessible or need excessive time to react. An organisation such as SON should ideally be at the forefront of its sector in terms of technological advancements and adaptability. However, despite the digital era, the organisation continues to rely heavily on a paper filing system. Considering the achievements of the National Agency for Food Drugs Administration and Control (NAFDAC) in using technology for drug certification and control, it is necessary to examine how digitalization impacts service delivery in the Standards Organisation of Nigeria in South East, Nigeria.

OBJECTIVES OF THE STUDY

The primary aim of this research is to examine the effect of digitalization on service delivery in Standards Organization of Nigeria in South East, Nigeria. The particular aims of this study are as follows;

1. Ascertain the relationship between ICT and data management in Standards Organization of Nigeria in South East, Nigeria.
2. Examine the relationship between ICT and management of the internal administrative processes in Standards Organization of Nigeria in South East, Nigeria.

RESEARCH QUESTIONS

This study was guided by the following research questions;

1. What relationship exist between ICT and data management in Standards Organization of Nigeria in South East, Nigeria?
2. What nature of relationship exist between ICT and management of the internal administrative processes in Standards Organization of Nigeria in South East, Nigeria?

HYPOTHESES

The following hypothesis guided the study

1. **H₀**: ICT has no relationship with the management of data at the Standards Organization of Nigeria in South East, Nigeria.
2. **H₀**: ICT has no relationship with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria.

REVIEW OF RELATED LITERATURE

Digitalization, and Information and Communication Technology

The phrase "information and communication technology" encompasses a wide range of technologies that play a crucial role in the distribution of information and the facilitation of communication processes. The concept encompasses three distinct subcategories, namely information, communication, and technology. However, the central focus lies on the aspect of technology. Information is the outcome of analysing, manipulating, and arranging material in a manner that enhances the understanding of the recipient (Anietie, 2011), whereas communication is the transfer of information between individuals. It can be defined as the act of conveying and receiving concepts, data, and communications.

Technology, on the other hand, refers to the progressive advancement of systematic methodologies for the creation and execution of various tasks. Technology is derived from the Greek words *techne*, which refers to "art" or "craft," and *logos*, which refers to "word" or "speech." The Greek words imply a conversation on the arts, encompassing both their artistic and practical aspects. around its initial emergence in the English language around the 17th century, the term was employed to denote a deliberation pertaining to the practical arts. According to Dictionary.com, the concept of technology is examined from three distinct angles. Technology is a field of study that focuses on the development and utilisation of technical tools and their connection to life, society, and the environment. It encompasses areas such as engineering, pure science, and applied science. Furthermore, technology is commonly perceived as the utilisation of scientific information for pragmatic purposes, and ultimately, as a specialised terminology.

It is crucial to emphasise that there is no universally agreed-upon singular meaning of the word Information and Communication Technology (ICT) at this point in our conversation. Nevertheless, the word is widely acknowledged to encompass a comprehensive range of devices, networking components, programmes, and systems that collectively facilitate the interaction between individuals and entities, including corporations, nonprofit organisations, governments, and criminal enterprises, within the digital realm. In a comprehensive context, ICT encompasses the entirety of technological tools employed for the management of telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, as well as network-based control and monitoring functions (Techopedia, 2021). According to the International Telecommunication Union (ITU, 2006), the term Information and Communications Technology (ICT) encompasses a diverse array of services, applications, and technologies that utilise different types of equipment and software, typically operating through telecommunications networks. ICT encompasses well recognised telecommunications services, including telephone, mobile telephone, and fax transmission. Telecom services, in conjunction with computer hardware and software, serve as the foundation for various other services such as e-mail, file transfer between computers, and notably, the Internet. This network has the potential to connect all computers, enabling access to global sources of knowledge and information stored on computers.

ICT is a phrase that encompasses the integration of audio-visual and telephone networks with computer networks using a unified cabling or link system. Merging the telephone network with the computer network system offers significant economic benefits, such as substantial cost savings resulting from the elimination of the telephone network. This can be achieved by implementing a unified system of cabling, signal distribution, and management. Information and Communication Technology (ICT) refers to the integration of hardware, software, processes, and individuals in the storage, processing, transfer, and utilisation of data for the purpose of communicating information and ideas. This integration occurs both locally and across extensive geographical regions, with the ultimate objective of achieving a unified goal. According to Aniete (2011), the integration of information technology, telecommunications, and data networking technologies is commonly regarded as the convergence of these technologies into a unified system.

