IMPACT OF TECHNOLOGY ON PROFITABILITY OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This research work examines Technological innovation and profitability of listed deposit money banks in Nigeria, and the purpose is to investigate the effect of ATM and EMB on deposit money banks in Nigeria. The methodology of the study was quantitative in nature. Using financial statements of selected banks in Nigeria covering a period of 10 years (2011- 2020), the study employed multiple regression technique in the analysis of sourced data. Data were collected from secondary source through the financial statements of sampled deposit money Banks in Nigeria and was analyzed. The result of hypothesis one showed that ATM have a positive and significant effect on return on assets of deposit money banks in Nigeria (P-value = 0.005*). Hypothesis two also confirm that Electronic mobile banking has a negative and insignificant effect on return on assets of deposit money banks in Nigeria (P-value =* 0.608*). The study recommends that banks should provide more ATM facilities and should be placed at vantage locations within the city to reduce distance and time use in accessing the facility. Banks should hire professional and expert to monitor and maintain ICT in the organization so as to reduce the rate of fraud encountered on Electronic Mobile Banking.*

Keywords: Profitability, Technology, Global System Mobile (GSM), Automated Teller Machine

Background to the Study

In recent years, the use of technology innovations namely computers and related equipment has seen tremendous expansion in commission businesses. The most unmistakable model is the financial area, where, by presenting data innovation related goods, for example, web banking, electronic installments, security speculations, and information trade, establishments are currently ready to convey more assorted administrations to clients while utilizing less individuals (Kimingi, 2010).

According to Ikpefan, and Agwu, (2015), technological advancements like ATMs and online banking have made it possible to provide clients new methods to access banking products and services. As a result, throughout the past three decades, banks have been at the forefront of technological adoption. Because embracing new technology is one of the most important components of economic organization performance in general, and banks in particular, It has impact on service quality, the direction of the banking operations, as well as its ability to remain competitive in global marketplaces. This pushes banks to spend more in technology and information in order to maximize earnings and attract a large number of consumers.

The processing of client information requires a lot of time, which is the main issue with Technology use in deposit banks. Customers who wait in long queues at the bank waste significant time when doing financial transactions. Labour costs, including salaries and related expenses, are also relatively expensive. Errors of commission and omission are quite prevalent in the banking industry. Although it has additional advantages, ledgers are simple to examine and allow the accountant to make any necessary changes. Individual accounts are readily maintained since each ledger has well-organized data. Another benefit is the accountant's ability to physically handle any ledger and make notes against clients' accounts if anything needs to be explained or rectified. Forrer and Forrer (2015) assert that computerized programs can swiftly generate all the management-required reports, such as budget analysis and deviation analysis. Faster and more accurate data processing and analysis satisfy managers' requirement for timely and reliable information for making decisions. However, there is debate regarding the utilization of Technology in business. This can be in relation to the union implications of the displacement of workers in the accounting department as well as the issue of low turnover (volume of operations) and profitability in banks. Different points of

view had been put up regarding the benefits and drawbacks of using technology in relation to their relative contributions to an organization's effectiveness in day-to-day operation

The main objective of this research work is to determine information communication technology and profitability of deposit money banks in Nigeria. Expressly, the study aims at achieving the following objectives to:

- Determine the effect of automated teller machine on return on asset of listed deposit money banks in Nigeria.
- Determine the effect of global mobile banking on return on asset of listed deposit money banks in Nigeria.

The scope of this research is narrowed down to Technology and profitability of quoted deposit money banks alone. The impacts of information technology are discussed with assess to profit. The research study shall be limited to 10 years' (2011-2020) annual report of selected deposit money banks in Nigeria.

According to Cherotich (2015), information technology is a group of tools that integrates computer and communication technology, information technology is a group of devices that can sequentially execute instructions. The program's sequence of instructions can be changed to make it more flexible or less rigid depending on the data being processed. It illustrates how a wide range of modern technologies and their applications are referred to as "information technologies," including all aspects of using computers, microelectronic devices, satellite technology, and communication technology. The fact that many practitioners are among these laggards, and that many professions in developing nations such as Nigeria do not appear to be ready to embrace this information technology or revolution and join its superhighway as a means of survival, is news.

