

The Impact of Technological Advancements on Government Banking Operations within the Kandy Area

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Index Number	Student Name
KAHNDISM-001	WIJERATHNA W G C G
KAHNDISM- 005	VITHARANA H V A R N
KAHNDISM-017	H P A S M KUMARI



NATIONAL INSTITUTE OF BUSINESS MANAGEMENT

School of Computing and Engineering

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1. Introduction

1.1 Background of the case study

The government financial business/institutions are among so many sectors that have experienced significant transformation due to the rapid advancement of technology. Specifically, government banking operations which were once thought to be cumbersome and slow are now employing more and more contemporary technologies to enhance productivity, openness and client satisfaction. Within the Kandy region of Sri Lanka, these technological innovations play a critical role in reshaping government banking operations. There we took into the technology usage of major government banks in Kandy city limits for this study. This study aims to investigate how these developments affect customer relations, operational procedures, and overall productivity in Kandy Government Banks. It also aims to provide light on the advantages and difficulties of implementing modern technology in industry.

1.2 Problem of statements

Awareness of the effects of technological advancements on state bank operations in the Kandy area requires an awareness of the roles and experiences of both customers and staff. As modern technologies are incorporated into their daily activities, employees - from managers and IT workers to clerks and cashiers - face a wide variety of adaptation challenges. The banking experience of customers interacting with banks such as People's Bank, Bank of Ceylon, Samurdhi Bank and Regional Development Bank (RDB) is also affected by these technological advances, and they must also respond. Some employees and consumers are reluctant to use modern technologies in banking. There are also reasonable reasons to present to them in this regard. Statements of problems like these affected our case study.

1.3 Research Questions

1. What impact do technical developments have on the effectiveness of government banks' operations in Kandy?
 - This inquiry seeks to investigate how new technologies are affecting banks' day-to-day operations, with an emphasis on increases in efficiency, accuracy, and speed.
2. What impact do technological advancements have on the experiences and pleasure of customers at Kandy's government banks?

- This inquiry aims to comprehend how consumer interactions and satisfaction levels have changed because of the implementation of contemporary technologies, considering factors like ease, service quality, and user experience.
3. What difficulties do Kandy government bank personnel have adjusting to modern technologies?
 - This inquiry focuses on the challenges that bank workers encounter, such as inadequate training, opposition to change, and implications for their duties and responsibilities.
 4. What effects does the use of contemporary technology have on the banking industry's reputation and client faith in Kandy's government banks?
 - This inquiry looks into how customers' perceptions of the banks and their level of faith in them are affected by these technological advancements, and whether they see them favorably or adversely.
 5. What are the primary benefits and drawbacks of implementing modern technology in Kandy's government banking operations?
 - This inquiry seeks to determine the main advantages and possible disadvantages of integrating contemporary technology into these banks from the viewpoints of both clients and staff.

1.4 Research objectives

1. To Examine the Effect of Technology Developments on Staff Positions in Kandy's Government Banking Operations:
 - Analyze how the incorporation of modern technologies affects various jobs inside government banks (e.g., managers, IT workers, clerks).
 - Examine the potential and difficulties that employees with varying degrees of expertise will encounter when adjusting to these technological advancements.
2. To Assess Customer satisfaction with Technological Developments in Kandy's Government Banks:
 - Examine how various banks' clients such as People's Bank, BOC, Samurdhi Bank, and Regional Development Bank (RDB) perceive and use modern technological tools and services.

- Analyze how long customers have been with these institutions and how that has affected their satisfaction and capacity to adjust to technological advances.
3. List the advantages and difficulties of integrating technology into government banking operations:
 - Examine the overall advantages that come from implementing modern technologies, such as increased productivity, security, and customer support.
 - Examine the obstacles that the digital transformation of Kandy's government banks will face, including reluctance to adapt, the requirement for training, and worries about data security.
 4. To Offer Suggestions for Improving Government Banking's Technological Adoption:
 - Create plans to make it easier for staff members and clients to adjust to technological improvements.
 - Provide solutions to overcome obstacles and increase technology's efficacy in enhancing government banking operations.

1.5 Significance of the study

There are various approaches to emphasize the significance of our statistical case study, "The Impact of Technological Advancements on Government Banking Operations within the Kandy Area":

1. Making Properly informed Decisions for Management and Policy:
 - The outcomes of this research will offer significant information and perspectives that can assist government banking establishments in making knowledgeable choices about the adoption and administration of innovative technologies. Through comprehension of the effects on diverse roles and activities, bank management can customize their approaches to improve productivity and quality of service.
2. Understanding Adaptation in Workers and Customers:
 - The study will clarify how various stakeholders—customers and employees—are adjusting to developments in technology. This knowledge is essential for creating customer support platforms, training initiatives, and other interventions that promote seamless transitions and enhance user experiences.

3. Preserving Future Technological Integration Through Strategic Planning Support:

- The knowledge gathered from this research can direct future efforts to integrate technology into government banking. Banks will be able to plan and allocate resources more effectively by using it to help them foresee possible obstacles and opportunities.

4. Increasing Public Involvement and Trust:

- The results of the study can be used by government banks to address customer demands and issues and increase public trust and engagement. This is especially crucial in a time when digital connections are happening more and more.

2.Litreature Review

2.1 Technological advancement in banking

In fact the banking industry has been made up of various technological features such as automation, digitalisation and artificial intelligence among others. With the availabilities of online banking, mobile applications, new technologies in the field of finance, and the blockchain technology that has affected the traditional methods of banking. They have also helped in improving the service efficiency and delivery to the required standard and cost effectively thus improving on service quality, security and customer services.

Key Technologies:

AI & Machine Learning: Application areas include but not limited to data analysis, customer service through the use of chatbots, credit risk assessment and fraud detection.

Blockchain: Increasing the level of confidence of customers and other stakeholders in secure transactions, to discourage incidences of fraudulence, and to demystify operations of banks.

Mobile Banking: Facilitating client's ability to access banking services, increased penetration of the financial sector, and real-time business transactions.

Internet of Things (IoT): Security measures of the banks should be increased; ways of customer services should be automated and the overall efficiency of a bank should be increased. (Kissflow, 2023)

2.2 Banking Operations Efficiency

Banking process efficiency is another area of concern that is affected by technological advancement for operations. Various research show that the use of the technologies in banks can help in cutting costs, accelerate the time taken in undertaking the transactions and reduce the incidences of errors. (Hughes and Mester, 2008)

Findings from Literature:

Automation of Routine Tasks: They are able to lessen the load of working tasks like data input, processing of transactions, and account management among others.