Service Delivery

A service refers to an intangible commodity that is rendered by entities or persons to individuals or groups in need. Examples of these services may include educational and training programmes, financial consulting services, and transportation services, among other offerings. Hence, how these services are rendered is commonly referred to as service delivery. The concept of service delivery refers to the systematic provision of intangible commodities to consumers or clients within an organisation. It generally encompasses the processes that contribute to the creation, advancement, implementation, and functioning of services. The concept of public service delivery encompasses the services offered by public institutions and the methods and approaches employed in their provision.

Oronsaye (as mentioned in Onyekwelu, 2016) posits that public service delivery can be conceptualised as the systematic approach of addressing the requirements of individuals using expeditious and effective protocols. This suggests that the relationship between the government and citizens is such that the citizens' needs are promptly addressed, thereby making the citizens crucial in the provision of public services. According to Aladegbola and Jaiyeola (2016), the private sector perceives its customers as 'kings', which leads to the provision of high-quality services. Consequently, the public should be seen as masters and reap the benefits of improved performance in the public service. The provision of satisfactory service delivery might be seen as a fundamental obligation for the development of public institutions. It is recognised as a fundamental role of the public sector. The delivery of public services is influenced by the intents, decisions, and actions of government and government institutions, as well as the decisions made by those employed within these organisations. The authors propose that it refers to the act of providing public goods or social services (such as education and health), economic assistance (in the form of grants), or infrastructural services (such as water and electricity) to individuals who require or request them.

Ohemeng (quoted in Onyekwelu, 2016) supports the aforementioned points by examining public service delivery through the lens of its fundamental characteristics, which include achieving greater outcomes with limited resources, empowering citizens, improving transparency, and ensuring accountability of public servants. The government engages in the provision of public services through activities such as production, distribution, and service provision. Additionally, it indirectly supports the provision of services to the populace by third-party entities through finance. Governments have authority over the resources of the population and have an obligation to provide services that benefit the people, but the extent of these benefits may vary. The level of government intervention in providing services to the general population typically aligns with the prevailing economic system. In a capitalist economic system, service delivery is mostly dominated by the private sector, whereas in a socialist economy, the government assumes a leading role.

ICT, Data, and Public Sector Management in Nigeria

Globally, the utilization of Information and Communication Technology (ICT) for the administration of public institutions is progressively gaining acceptance as a standard practice, rather than an anomaly. These reforms were implemented in the late twentieth and early twenty-first centuries as part of the public sector. Governments in several nations have undertaken the expansion of their information technology (IT) infrastructures to leverage the advantages and functionalities offered by the Internet (Dickens, Dillon, Al-Nomeni, & Zheng, as cited in the United Nations, 2010). The utilization of information and communication technology (ICT) in the delivery of electronic information services and information has led to enhanced monitoring of office systems. This includes improved speed and accessibility to information and services, as well as enhanced communication capabilities.

Conversely, corruption is a pervasive global problem that exhibits varying degrees of presence inside the administrative frameworks of all nations. Governments are diligently striving to mitigate corruption within organisations and employ various strategies and methods. The implementation of information and communication technology (ICT) and the establishment of e-government systems have emerged as effective strategies for mitigating corruption. The utilisation of information and communication technology has demonstrated its efficacy in both the public and private domains in recent years. The various capabilities of e-government, such as cost savings, enhanced collaboration, corruption reduction, and streamlining of procedures, have garnered the interest of citizens, policymakers, and business sectors. This study highlights the significant impact of information technology in mitigating bureaucratic inefficiencies.