In actual fact, the banking industry as a whole, as well as Nigeria's economic growth, now substantially rely on information technology. According to Balogun (2016), technology is a concept that has a substantial influence on virtually all aspects of human activity Developing countries are increasingly feeling the effects of technological progress and the diffusion of technology. Globally, technological-driven businesses are rapidly developing as part of the growth process. E-business, ecommerce, e-finance, and e-banking are a few examples. Nigerian banks have been able to network and expand their distribution networks because of advances in technology. Electronic banking includes all electronic conveyance modalities together. E-banking is an endeavor to consolidate a few distinct innovations, not only one.
Customers may manage their accounts virtually online by using the Global System Mobile (GSM)/ Mobile Banking Service. Customers can obtain retail banking services at their jobs or homes rather than going to a bank branch or ATM. Customers gain from enhanced convenience and time savings, which increases productivity.

The Automated Teller Machine (ATM) incorporates a money vault, record-keeping framework, and workstations into a solitary gadget that permits clients to get to the bank's bookkeeping programming utilizing a plastic card that has an Individual ID Number (PIN). The ATM is open 24 hours every day, seven days per week. The bank screens and loads more when it hits bottom financially. A similar ATM might be utilized for concurrent money withdrawals and stores. ATMs are a practical method for upgrading creation since they are more useful in more limited timeframes than human Tellers. They additionally save clients' time by conveying administrations quicker than holding up in bank lines.

An organization's accounting information system (AIS) is the data subsystem that gathers information from the substance's different subsystems and gives it to the organisation's data handling subsystem Abdulganiyu, (2019). By and large, the accounting information system (AIS) has been centered around gathering, handling, and conveying monetary information to inner as well as outside partners (like financial backers, leasers, and expense offices) (basically the board). Notwithstanding monetary information and data, the bookkeeping data framework (AIS) additionally incorporates non-monetary information and data. As a rule, a bank's bookkeeping data framework (AIS) fills a similar need as bookkeeping data frameworks in different associations: it gives monetary and nonfinancial information to inward and outer partners like financial backers, lenders, and expense specialists (head the executives).

Technology has enabled the banking industry to access new markets, products, services, and efficient delivery methods. Mobile banking, online banking, and internet banking are just a few examples. Because of advances in

information technology, the financial industry now has the resources it needs to meet the challenges of the new economy..

Because of technical innovation and the expansion of global networks, the cost of international money transactions has significantly lowered. Banks can now satisfy their consumers' high expectations, who are more demanding and digitally aware than prior generations. Information technology makes this feasible. They want banking services that are available 24 hours a day, seven days a week. Lawrence (2010).

Information technology has enabled banks to manage their accounting and back office requirements. Now, however, services geared for bank clients are becoming widely adopted as a result of this. Information technology has made it feasible for new distribution channels including automated teller machines, net banking, and mobile banking. Lawrence (2010).

Accounting information technology (AIT) is being used by banks in a number of methods and for a range of objectives. Cash may be distributed and deposited, and accounts can be automatically debited and credited, according to Agboola (2006). Accounting information technology (AIT), which is based on management information systems or AIS, may support administration.

Use of secure services like Society for Worldwide inter-bank Financial Telecommunication (SWIFT) may have an impact on inter-bank and international money transactions. However, the collection and organization of account data through branches continues to be the primary historical issue as well as the primary technology challenge for retail banks. There are thousands of branches for the big retail banks. Each allows for the execution of a range of account operations, including cash deposits and withdrawals, transfers, checks, and standing orders. The essential purposes of record data innovation in banking have been to make and deal with a data set of record data and to achieve the exchange of assets that exchanges in the record base need. Be that as it may, numerous exchanges should in any case be approved by signature. Before, buyers needed to visit the bank office where they laid out their record to pull out cash from their investment accounts. They finished a structure, marked it, and gave verification of personality to examination.

The use of technology in banking nowadays is essential. However, based on observations and replies from respondents, it is observed that the Nigerian banking sector has encountered a number of difficulties, including:

Data Security: With the improvement of data innovation, especially the web and organizations, by and large, there is a larger danger to information security. Banks are vulnerable to both internal and external threats in this area. This might take the shape of unintended or purposeful data loss. It spent a significant amount of money attempting to protect its data.