Cost Reduction: Mobile banking and the use of online platforms requires little physical infrastructure and so deliver a blow to overhead expenses.

Time Efficiency: Adoption of automation and artificial intelligence helps in processing transactions in a faster way thus improving operational efficiency. (web developer, 2024)

2.3 Customer Experience

The use of advanced technology products including social applications, artificial intelligent chat bots and personalized banking solutions has made banking easier, convenient, reliable and easy to access.

Findings from Literature:

24/7 Availability: Online and mobile banking makes customers enable banking services at any time without necessarily waiting for banking standard time.

Personalization: Another key development is that with the help of AI and machine learning techniques, customers receive individualized advisory services, individualized services providing, and casualized products based on customers' behaviors or data.

Improved Communication: The use of chatbots and virtual assistants ensures that the customers' queries are responded to in real-time, hence promoting satisfaction. (Raineri, 2023)

2.4 Employee Productivity

Automation from technological improvement has also enhanced the flow of increased productivity among the banks' employees because it helps engage their time performing other key activities that cannot be mechanized while giving them real-time information.

Findings from Literature:

Reduction of Manual Tasks: Technology helps to reduce the paperwork burden so that employees can concentrate on such functions as decision making and customer care.

Enhanced Training: Use of technology and the internet allows the employee to access training information and update their knowledge and thus increase their productivity.

Collaboration Tools: Information sharing technologies in one place and collaborative tools in today's workplace enhance teamwork resulting in efficient management of communication. (Gao, 2021)

2.5 Security and Compliance

Aging technology in banking has impacted a new challenge on security and regulatory compliance. Presenting innovations like biometric verification, blockchain, and the use of Artificial Intelligence in the detection of fraudulent acts make security and compliance more comprehensive.

Findings from Literature:

Cybersecurity: Such systems also assist in identifying possible fraud activities making the security of banking systems better.

Compliance Automation: Regulatory technology solutions which cut across all the four dimensions of Regulatory Technology are used by banks for managing their compliance processes where regulatory compliance is enacted as well as monitored and audited in accordance with operational financial regulations.

Biometrics & Encryption: Other measures include the use of biometric tools such as fingerprints and facial recognition, encryption algorithms to further safeguard customer 's information. (D4 Insight, 2024)

2. 6 Adoption and Awareness of Technologies

IT implementation in the banking sector thus requires customer and employee awareness as well as acceptance of new technology tools. The degree of diffusion of innovations, the extent to which telecommunications technologies incorporated user-friendly designs, and the level of telecommunications users' digital literacy play the key roles in the rates of adoption.

Findings from Literature:

Customer Education: It therefore makes sense that banks have come up with awareness campaigns that inform their clients of the use of digital banking services.

Resistance to Change: Part of the research shows that employees and customers have always resisted new technology implementations because of their unfamiliarity with those new systems.

Ease of Use: Easy to adapt interfaces and easy to understand platforms and tools bring higher rate of new technology adoption. (Nexgits Private Limited, 2023)

3. Methodology

3. 1 Population

The target population of this study is made up of the stakeholders of the government banks that are operating within Kandy city limit. The participants are chosen intentionally to recruit as many roles as is possible in the banking sector and the customers differ in the amount of experience they possess when it comes to dealing with banks.

3. 2 Sampling Method

A convenient sampling method was used. The survey was conducted electronically, and participants are either an internal or external stakeholder of either government bank in the Kandy district. This method was used because of the availability of the participants and the time limit of the given investigation.

3. 3 Sources of Data Collection and Tools

Survey data were obtained through web-based questionnaires. Questionnaire: The survey was composed of multiple-choice questions, Likert scale, and semi-structured questions to evaluate the respondents' experience, knowledge, and attitude toward technological innovation in the government banking system.

3. 4 Brief Analysis in Relation to Limitations of Study

The study may also be affected by the lack of randomized sampling whereby the researcher uses a random sample of the entire population which may lead to bias. The sample size to some extent is also limited by the number of people using the internet and willing to participate in the survey which may also lead to limitations in its generalization of the research study finding.

3. 5 Research Design

To assess the current effects of new technologies in organizational operations of government banking in the Kandy area, the research uses cross-sectional research model which involves collecting data at just one time.

3. 6 Research Method

A quantitative research approach was used to administer structured questionnaires for the assessment of the participants' perception and encounter.

3. 7 Cost as well as Ethical Considerations

The cost which would be incurred for the study was nil, majorly encompassing completion and administering of the online questionnaire. Ethical considerations that was taken include management of respondent's identity and their information. All subjects were told the aim of the research and agreed for use of data collected from them for research purposes.

4. Conceptual Framework

4.1 Independent and dependent variables

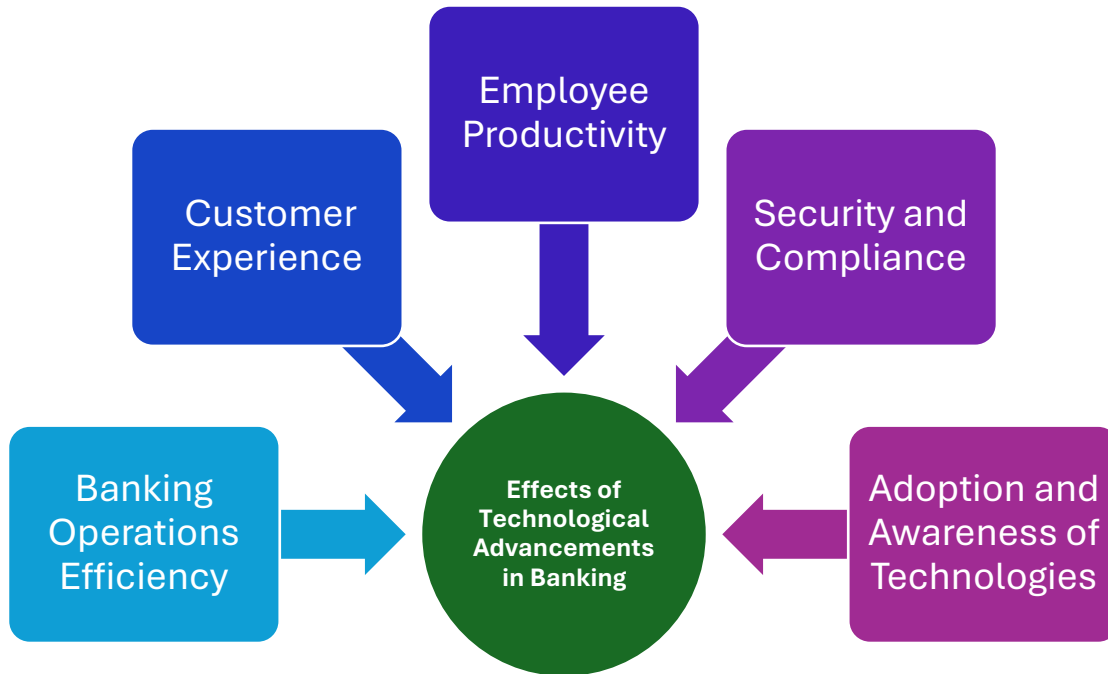


Figure.1 Independent and Dependent Variables

4.2 Hypothesis Development

Efficiency of Banking Operations:

H₀: There is no significant effect of technological advancement on the operational efficiency of the banking institutions.