Over an extended period, bureaucracies have effectively achieved the objectives of coordinating the functioning of the administrative system of the state and consistently upholding the principles of fairness and neutrality in the provision of public services, frequently through arduous efforts. In recent times, there has been a growing demand for integration inside public offices as a result of the expanded welfare state, which has led to a rise in public sector initiatives. The increased level of integration has facilitated the necessity of generating and sharing information among individuals, between individuals and the public sector, and between various divisions of the public sector, in order to effectively provide public services. The bureaucratic organisation has become overwhelmed with an excessive amount of information, necessitating its processing in order to effectively deliver the services required by a more extensive welfare state. The heightened intricacy of administrative procedures has significantly diminished the effectiveness of bureaucracy, exacerbating the already apparent constraints that bureaucratic institutions possess - in their ability to consistently provide services and address the unforeseen challenges that arise during periods of heightened environmental uncertainty. The aforementioned failings have elicited significant critiques directed towards public sector bureaucracy and their capacity to effectively and efficiently deliver services (Heeks, 2002).

Although these concerns are based on and supported by the shortcomings of bureaucracies in providing public services, it is not necessarily the most optimal approach for both the state and its citizens to eliminate bureaucracies. In reality, bureaucratic organisations effectively implement organisational principles that yield two distinct sets of positive values. Bureaucracies serve the purpose of rationalising administrative procedures to enhance the efficiency and effectiveness of service delivery. This is achieved through the consistent delivery of homogeneous outcomes, which are determined by the structure of the processes. Additionally, the bureaucratic principle of rule-bounded behaviour, as outlined by Kallinikos (2004), ensures that the outcomes of administrative procedures are unambiguously determined and predictable. This principle, known as the impersonal bureaucratic principle, upholds democratic values such as impartiality, fairness, and equality in the provision of public services.

The implementation of Information and Communication Technologies (ICTs) in the public sector has frequently been motivated by a limited perspective that prioritises non-bureaucratic organisational structures, rather than examining the potential of ICTs to enhance the capacity of public administrations to provide efficient and effective services. This could be achieved by leveraging the bureaucratic system's ability to carry out its responsibilities, thereby achieving the overarching objectives of impartiality, equality, fairness, and efficient organisational arrangements. Contrarily, Cordella (2007) supports reevaluating the function of ICT in public sector reforms and advocates for perceiving ICT as a tool to assist bureaucratic organisations rather than eradicate them. He suggests that integrating ICT to automate current administrative procedures could enhance the efficiency and effectiveness of the administrative system while maintaining its fundamental principle of providing equal, unbiased, and equitable treatment to all citizens engaging with the bureaucratic organisation.

The capacity of information and communication technologies (ICTs) to enhance the efficiency and effectiveness of public agencies is not a recent development. The historical adoption of ICT in the public sector has been extensively chronicled. Since the 1980s, information and communication technologies (ICTs) have been developed and utilised to offer appropriate and sufficient tools and solutions that effectively support bureaucratic organisations. Technology-mediated solutions, such as office automation software, database management systems, workflow management systems, automated decision support systems, and more recently web services, e-services, and cloud-shared systems, have been developed to enhance the effectiveness and efficiency of bureaucratic organisations. These solutions aim to integrate various levels of control and standardisation into information and communication

technology (ICT) systems, thereby improving bureaucratic processes.

ICT technologies can provide valuable solutions for designing and implementing more functional bureaucratic organisations by enabling more effective, efficient, and transparent monitoring and controlling mechanisms. This can enhance the uniformity and predictability of administrative procedures and ensure their alignment with the normative and legal framework that governs public sector bureaucracies. Information and Communication Technologies (ICTs) have the potential to enhance the operational capabilities of bureaucratic organisations, enabling them to effectively carry out routine activities and adapt to evolving environmental circumstances. Furthermore, these organisations must address the information processing obstacles that arise from the growing scope of public intervention. The increasing intricacy and unpredictability of this field necessitates public sector bureaucracies to engage in greater information sharing and processing, hence intensifying their inefficiency and ineffectiveness in the absence of appropriate measures. Organisations that effectively utilise information and communication technology (ICT) to facilitate bureaucratic processes and address associated difficulties can be considered as exemplary instances of e-bureaucracies (Cordella, 2007).