Obsolescence: The data innovation industry is dynamic to the point that items become old in a short measure of time. Most data innovation items utilized preceding 1999 must be refreshed or completely supplanted at the hour of this examination.

Fraud: This is a major source of concern for banks. Internal fraud has been moderated somewhat by the utilization of accounting or potential data innovation. However, external fraud has risen, particularly through ATM and Internet fraud. This claim is worth billions of naira.

Inadequate Infrastructural Facilities: Information Technology utilization in the Nigeria banking business has featured critical issues, for example, conflicting power supply, frail correspondence foundations, and lacking nearby association in the equipment and programming chain, Data Innovation, and schooling/mindfulness. Karrar, Mohammed, and Yasir (2020).

In this study, the dependent variable is performance, which is represented by return on assets (ROA). Performance may be defined as a measure of how successfully a corporation uses resources from its primary line of business to generate profits. It demonstrates how well an organization's management uses the resources at its disposal to produce profit. A variety of proxies can be used to gauge an organization's performance. Abaenewe, Ogbulu and Ndugbu (2013) used return on asset (ROA) and return on equity as performance proxy measures (ROE). It is important to

remember, nevertheless, that an organization's profitability is not the sole performance indicator. Performance has been measured by Wurangtep (2019). and other studies from many perspectives, including productivity, sales growth, cost cutting, competitiveness, efficiency, and effectiveness. Thus, in line with Abaenewe et al (2013), this study uses return on assets (ROA) to quantify banks' performance. Return on assets (ROA) was chosen as the dependent variable since it is a measure of management effectiveness. A dependent variable is return on assets (ROA). It is calculated by dividing earnings after tax by the entire value of the assets. The formula for return on assets (ROA) is expressed as

This automated teller machine disburses cash and performs all of the functions of a teller in a banking hall, such as checking balances, providing mini statements, paying bills, and completing recharges. You must enter your personal identification number (PIN) and credit or debit card details to access cash. Some ATMs accept cash deposits as well as bill payments. The CBN acknowledged N65 as bank income from the fourth transaction made on an ATM terminal by a cardholder from a separate bank. It's a cash machine where you may withdraw or transfer money. To withdraw money from an ATM, use a debit or credit card. Banks must respond to client complaints concerning ATMs within 72 hours or be notified by the CBN. To accelerate issue resolution, the CBN is also trying to establish a card arbitration body that would act as a payments system ombudsman. It is also worth noting that the advent of chip + PIN technology has dramatically reduced card fraud, particularly at ATMs. Wurangtep (2019).

Financial innovation was defined by Henry and Ruth (2020). as both the technological developments that make it easier to access information, trade, and payment methods as well as the emergence of new financial instruments and services, new organizational structures, and more developed and comprehensive financial markets. Financial innovation is the act of developing and making widely available new financial products, services, institutions, and markets.

A bank invention called mobile banking allows customers to do financial transactions over the phone. It can be thought of as a type of remote or virtual banking, which is basically the performance of bank financial activities through 16 telecommunication devices, whereby bank clients can conduct retail banking business by calling on the phone or a mobile communication unit that is connected to a system of the bank by Automated Voice Response (ABR) technology, Henry and Ruth (2020). The customer must first be authenticated by a numerical or verbal password or by means of security questions being asked by a live person at a center or branch in order to ensure the security of the system. With the obvious exception of distributing cash in the form of deposits and withdrawals, it provides nearly all of the necessary services, including checking account balances, setting up standing orders, ordering checkbooks, and changing addresses. In addition to the self-service tasks already mentioned, telephone banking agents are often trained to do tasks that were previously only available in branches.

Henry and Ruth (2020). asserts that telephone banking offers both customers and institutions a number of advantages. It offers expanded convenience, faster access, and substantial time savings. However, from the standpoint of the bank, the expenses are far lower than those of branch-based services. All but the capacity to create or dispense cash to the user has an impact on how well