H₁: There is a significant positive effect of technological advancement on the operational efficiency of banking institutions.

Customer Experience:

H₀: Technological advancements in banking do not have any significant effect on customer experience.

H₁: Technological advancement in banking significantly enhances customer experience.

Employee Productivity:

H₀: The technological advancement in banking has no significant impact on the productivity of the employees.

H₁: The technological advancement in banking has a significant impact on the productivity of the employees.

Security and Compliance:

H₀: Banking technological changes have no significant impact on security and compliance in banking.

H₁: Banking technological changes have a significant impact on security and compliance in banking.

Adoption and Awareness of Technologies:

H₀: The technological advancement in banking does not significantly influence the adoption and awareness of new banking technologies among customers.

H₁: The technological advancement in banking does significantly influence the adoption and awareness of new banking technologies among customers.

5. Questionnaire

“The Impact of Technological Advancements on Government Banking Operations within the Kandy Area,”

Each of these points plays a vital role in understanding how technology is influencing the banking sector and the government’s ability to manage its financial operations in the region. Here’s how each section relates to the research:

Demographics.

Understanding the demographics of the Kandy area provides insight into the target population affected by technological changes in government banking. It includes variables like age, education, income levels, and digital literacy. These are the constraining aspects about the different categories of individuals in terms of the ways that they interact with the new systems being instituted in banking.

Awareness and Adoption.

This portion of the study aims to evaluate the level at which individuals know of new technologies and their corresponding likelihood of using them. It is also important to measure how both the general and specific populations are aware of or use online banking systems, mobile banking applications or any form of Fintech. Increasing the level of sensitization helps improve the levels of technology adoption and implementation but where this is not done then the efforts may stall.

Operational Impact.

The influence of technological development in the field of banking also touches on the efficiency with which the government performs its banking functions. This entails the replacement of physical work with computerized work, improving inter-office communication and management and lowering costs related to transactions. How these technologies will impact organizations such

as government institutions given that they are expected to change certain operations like payment systems, reporting systems and budget systems is also very important to consider.

Customer Experience.

Government banking operations serve a vast number of citizens. Technological advancements have a direct impact on customer satisfaction, making services more accessible, faster, and reliable. Evaluating the shift in customer experience helps gauge whether the changes are beneficial and where improvements are needed.

Security and Compliance.

With new technologies come challenges related to “data security, privacy, and regulatory compliance. This section examines how well government banks in the Kansas area are implementing secure systems, protecting customer data, and adhering to legal frameworks. Any gaps here can undermine trust and affect the success of these technological transformations.

General Feedback.

Collecting feedback from both customers and employees involved in government banking operations is crucial. This provides qualitative data on the real-world impacts of technological advancements. It helps identify the key concerns, benefits, and suggestions for improving services and technology use.

Technology Awareness.

Specific attention to the knowledge and understanding of various technological tools and platforms is necessary to analyze how effectively they are being integrated. Government banking operations might introduce new tools, but without proper training and knowledge dissemination, their usage could be limited.

Future Expectations.

This section investigates what people, both government employees and citizens, expect from future technological advancements in government banking. It can provide valuable insights into the potential demand for innovations like artificial intelligence (AI) in banking, blockchain for transaction security, or further automation of processes.

6.Data Analysis

- Here we focus on two stakeholders who participate in banking activities. They are the bank employees who work there and the customers who get benefits and services from those banks. Therefore, here we are doing our analysis for those two parties separately,
- The collective data relevant to our analysis are as follows: **sixty employees and sixty customers** relevant to our specifications.
- Our data analysis proceeds through Eight sections. It is given in questionnaire (5) section of our report.

6.1 Data Analysis in Customer side

6.1.1 Descriptive Statistics

1. Demographics

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
Your role in the government banking sector :	60	0	1	1	1.00	.000	.000	.000	.	.	.	.
If you are a bank employee, choose years of experience in the banking sector. If you are a customer, select the period of time you are dealing with the bank	60	4	1	5	3.35	.157	1.219	1.486	.043	.309	-1.428	.608
Gender	60	1	1	2	1.65	.062	.481	.231	-.645	.309	-1.640	.608
Do you have technical skills?	60	1	1	2	1.13	.044	.343	.118	2.213	.309	2.996	.608
Valid N (listwise)	60											

The frequency table displays information on the demographic characteristics of government banking for a sample of sixty respondents. The sector's mean for roles is 1.00, indicating that the workforce is uniform. Three to five years of experience are indicated by the years of experience mean of 3.35. The gender means of 1.65 indicates a bias in favor of men. Most respondents have technical skills, as indicated by the mean of 1.13 for technical skills. The sample is well-balanced, with a small male predominance. The large number of respondents who mentioned technical skills suggests that they were highly adaptive to the quick developments in technology in the banking sector. The study's perception of technological advancements will be influenced by these demographics. Regression analysis, ANOVA, and t-tests are examples of inferential statistics that can be used to

2.Awareness

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
How aware are you of recent technological advancements in the banking sector?	60	2	1	3	1.68	.073	.567	.322	.090	.309	-.591	.608
How would you rate the overall adoption of new technologies in your branch?	60	4	1	5	2.27	.146	1.133	1.284	1.474	.309	1.635	.608
Valid N (listwise)	60											

The table presents descriptive statistics on awareness and adoption of new technologies in the banking sector. The mean awareness is moderate, with a range of 1 to 3. The overall adoption rate is between "Good" and "Fair," with a slightly negative skewness. The mean adoption rate is slightly higher, with a skew towards poorer ratings. The findings suggest that awareness-building efforts may be needed to become more familiar with new technologies. The adoption rate is generally between Good and Fair, but with a skew towards poorer ratings, suggesting dissatisfaction or room for improvement. These findings suggest that more efforts are needed in awareness building and actual adoptions at branch levels. Further analysis could explore the relationship between these factors and other variables like employee productivity, customer experience, or security.