The e-bureaucratic form is therefore advocated as an e-government policy that enhances the efficacy and efficiency of public administration operations, while also upholding the bureaucratic principles of fairness and neutrality in the provision of state services to the populace. The current articulation of this theory on e-bureaucracy fails to consider the diverse effects that information and communication technologies (ICTs) can have on bureaucratic organisations. These effects vary in terms of the specific tasks performed, the level of uncertainty involved, and the internal coordination mechanisms employed. This paper aims to address the existing knowledge gap by expanding upon Mintzberg's taxonomy of bureaucratic organisations (1983). Mintzberg's taxonomy differentiates between machinery bureaucracy and professional bureaucracy based on the standardisation mechanisms employed to standardise, rationalise, and coordinate work procedures and activities. Machinery bureaucracies are efficient organisations that excel at carrying out straightforward tasks, which can be completely determined beforehand and whose responses can be easily anticipated and hence automated. Professional bureaucracy is primarily responsible for managing intricate duties. These activities encompass elements of uncertainty and ambiguity, necessitating a semi-standardized approach to their resolution through the application of basic principles to specific instances. The automation of task solutions is not feasible; rather, they can only be developed through the utilisation of human analytical abilities. This paper aims to elucidate the potential of information and communication technology (ICT) as a valuable tool in alleviating the workload associated with bureaucratic operations. By utilising empirical evidence and employing a taxonomy, ICT can effectively streamline and automate these tasks, thereby enabling organisations to allocate their resources towards the execution of professional bureaucratic responsibilities that necessitate human judgment.

THEORETICAL FRAMEWORK

The study is based on the Diffusion of Innovations (DoI) theory as its theoretical basis. Everett Rogers, a professor of communication studies, introduced, popularised, and expanded upon the notion in his 1962 book "Diffusion of Innovations." The diffusion of innovation theory aims to elucidate the mechanisms, rationales, and pace at which novel ideas and technology are disseminated. It focuses on the dissemination of innovation among a population. Academic scholars in the field of diffusion theory have created analytical frameworks to elucidate and predict the mechanisms underlying the dissemination of an innovation, which refers to an idea, practice, or object that is viewed as a novel by an individual, within a socio-technical system. According to Rogers, diffusion can be defined as the transmission of innovation through specific channels over some time among individuals within a social system. The dissemination of innovations is comprised of four essential components: invention, communication channels, time, and social system, as stated in this description. The DOI theory encompasses six primary elements, including innovation characteristics, individual user characteristics, adopter distribution over time, diffusion networks, innovativeness and adopter categories, and the individual adoption process. The qualities of the innovation itself are arguably the most popular among the six components of IDT.

This theory is deemed pertinent for the study due to the diffusion of innovations theory providing a readily available collection of concepts and methodologies that can be employed to elucidate the willingness of individuals and public sector organisations to adopt administrative policies and practices. Operationalizing diffusion principles can expedite the acceptance rate and expand the scope of innovations and reforms in public sector organisations. In the context of this study, the application of this theory reveals that ICT represents a novel idea within the vocabulary of the Nigerian public sector. The use of e-administration through ICT has revolutionised the traditional administrative practice of excessive paperwork, which hinders the efficient and effective execution of governmental policies and service delivery. The implementation of e-administration is expected to mitigate delays and other obstacles in the execution of tasks, hence facilitating the provision of high-quality services.

METHODOLOGY

Research Design

A research design can be defined as a structured framework that delineates the methodologies and protocols employed to collect and analyze relevant data about a certain research question (Chukwuemeka, 2002). Hence, the current investigation employed a descriptive survey research methodology. By employing a descriptive survey research methodology, the necessity for intentional manipulation or control of variables is eliminated. The researchers aimed to accurately depict the relationship between human capital development and organisational success at the Federal Polytechnic Oko in Anambra state, Nigeria.

Population of Study

The study's population consists of employees working for the Standards Organisation of Nigeria (SON) in the five states included in the South East region. The staff distribution for the South East of the Standards Organisation of Nigeria is as follows, based on data acquired from the organization's Personnel Unit. The combined staff size of the SON offices in Awka and Nnewi is 46 people. The SON office in Umuahia, the capital of Abia State, has 32 staff members. Owerri, the capital of Imo state, has 30 staff members. Abakaliki, the capital of Ebonyi state, has 13 staff members. Enugu state has 68 staff members. The office located in Enugu comprises three distinct components, namely the meteorology office, the state office, and the South East regional office. Overall, the sample size for this study consisted of 189 participants. The researcher decided to utilize the entire population of 189 staff members for the investigation, as opposed to selecting a sample from it.