Theoretical Concept

Innovation Diffusion Theory

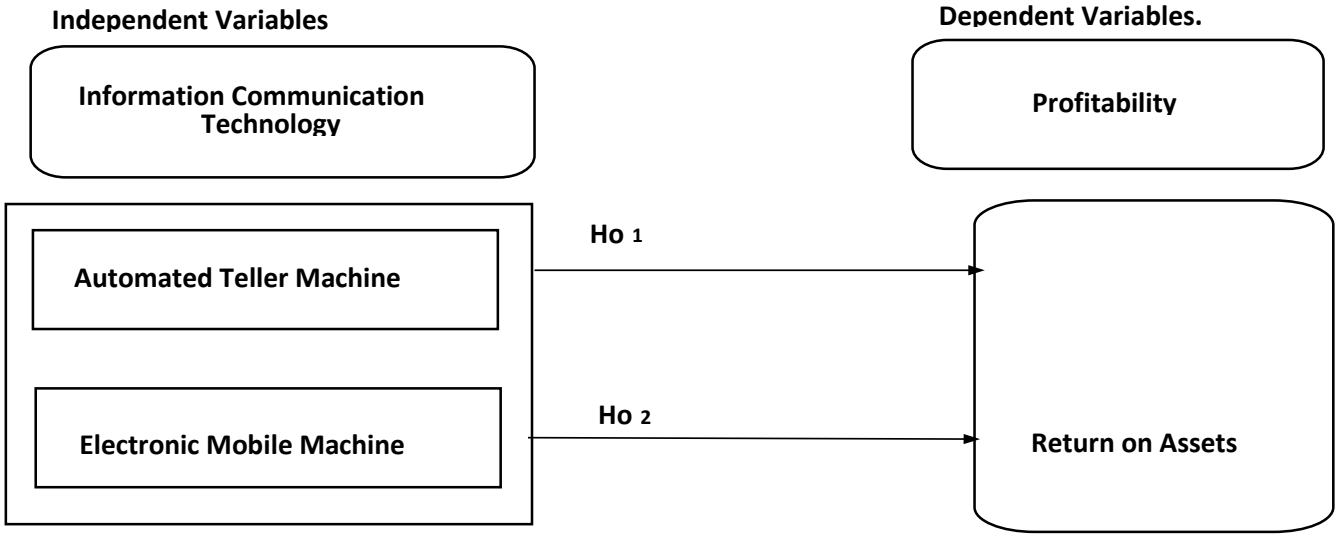
The Innovation Diffusion Theory (IDT) intends to make sense of how developments spread inside an organization. Rogers (2003) declares that various factors add to the scattering of innovations starting with one spot and then onto the next. For example, on the off chance that the new development enjoys a relative upper hand over the ongoing instruments, it will be viewed as an upgrade and might be embraced all throughout the entire business. Additionally, the compatibility of innovations with currently in use technologies and procedures is essential since those that are compatible are more likely to be accepted. Innovations are also evaluated for their convenience of use, their ability to be tested before being fully implemented, and the ease with which their inputs and outputs may be quantified. It is essential to remember that since knowledge varies among individuals, the perception of ease of use is considered to be subjective. According to Lundblad and Jennifer (2003), because to the disparities in how each department does business, diffusions between them may not be likely. Our idea is important to this subject because it explains how innovation spreads from one area of the economy to another or from one division to another within a single firm. Wurangtep (2019).

Bank-Focused Theory

This hypothesis was promoted by Kapoor (2010) and secures on the reason that banks utilize contemporary however traditional minimal expense conveyance channels to offer administrations to its clients. ATMs, cell phone banking, and Retail location are among the channels that incorporate mechanized teller machines (ATMs). The bank gives a great many administrations to its clients through these channels, free of area or branch associations. The exchange is finished after the vital data is placed into the framework. This thought fills in as the establishment for this review since the accentuation is on electronic stages as an approach to conveying administrations. Wurangtep, (2019).

Kamau (2014) investigated the influence of ICT adoption on the financial performance of Kenyan microfinance enterprises. A descriptive survey was utilized in the study to investigate the elements influencing ICT adoption on the financial performance of Kenyan microfinance institutions. The study looked at the effects of ICT adoption on the financial performance of DMBs between 2008 and 2012. A questionnaire was used to collect primary data. To assess the strength of the connection between the variables, an analytical model was built. Data analysis revealed a positive relationship between ICT use and the financial success of DMBs. Keah (2014) investigated the effects of ICT adoption on the financial performance of Nairobi County's savings and credit cooperative organizations. A descriptive survey and a cross-sectional study design were both used.