3.Operational Impact

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Have these advancements improved the efficiency of your work processes?	60	1	1	2	1.07	.032	.252	.063	3.564	.309	11.071	.608
Have you encountered any challenges while adapting to new technologies?	60	1	1	2	1.50	.065	.504	.254	.000	.309	-2.070	.608
Valid N (listwise)	60											

The data shows that almost all respondents believe technological advancements have improved customer satisfaction. The mean is 1.03, with a range of 1 to 2 and a small standard deviation. The distribution is highly positively skewed towards the lower end of 1 = Yes, indicating a large proportion of respondents believe this improvement has occurred. The data supports the hypothesis that technological advancements in banking have a positive influence on customer experience. Further analysis using t-tests or regression can compare this with other factors like employee productivity or operational efficiency.

4. Customer Experience

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
Do you believe that these advancements have improved customer satisfaction?	60	1	1	2	1.03	.023	.181	.033	5.334	.309	27.360	.608
Valid N (listwise)	60											

The survey data reveals a medium level of demand for additional technological features in a bank, with respondents expressing moderate demand for new features. The likelihood of continuing to use these services is high, with most respondents recording a strong probability of continuing to use them. The data suggests that while some users want new features, others remain indifferent. The bank should focus on maintaining existing services while developing new features, as some users have expressed demand at a moderate level. The security aspect of the survey is also analyzed, with a high positive skewness and a low dispersion. The findings suggest that the bank should prioritize maintaining existing services while developing new features.

Descriptive Statistics											
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic Std. Error		Std. Deviation Statistic	Variance Statistic	Skewness Statistic Std. Error		Kurtosis Statistic Std. Error	
What are your expectations regarding the future impact of tech2logy on your work/life?	60	1	3	1.90	.097	.752	.566	.168	.309	-1.190	.608
Valid N (listwise)	60										

The study involved 60 participants and asked them to scale their expectations on the future impact of technology on work life. The average score was 1.90, with a high standard deviation and variance. The distribution was negative-skewed, with a small minority having low expectations. The kurtosis was 6.08, indicating a leptokurtic distribution. Most respondents expected moderation, with a small minority having very low expectations. The results suggest a moderated expectation of technology's impact on work life.

Technology awareness

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
How do you usually access banking services?	60	4	1	5	2.85	.138	1.071	1.147	-.376	.309	-.818	.608
How would you rate your experience with the bank's online or mobile banking services?	60	4	1	5	2.37	.158	1.221	1.490	1.217	.309	.547	.608
Do you feel that the new technologies have made banking more convenient for you?	60	2	1	3	1.27	.085	.660	.436	2.208	.309	3.156	.608
Valid N (listwise)	60											

The study found that most respondents use multiple channels to access banking services, with a mean response of 2.85. They also rate their experience with the bank's online or mobile banking services positively, with a mean rating of 2.37. The majority of respondents believe new technologies have made banking more convenient, with a mean response of 1.27.

Future experience

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
What additional technological features or services would you like to see in your bank?	60	3	1	4	2.05	.133	1.032	1.065	.471	.309	-1.040	.608
How Likely are you to continue using the bank's technological services in the future?	60	2	1	3	1.23	.060	.465	.216	1.806	.309	2.492	.608
Valid N (listwise)	60											

The study found an average interest in additional technological features or services from a bank, with a moderate spread and a mean of 2.05. The average response was 1.23, suggesting a moderate likelihood of continuing to use the bank's services, with a low standard deviation.

6.1.2 T Test and ANOVA Test

Group Statistics					
	Do you have technical skills?	N	Mean	Std. Deviation	Std. Error Mean
How Likely are you to continue using the bank's technological services in the future?	1	52	1.19	.398	.055
	2	8	1.50	.756	.267

Independent Samples Test											
		Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
How Likely are you to continue using the bank's technological services in the future?	Equal variances assumed	10.102	.002	-1.776	58	.041	.081	-.308	.173	-.655	.039
	Equal variances not assumed			-1.127	7.608	.147	.294	-.308	.273	-.943	.327

Independent Samples Effect Sizes

				95% Confidence Interval	
Standardizer ^a			Point Estimate	Lower	Upper
How Likely are you to continue using the bank's technological services in the future?	Cohen's d	.456	-.674	-1.426	.083
	Hedges' correction	.462	-.666	-1.407	.082
	Glass's delta	.756	-.407	-1.167	.379

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

The study consists of 60 respondents divided into two groups: those with technical skills and those without. The likelihood of continued use is measured using a scale from 1 to 2. Group 1 has a higher likelihood of continued use, with a mean response rate of 1.19, while Group 2 has a lower likelihood of continued use, with an average response rate of 1.50.

The results show that customers with technical skills are more likely to continue using the bank's technological services in the future. However, the sample size in Group 2 may limit generalization of these findings. Levene's Test for Equality of Variances confirms that there is a significant difference between the way people with technical skills and those without will use the bank's technology services.

The mean difference of -0.308 between the two groups indicates that individuals with technical skills have a greater chance of continuing to use the bank's technological services compared to those without technical skills. The standard error of difference, which describes the dispersion on the mean difference, is 0.173, and the confidence interval within the range from -0.655 to 0.039.

In conclusion, the study confirms that there is a significant difference between the way people with technical skills and those without will use the bank's technology services. It is expected that those with technical skills will use them more frequently.

The study found a moderate to large difference in the likelihood of individuals using a bank's technological services between those with and without technical skills. The effect size was 0.456, indicating a medium-large effect size. The Hedges' correction was slightly larger than Cohen's d, and Glass's delta was 0.756, indicating a significant difference. However, the statistical significance of these differences is uncertain based on confidence intervals

ANOVA

ANOVA					
Do you have technical skills?					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.211	4	.553	6.438	<.001
Within Groups	4.722	55	.086		
Total	6.933	59			

Key findings:

- For Between Groups: The SS is 2.211; df is 4; MS is 0.553; F is 6.438; and Sig. is less than 0.001.
- Within Groups: SS = 4.722, df = 55, MS = 0.086.
- Total: SS = 6.933, df = 59.

The overall implication from the ANOVA results is that there is a significant statistical difference in the chances of the usage of the bank's technological services by a person with and without technical skills. The F value of 6.438 and the significance of less than 0.001 imply that the difference among the groups will not be due to chance factors.