Data Analysis Techniques

Descriptive statistics were used to examine the data produced from primary sources, including tables and simple percentages. The Pearson correlation coefficient was then used to test the hypotheses. The correlation coefficient test is a non-parametric inferential statistic used to determine how closely two variables are related. To analyse and understand the data from the completed surveys, the findings were first recorded in Microsoft Excel and then transferred to SPSS.

DATA ANALYSIS

Test of hypotheses using SPSS version 23

Decision rule: If the probability is lower than the alpha threshold, then the alternative hypothesis is rejected and the null hypothesis is accepted.

Level of significant = 0.05

Hypotheses One

Ho: ICT has no relationship with the management of data at the Standards Organization of Nigeria in South East, Nigeria.

Hi: ICT has a relationship with the management of data at the Standards Organization of Nigeria in South East, Nigeria.

Correlations

		ICT	Data Management
ICT	Pearson Correlation	1	.661
	Sig. (2-tailed)		.041
	N	155	155
Data Management	Pearson Correlation	.661	1
	Sig. (2-tailed)	.041	
	N	155	155

The result of the correlation coefficient for hypothesis one, as displayed using SPSS version 20 indicates that the Pearson Product Moment Correlation Coefficient is 0.661 showing that information and communication technology has a positive correlation with the management of data at the Standards Organization of Nigeria in South East, Nigeria.

Decision Rule: From the computation above, the probability value at 0.041 is less than 0.05 significant level. Therefore, we reject the null hypothesis and accept the alternative hypothesis by concluding that information and communication technology has a relationship with the management of data at the Standards Organization of Nigeria in South East, Nigeria.

Hypotheses Two

Ho: ICT has no relationship with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria.

Hi: ICT has a relationship with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria.

Correlations

		ICT	Internal Admin Processes
ICT	Pearson Correlation	1	.550
	Sig. (2-tailed)		.034
	N	155	155
Internal Admin Processes	Pearson Correlation	.550	1
	Sig. (2-tailed)	.034	
	N	155	155

The result of the correlation coefficient for hypothesis two, as displayed using SPSS version 20 indicates that the Pearson Product Moment Correlation Coefficient is 0.550 showing that information and communication technology has a positive correlation with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria.

Decision Rule: From the computation above, the probability value at 0.034 is less than 0.05 significant level. Therefore, we reject the null hypothesis and accept the alternative hypothesis which states that ICT has a relationship with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria.

Summary of Findings

The following findings were made from the Analysis:

1. That information and communication technology has a relationship with the management of data at the Standards Organization of Nigeria in South East, Nigeria, (P value = 0.041 < 0.05, r = 0.661).
2. That ICT has a relationship with the management of the internal administrative processes at the Standards Organization of Nigeria in South East, Nigeria, (P value = 0.034 < 0.05, r = 0.550).

Conclusion

The significance of information and communication technology in the governance process is increasingly acknowledged and should not be ignored. The reason for this is the established history of e-governance in Western cultures, which has demonstrated its efficiency, efficacy, transparency, and accountability. The study's findings led to the conclusion that there exists a robust positive correlation between Information and Communication Technology (ICT) and service delivery inside the Standards Organisation of Nigeria during the South East region of Nigeria. After conducting a thorough analysis of the key concerns in this research, we propose the following recommendations.

Recommendations

Relative to the findings of this study, the following recommendations were suggested;

1. The Standards Organization of Nigeria should de-emphasize manual data collation and paper filing systems in favour of digitalisation in the data management process of the organisation. To achieve this, requisite capacity building and training programmes for staff should be embarked upon.

2. The internal administrative processes at the Standards Organization of Nigeria should be digitalized such that memos and other internal correspondence should be sent and received through official email channels. Meetings can also be scheduled online to bridge distance and time barriers toward enhancing efficiency and effectiveness.

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