The population of the research consisted of 45 Saccos, both deposit-taking and non-deposit-taking. A purposeful selection method was used to choose 40 SACCOs. Secondary data was used to extract information from financial accounts and records. Inferential and descriptive analytical methods both used mean, standard deviation, median, minimum, and maximum data. The results show that increasing ICT use improves Sacco's financial results. Lamminen, Forsvik, Voipio and Lehtonen (2015).



Source: Researcher's Conceptual Model 2023

METHODOLOGY

The Research design adopted for this paper is cross sectional research design. The population for this study consists of all Twenty-three (23) deposit money banks in Nigeria; however, as of 2021, only thirteen (13) of these banks—including Zenith Bank, GT Bank, Stanbic IBTC, First Bank, Access Bank, UBA, Union Bank, Fidelity Bank, FCMB, Sterling Bank, Wema Bank, Jaiz Bank, and Unity Bank are listed on the Nigerian stock exchange (NSE, 2022).

The study adopted purposive sampling technique in selecting deposit money banks for the study. This technique is selected because only the deposit money banks that are licensed to operate internationally are used for this study. However, five (5) deposit money banks was selected.

In order to conduct this study, the researcher employed secondary data sources to look at deposit money banks' ICT and profitability. As a result, information for the study was taken from the annual reports of the deposit money banks that are listed on Nigeria stock exchange and CBN statistical bulletin for a period of ten (10) years (2011 – 2020). Return on Asset, Automated Teller Machine, and Electronic Mobile Banking compose the data for pertinent factors.

Method of Data Analysis

This refers to the many techniques used to analyze the data gathered for this activity in order to come to findings and offer pertinent advice. Data were classified, sorted, and summarized to enable data analysis in order to evaluate the Technology and profitability of deposit money banks in Nigeria. This was accomplished by first entering the data into Microsoft Excel on a computer to enable computation of the yearly report data before entering the data into the Statistical Package for Social Science (SPSS) program, which was then used to do the analysis.

Model Specification

The link between the independent factors and the dependent variable was measured and predicted using regression analysis. The model's general form was as follows:

Y= *F*(*X*)..... *(1)*

That is,

Profitability = *f* (Automated Teller Machine, Point of Sale, Electronic Mobile Banking) Profitability = *f* (ATM, EMB)
$ROA_{it} = \beta_0 + \beta_1 ATM_{it} + \beta_3 EMB_{it} + \varepsilon_{it}$…….. (1) **Where:**

ROA= Return on Asset (ROA) $^{net\ profit}/_{total\ asset}$, ATM = Automated Teller Machine, EMB = Electronic Mobile Banking, ε = Error term, β_0 = Constant Parameter

4. PRESENTATION OF RESULTS

Table 4.1 Tests of Normality

	Kolmogorov -Smirnov [a]			Shapiro -Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
ROA	.078	50	.200*	.955	50	.053
ATM	.072	50	.200*	.984	50	.738
EMB	.088	50	.200*	.966	50	.151

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Extracted from SPSS Version 26

The findings of two well-known normality tests, the Kolmogorov-

Smirnov Test and the Shapiro-Wilk Test, are presented in Table 4.1. The Shapiro-

Wilk Test is best suited for small sample sizes (n <50), however it can handle sample sizes as bi as 2000. As a result, we will apply the Shapiro-

Wilk test to determine normalcy numerically. The preceding table indicated that the "Return on Asset, Automated Teller Machine, and Electronic Mobile Banking" was normally allocated. The data is normal since the Sig. value of the Shapiro-

Wilk Test is larger than 0.05. If it is less than 0.05, the data deviates considerably from a normal distribution.

Table 4.2: Multiple Linear Regression Results

Coefficients [a]

Model	Unstandardized Coefficients		Standardized C oefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.074	.041		-1.821	.075
ATM 1	.059	.020	.392	2.923	.005
EMB	-.007	.013	-.069	-.516	.608

a. Dependent Variable: RO A

Source: Extracted from SPSS Version 26

Table 4.2 shows the coefficient and significance of each Information Communication Technology variables adopted and the research criteria for acceptance or rejection of the null hypothesis is that if the significant value is less than 0.05 chosenisigvalueithatiisitheiInformationiCommunicationiTechnologyivariableishouldbeiconsideredistatistically significance on profitability of deposit money banks, the null hypothesis should be rejected, we accept the null hypothesis if otherwise.