ANOVA Effect Sizes ^a				
		Point Estimate	95% Confidence Interval	
			Lower	Upper
Do you have technical skills?	Eta-squared	.319	.090	.449
	Epsilon-squared	.269	.024	.409
	Omega-squared Fixed-effect	.266	.023	.405
	Omega-squared Random-effect	.083	.006	.145

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

Key findings:

- Eta-squared: The effect size is 0.319, representing the effect size according to Cohen's guidelines: medium effect size, which indicates that there is a moderately large difference between groups.
- Epsilon-squared: This represents an effect size of 0.269, also indicating a medium-sized effect. It is slightly smaller as compared to eta-squared.
- Omega-squared (Fixed-effect): This effect size is 0.266, also presenting a medium effect size.

•: Omega-squared (Random-effect): The effect size is 0.083 and this is considered a small effect size.

Overall, the effect sizes give an impression of a moderate difference between people who possess technical skills and people who do not, as far as their tendency to apply the technological services offered by this bank is concerned. However, the magnitude of the effect is relative and varies on the specific measure of the effect size.

6. Pearson Correlation

Correlations						
		Your role in the government banking sector :	If you are a bank employee, choose years of experience in the banking sector. If you are a customer, select the period of time you are dealing with the bank	Gender	Do you have technical skills?	Age
Your role in the government banking sector :	Pearson Correlation	. ^a	. ^a	. ^a	. ^a	. ^a
	Sig. (2-tailed)		.	.	.	.
	N	60	60	60	60	60
If you are a bank employee, choose years of experience in the banking sector. If you are a customer, select the period of time you are dealing with the bank	Pearson Correlation	. ^a	1	-.106	.049	.477**
	Sig. (2-tailed)	.		.422	.712	<.001
	N	60	60	60	60	60
Gender	Pearson Correlation	. ^a	-.106	1	.082	.043
	Sig. (2-tailed)	.	.422		.532	.742
	N	60	60	60	60	60
Do you have technical skills?	Pearson Correlation	. ^a	.049	.082	1	.375**
	Sig. (2-tailed)	.	.712	.532		.003
	N	60	60	60	60	60
Age	Pearson Correlation	. ^a	.477**	.043	.375**	1
	Sig. (2-tailed)	.	<.001	.742	.003	
	N	60	60	60	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

a . Cannot be computed because at least one of the variables is constant.

The study focuses on factors such as government banking designation, years of experience, gender, age, and technical skills. The correlation matrix shows a strong positive correlation between years

of experience and age, suggesting that longer experience in the banking sector leads to older individuals. However, no significant relationship was found between gender and other variables. Technical skills showed weak or insignificant correlations with other variables. Further analysis is needed to understand the relationships between variables, including variable definitions, sample size and characteristics, and causality.

2. Awareness and Adoption

Correlations

		How aware are you of recent technological advancements in the banking sector?	How would you rate the overall adoption of new technologies in your branch?
How aware are you of recent technological advancements in the banking sector?	Pearson Correlation	1	.424**
	Sig. (2-tailed)		<.001
	N	60	60
How would you rate the overall adoption of new technologies in your branch?	Pearson Correlation	.424**	1
	Sig. (2-tailed)	<.001	
	N	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

A correlation matrix was used to test the relationship between awareness of recent technological advancements in the banking sector and the adoption of new technologies in branches. The results showed a strong positive correlation between awareness and adoption of new technologies. The p-value was less than 0.001, confirming the statistical significance. The results suggest that greater awareness of technological changes in the banking industry leads to increased support for technology adoption. However, the correlation matrix does not imply causation, and further research is needed to determine if increased awareness leads to higher adoption rates or vice versa. The sample size was small, making the results not generalizable to a larger population.

3.Operational Impact

Correlations

		Have these advancements improved the efficiency of your work processes?	Have you encountered any challenges while adapting to new technologies?
Have these advancements improved the efficiency of your work processes?	Pearson Correlation	1	.134
	Sig. (2-tailed)		.309
	N	60	60
Have you encountered any challenges while adapting to new technologies?	Pearson Correlation	.134	1
	Sig. (2-tailed)	.309	
	N	60	60

The correlation matrix tests two factors related to workplace technology adoption: improved work process efficiency and difficulties in adjusting to new technologies. The results show a weak positive correlation between perceived improvements in work process efficiency and challenges faced during technology adaptation. However, this relationship is not statistically significant, suggesting it could be a chance-based relationship. The study has limitations, including the inability to determine the causative factor, other factors like employee training or new technology nature, and a small sample size of only 60. Therefore, more detailed studies are needed to draw conclusive conclusions.

Correlations

		How do you usually access banking services?	How would you rate your experience with the bank's online or mobile banking services?	Do you feel that the new technologies have made banking more convenient for you?
How do you usually access banking services?	Pearson Correlation	1	-.074	-.278*
	Sig. (2-tailed)		.575	.031
	N	60	60	60
How would you rate your experience with the bank's online or mobile banking services?	Pearson Correlation	-.074	1	.528**
	Sig. (2-tailed)	.575		<.001
	N	60	60	60
Do you feel that the new technologies have made banking more convenient for you?	Pearson Correlation	-.278*	.528**	1
	Sig. (2-tailed)	.031	<.001	
	N	60	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix tests three factors related to online or mobile banking services: access method, customer satisfaction, and perceived convenience. The results show a weak negative correlation between access method and experience, a strong positive correlation between experience and perceived convenience, and a weak negative correlation between access method and perceived convenience. The study suggests that those who prefer traditional methods may have slightly lower satisfaction with online or mobile banking. The strong positive correlation between experience and perceived convenience suggests that those with good experiences with online or mobile banking are more likely to perceive new technologies as making banking more convenient.

8.Future Expectations

Correlations

		What additional technological features or services would you like to see in your bank?	How Likely are you to continue using the bank's technological services in the future?
What additional technological features or services would you like to see in your bank?	Pearson Correlation	1	.011
	Sig. (2-tailed)		.936
	N	60	60
How Likely are you to continue using the bank's technological services in the future?	Pearson Correlation	.011	1
	Sig. (2-tailed)	.936	
	N	60	60

The correlation matrix tests for an association between two variables related to a bank's technological services: interest in more features or services and likelihood of continuing to use the services. The results show no significant statistical correlation, with a 0.011 correlation coefficient and a p-value of 0.936. This suggests that the desire for additional features is not a strong predictor of future usage behavior. However, the correlation matrix has limitations, including potential causation, other factors affecting the relationship, and a sample size of only 60, which may not be representative of every population.

6.1.3 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.593 ^a	.352	.317	.384

a. Predictors: (Constant), Do you believe that these advancements have improved customer satisfaction?, Do you have technical skills?, Have these advancements improved the efficiency of your work processes?

6.1.4 Correlational Analysis

Correlations

		Your role in the government banking sector :	If you are a bank employee, choose years of experience in the banking sector. If you are a customer, select the period of time you are dealing with the bank	Gender	Do you have technical skills?	Age
Your role in the government banking sector :	Pearson Correlation	. ^a	. ^a	. ^a	. ^a	. ^a
	Sig. (2-tailed)		.	.	.	.
	N	60	60	60	60	60
If you are a bank employee, choose years of experience in the banking sector. If you are a customer, select the period of time you are dealing with the bank	Pearson Correlation	. ^a	1	-.106	.049	.477**
	Sig. (2-tailed)	.		.422	.712	<.001
	N	60	60	60	60	60
Gender	Pearson Correlation	. ^a	-.106	1	.082	.043
	Sig. (2-tailed)	.	.422		.532	.742
	N	60	60	60	60	60
Do you have technical skills?	Pearson Correlation	. ^a	.049	.082	1	.375**
	Sig. (2-tailed)	.	.712	.532		.003
	N	60	60	60	60	60
Age	Pearson Correlation	. ^a	.477**	.043	.375**	1
	Sig. (2-tailed)	.	<.001	.742	.003	
	N	60	60	60	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

[illegible]

The table provides descriptive statistics for the **Educational Background** of 60 respondents. Here's a summary of the key insights:

- **Mean:** 4.15, which suggests that on average, respondents have a diploma or higher level of education (since 4 corresponds to "Diploma/Higher National Diploma" and "Graduate/Undergraduate").
- **Standard Deviation:** 1.055, showing moderate variability in the educational background of the respondents.
- **Skewness:** -0.310, indicating a slight skew towards higher educational levels (as the skewness is negative, the distribution is leaning toward higher values).
- **Kurtosis:** -0.998, which suggests that the distribution is somewhat flatter than a normal distribution, indicating a spread-out range of educational levels

In summary, the information reveals that participants have an average of more education, with the majority falling into the diploma/undergraduate range or above. Although there is some variation in educational background, most people have at least a bachelor's degree.

Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic Std. Error		Std. Deviation Statistic	Skewness Statistic Std. Error		Kurtosis Statistic Std. Error	
If you are a bank employee, choose years of experience in the banking sector.	60	4	1	5	3.35	.196	1.516	-.262	.309	-1.472	.608
Do you have technical skills?	60	1	1	2	1.12	.042	.324	2.450	.309	4.139	.608
Age	60	42	15	57	36.40	1.486	11.510	.100	.309	-1.081	.608
Gender	60	1	1	2	1.60	.064	.494	-.419	.309	-1.889	.608
Your role in the government banking sector :	60	6	1	7	3.42	.228	1.769	.266	.309	-.596	.608
Valid N (listwise)	60										

- **Standard Deviation:** 11.510
 - **Skewness:** 0.100 (close to symmetric)
 - **Kurtosis:** -1.081 (platykurtic)
4. **Gender:**
- **N:** 60
 - **Range:** 1 (1 to 2, likely indicating Male/Female)
 - **Mean:** 1.60
 - **Standard Deviation:** 0.494
 - **Skewness:** -0.419 (slightly left-skewed)
 - **Kurtosis:** -1.889 (platykurtic)
5. **Role in the Government Banking Sector:**
- **N:** 60
 - **Range:** 6 (1 to 7)
 - **Mean:** 3.42
 - **Standard Deviation:** 1.769
 - **Skewness:** 0.266 (slightly right skewed)
 - **Kurtosis:** -0.596 (platykurtic)

An outline of the traits of sixty respondents who are employed by government banks is given by the descriptive statistics. The range of experience among the respondents is 1 to 5 years, with an average of 3.35 years. A concentration of workers with fewer years of experience is indicated by the experience distribution's small leftward tilt. The data is strongly skewed to the right, indicating that most respondents have just rudimentary technical skills. The respondents' mean score on a scale of 1 to 2 is 1.12.

The respondents' range in age from 15 to 57 years old, with an average age of 36.4 years. There is some degree of symmetry in this age distribution. The mean value of 1.60 in the gender statistics indicates a minor skew towards one gender; however, the precise gender distribution is not specified. With an average role score of 3.42 on a scale of 1 to 7, respondents' responsibilities within the banking industry vary, and this distribution is significantly tilted to the right. In general,

the data shows a heterogeneous workforce in the government banking industry, with a range of ages, positions, and technical expertise.

2. Awareness and Adoption

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
How aware are you of recent technological advancements in the banking sector?	60	2	1	3	1.53	.069	.536	.287	.206	.309	-1.246	.608
How would you rate the overall adoption of new technologies in your branch?	60	2	1	3	1.65	.082	.633	.401	.443	.309	-.627	.608
Valid N (listwise)	60											

1. Awareness of Recent Technological Advancements in the Banking Sector:

- **N:** 60
- **Range:** 2 (1 to 3)
- **Mean:** 1.53
- **Standard Deviation:** 0.536
- **Variance:** 0.287
- **Skewness:** 0.206 (slightly right skewed)
- **Kurtosis:** -1.246 (platykurtic, indicating a flatter distribution)

2. Rating of Overall Adoption of New Technologies in the Branch:

- **N:** 60
- **Range:** 2 (1 to 3)
- **Mean:** 1.65
- **Standard Deviation:** 0.633
- **Variance:** 0.401
- **Skewness:** 0.443 (right skewed)
- **Kurtosis:** -0.627 (platykurtic)

The data under this subject reflects the respondents' opinions and level of knowledge about technical advancements in the banking industry. The present technical breakthrough awareness score had a mean of 1.53 and a standard deviation of 0.536 on a scale from 1 to 3. This suggests a moderate degree of consciousness. The distribution is mostly flat with a small rightward displacement, and there is very little concentration of lower levels of awareness. The

respondents gave the issue of general technological adoption in their respective industries a mean score of 1.65 and a standard deviation of 0.633. Additionally, this distribution has a positive bias. This implies that there is adoption, however at a moderate or low level rather than to the extent that is understood. The replies are more dispersed around the average and do not all cluster together at a single moment in time for each of the two variables, indicating that the respondents have a range of experiences and viewpoints.