The coefficient table demonstrated that automated teller machines and point of sales had a favorable influence on de posit money bank performance, with a 0.059 and 0.018 rise in profitabilityper unit increase in the variables, respecti vely. However, Electronic Mobile Banking was foundto have a negative effect on the profitability of deposit money banks in Nigeria with an estimate of 0.00 7 reduction in performance of deposit money banks in Nigeria per unit increase in electronic mobile banking. The significance of the variables will determine the rejection or accep tance of the null hypothesis.

Decision rule:

If the grade of significance =0.05 is larger than the probability value (pvalue) obtained for the tstatistics value, reject H0. Otherwise, do not reject H0. The hypotheses were tested at 95% confidence level, i.e. =0.05, for the sake of thi s research.

H01:
Automated teller machine does not have significant effect on return on asset of deposit money banks in Nigeria.

In terms of the significance of hypothesis one, empirical analysis of the data in table 4.6 revealed a t-value of 2.923 with a pvalue of 0.005, which is less than the 0.05 level of significance. As a consequence, the null hypothesis one was rejected, suggesting that automated teller machines had a considerable effect on the return on assets of deposit money institutions in Nigeria.

H02:
Electronic mobile banking does not have significant effect on return on asset of deposit money banks in Nigeria.
In terms of the significance of hypothesis three, empirical examination of the data in table 4.6 revealed a t-value of -0.516 with an associated pvalue of 0.608, both of which are more than the 0.05 level of significance. As a consequence, the null hypothesis three was not rejected, meaning that electronic mobile banking has no substantial influence on the return on assets of Nigerian deposit money institutions.

Discussion of Findings

This study executed the analysis of Information communication technology and profitability of deposit money banks in Nigeria. The findings from the analysis revealed that Information communication technology variables adopted jointly accounted for a significant positive variation in profitability of deposit money banks which was evidenced from the Prob (Fstatistic) value of 0.029 in the Table 4.2.

The study further discovered that only Automated Teller Machine was found to be statistically significant as the significant value is less than 0.005 where Automated Teller Machine was found be the significant of the three variables as it possesses the lowest probability value of 0.005.
However, EMB have a negative impact and both variable weare found to be statistically insignificant has their significant value are greater than 0.05. More sso, the study showed that in the absence of Information communication technology, the performance of deposit money bank in Nigeria is found to be negative as the constant value was estimated has -0.074.

Conclusion

According to the study's findings, deposit money banks in Nigeria can be profitable partially due to technologies. Deposit money banks in Nigeria have a great potential to increase profitability and, as a result, provide higher returns to shareholders by using technology channels. Electronic banking is widely accepted by both banks and their consumers due to its adaptability. If the acceptance was limited to only the banks or the clients, it may have been difficult. In spite of other economic sectors in Nigeria showing low profitability, banks have maintained strong turnover. This can be explained by the utilization of advancements which have enabled banks to begin making pay away from conventional sources like revenue, exchange and resource supporting. Banks have had the option to make additional commission pay from exchanges done on electronic financial channels like; mobile banking, Mastercards and point of sales. Likewise, this study showed that clients disparage E-banking channels, for example, ATM more than internet banking. This is on the grounds that they get specific advantages from the utilization of these items transcendently efficient, simple admittance to money and accommodation in the utilization of the items. And furthermore they accepted it was more secure and much secure than the internet banking. Overall conclusion on technology has made financial exchange to be a lot simpler by carrying administrations nearer to its clients and more secure, forestalling the conveying of immense amounts of cash.

Recommendations

Based on the findings the research develops the following recommendation.

The bank ought to give more ATM facilities; these ought to be set at vantage areas inside the city to diminish distance and time use in getting to the facility.

Electronic Mobile Banking consume a lot of money, this might be because of the increase in the rate of fraud nowadays, so the company should hire professional and expert to monitor and maintain technology in the organization.

They should consequently carryout research similar to this study on every annual report published in order to keep track of technology effect on the profitability of banks in Nigeria.

Banks need to utilize technology so that they can meets the ideal characteristics of adaptability and versatility, giving them an upper hand to remain ahead and provide items and services to please their clients.

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