3. Operational Impact

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Have these advancements improved the efficiency of your work processes?	60	1	1	2	1.03	.023	.181	.033	5.334	.309	27.360	.608
Have you encountered any challenges while adapting to new technologies?	60	1	1	2	1.08	.036	.279	.078	3.093	.309	7.826	.608
Valid N (listwise)	60											

1. Improvement in Work Efficiency due to Technological Advancements:

- **N:** 60
- **Range:** 1 (1 to 2)
- **Mean:** 1.03
- **Standard Deviation:** 0.181
- **Variance:** 0.033
- **Skewness:** 5.334 (highly right-skewed)
- **Kurtosis:** 27.360 (leptokurtic, indicating a highly peaked distribution)

2. Challenges Encountered While Adapting to New Technologies:

- **N:** 60
- **Range:** 1 (1 to 2)
- **Mean:** 1.08
- **Standard Deviation:** 0.279
- **Variance:** 0.078
- **Skewness:** 3.093 (highly right-skewed)
- **Kurtosis:** 7.826 (leptokurtic)

The data above indicates that respondents share information about how they view the usage of contemporary technology tools in the workplace, the issues that arise from this, and the opportunities that now exist. The mean improvement in work efficiency on a scale of 1 to 2 was 1.03, with a relatively low standard deviation of 0.181. Given the extreme right-skewedness of this distribution, most respondents think that work efficiency has significantly improved. Similarly, at 1.08 (standard deviation=0.279), the mean score for encountering difficulties adjusting to the new technologies is likewise comparatively high. This data has a strong right-skewed distribution, indicating that a significant number of participants have encountered some challenges during the adaptation phase. The leptokurtic distribution of both variables indicates that respondents had a consensus regarding their experiences with modern technologies and the difficulties they have encountered.

4. Customer Experience

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean		Std. Deviation Statistic	Variance Statistic	Skewness		Kurtosis	
					Statistic	Std. Error			Statistic	Std. Error	Statistic	Std. Error
Do you believe that these advancements have improved customer satisfaction?	60	1	1	2	1.07	.032	.252	.063	3.564	.309	11.071	.608
Valid N (listwise)	60											

- **Sample Size (N):** 60 respondents answered the question.
- **Range:** The responses range between 1 and 2, which might indicate binary options such as "Yes" (2) and "No" (1).
- **Mean:** The average response is 1.07, suggesting that most respondents answered "No" (or the equivalent value 1).
- **Standard Deviation:** The standard deviation is 0.252, showing a small spread in responses, meaning that most answers were similar (close to 1).
- **Skewness:** The skewness is 3.564, which is a highly positive skew, indicating that most responses are clustered around the lower value (likely "No"), with fewer people selecting the higher value (likely "Yes").
- **Kurtosis:** A kurtosis of 11.071 indicates that the distribution is very peaked, meaning responses are concentrated near the mean.

According to the respondents' stance as revealed by the descriptive data, modernization has not sufficiently improved the situation. To a certain extent, they also agree that customer satisfaction has not increased because of the developments. A mean of 1.07 and a tiny standard deviation of 0.252 suggest that most respondents agreed with the "No" answer. Most respondents accept the negative value, indicating a very strong center of gravity for the probability distribution, as evidenced by the high kurtosis value of 11.071 and positive skewness value of 3.564. This suggests that the respondents' level of belief in these proposals is rather low.

5. Security and Compliance

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
What are your expectations regarding the future impact of technology on your work/life?	60	2	1	3	1.50	.081	.624	.390	.864	.309	-.226	.608
Valid N (listwise)	60											

- **Sample Size (N):** 60 respondents answered this question.
- **Range:** The range is 2, with responses varying between 1 and 3, possibly corresponding to options such as low, moderate, or high expectations.
- **Mean:** The mean response is 1.50, indicating that the average respondent's expectation is between low and moderate.
- **Standard Deviation:** The standard deviation is 0.624, indicating a moderate spread in the responses.
- **Skewness:** A positive skewness of 0.864 suggests that more respondents leaned toward lower expectations (closer to 1).]
- **Kurtosis:** The kurtosis of -0.226 suggests a normal, slightly flattened distribution, meaning responses are not tightly concentrated around the mean.

According to the statistics, respondents' expectations for how technology will affect their job and personal lives in the future vary, with the average response (mean of 1.50) indicating a moderate level of optimism. The range of replies from 1 to 3 indicates that while some respondents probably anticipate a minimal impact, others anticipate a more substantial impact. The replies exhibit a noticeable diversity, as indicated by the moderate standard deviation of

0.624, but the skewness of 0.864 suggests a tendency towards lower expectations. The information points to a generally optimistic assessment of technology's future effects.

6. General Feedback

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
What is your overall opinion on the impact of technological advancements in your branch?	60	2	1	3	1.60	.068	.527	.278	-.057	.309	-1.228	.608
Valid N (listwise)	60											

- **Sample Size (N):** 60 respondents answered this question.
- **Range:** The range is 2, with responses varying between 1 and 3, which might represent differing levels of opinion such as negative, neutral, or positive.
- **Mean:** The mean response is 1.60, suggesting that the overall opinion leans toward a neutral to slightly positive assessment of the impact of technological advancements.
- **Standard Deviation:** The standard deviation is 0.527, indicating that there is some variation in the responses, but not extreme.
- **Skewness:** A skewness of -0.057 suggests a nearly symmetrical distribution, meaning that the responses are evenly spread across the different opinion levels.
- **Kurtosis:** Kurtosis is -1.228, indicating a platykurtic distribution, where the responses are spread out and not concentrated around the mean.

The score analysis reveals that the average value of 1.60 implies that in general, technical improvements in these fields are considered neutral to somewhat beneficial. In the respondents' z-scores, the skewness is not even close to 1, showing that a considerable number of respondents are of neutral opinion. The respondents did not seem to agree that much, but a standard deviation of 0.527 indicates that there is indeed some room for differing opinions. Their viewpoints are scattered and that lowers the centrality tendency as measured by the kurtosis being – 1.228. The overall impression scheme presents a quite favorable view of the rapid changes in technology.

7. Technology Awareness

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
How would you rate your experience with the bank's online or mobile banking services?	60	4	1	5	1.78	.101	.783	.613	1.721	.309	5.099	.608
Do you feel that the new technologies have made banking more convenient for you?	60	2	1	3	1.43	.105	.810	.656	1.410	.309	.068	.608
Valid N (listwise)	60											

1. Rating of the experience with the bank's online/mobile services:

- **Mean:** 1.78 (on a scale of 1 to 5, with 1 likely being the lowest rating)
- **Standard Deviation:** 0.783, indicating moderate variation in the responses.
- **Skewness:** 1.721, suggesting that most respondents gave lower ratings, with a skew towards higher ratings being less frequent.
- **Kurtosis:** 5.099, indicating a peaked distribution, meaning that most respondents' answers are concentrated around the lower scores.

2. Perception of whether new technologies have made banking more convenient:

- **Mean:** 1.43 (on a scale of 1 to 3, with 1 likely being the lowest agreement)
- **Standard Deviation:** 0.810, showing a moderate spread in opinions.
- **Skewness:** 1.410, which suggests that most people rated the convenience as lower, with fewer higher ratings.
- **Kurtosis:** 0.068, indicating a more normally distributed set of responses.

In conclusion, these variables indicate that respondents generally gave their online banking experiences a low rating and agreed that new technology had made banking easier. It seems that most participants' responses were mostly consistent, clustering around lower scores, based

on the substantial skewness and kurtosis readings. This may indicate dissatisfaction or a low regard for the value of the current banking technologies.

8. Future Expectations

	Descriptive Statistics											
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
What additional technological features or services would you like to see in your bank?	60	3	1	4	2.90	.144	1.115	1.244	-.631	.309	-.957	.608
How 2 are you to continue using the bank's technological services in the future?	60	3	1	4	1.18	.069	.537	.288	3.552	.309	14.179	.608
Valid N (listwise)	60											

1. What additional technological features or services would you like to see in your bank?

- Mean: 2.90 (on a scale from 1 to 4), indicating respondents generally want more features or services.
- Standard Deviation: 1.115, showing a wide range of responses.
- Skewness: -0.631, indicating a slight skew towards higher ratings, meaning that respondents are generally asking for more features.
- Kurtosis: -0.957, suggesting the responses are relatively spread out rather than concentrated around the mean.

2. How likely are you to continue using the bank's technological services in the future?

- Mean: 1.18 (on a scale from 1 to 4), indicating a low likelihood of continuing to use the services.
- Standard Deviation: 0.537, showing that responses are more concentrated, with less variation compared to the first question.
- Skewness: 3.552, indicating a strong skew towards lower ratings, meaning many respondents rated this question on the lower end.

The first question indicates that respondents would like to see more technical features in their bank, based on a wide range of preferences. However, the second question's low mean and significant

skewness indicate that most respondents are not very likely to continue utilizing the bank's technical services. This suggests that consumers might not be satisfied with the bank's present technological offerings or might be hesitant to use them.

6.2.2 T-test

Group Statistics					
	Do you have technical skills?	N	Mean	Std. Deviation	Std. Error Mean
Educational Background	1	53	4.34	.960	.132
	2	7	2.71	.488	.184

Comprehending the Test: An independent samples t-test, which compares the means of two independent groups, is displayed in the provided table. The groups in this instance are probably divided based on educational attainment.

The findings provide compelling evidence that the means of the two groups differ significantly from one another. The interpretation of this discrepancy would rely on the study's background and the factors under comparison.

Independent Samples Effect Sizes					
		Standardizer ^a	Point Estimate	95% Confidence Interval	
Educational Background	Cohen's d	.922	1.763	.905	2.607
	Hedges' correction	.934	1.740	.894	2.573
	Glass's delta	.488	3.331	1.323	5.313

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

The provided table presents three common effect size measures for an independent samples t-test: Cohen's d, Hedges' g, and Glass's delta. These measures quantify the magnitude of the difference between two groups' means in relation to their standard deviations.

- **Cohen's d:** A widely used measure that standardizes the difference between means by dividing it by the pooled standard deviation.
- **Hedges' g:** A correction to Cohen's d that is more accurate for small sample sizes.
- **Glass's delta:** A measure that uses the standard deviation of the control group only, making it useful when the variances between groups are unequal.

According to the effect size study, the outcome variable is significantly impacted by educational background. This discovery can guide future investigations and initiatives about education and its consequences.

6.2.3 Regression, Anova, Correlation

Descriptive Statistics

	Mean	Std. Deviation	N
Do you have technical skills?	1.12	.324	60
Educational Background	4.15	1.055	60

Correlations

		Do you have technical skills?	Educational Background
Pearson Correlation	Do you have technical skills?	1.000	-.499
	Educational Background	-.499	1.000
Sig. (1-tailed)	Do you have technical skills?	.	<.001
	Educational Background	.000	.
N	Do you have technical skills?	60	60
	Educational Background	60	60

The association between technical skills and education is clearly described in the correlation table as follows: Table 2 indicates a linear relationship between educational background and technical competence.

Technical talents and educational background have an inverse association, according to the Pearson Correlation, with a relatively moderate negative coefficient of -0.499.

There is a claim that having a greater educational background reduces one's likelihood of possessing technical skills.

At that level, the correlation is accepted because the p-value, which supports the null hypothesis, is less than 0.001. This indicates that it is highly unlikely that the relationships between

technological proficiency, educational background, and global awareness were created by accident.

N/s Variable N (b) Sample magnitude Both variables Y and Sample Sekuen sition / Krim returned a sample size of sixty.

In conclusion, it is reasonable to conclude that there is a strong negative association between trading and educational background and the impact that trading has on education. In this instance, technical skills are less prevalent the more educated ones are. The result is significant at the 0.001 level for those who claim that a person's educational experience significantly influences their ability to possess technical skills.

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Educational Background ^b	.	Enter

a. Dependent Variable: Do you have technical skills?

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.499 ^a	.249	.236	.283

a. Predictors: (Constant), Educational Background

b. Dependent Variable: Do you have technical skills?

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.538	1	1.538	19.211	<.001 ^b
	Residual	4.645	58	.080		
	Total	6.183	59			

a. Dependent Variable: Do you have technical skills?

b. Predictors: (Constant), Educational Background

The table portrays the fact that there was a further analysis of variance where the educational background (independent variable) and technical skills (dependent variable) are related in the following manner: ANOVA.

Regression:

The Sum of Squares for regression is 1.538 which is taken to be the sum of squares attributed to the model.

The rest of the degree of freedom df is 1, which is in connection with that of the predictor.

The Mean Square is 1.538 which is simply the regression sum of squares over its degrees of freedom.

The value of F is 19.211. This refers to the proportion of variance in technical skills that has been brought up due to educational background.

Residual:

The residual Sum of Squares amounts to 4.645 the point which defines the unexplained variation by the model.

The df for the residual is 58 and it represent the number of samples n minus number of predictors k.

The Mean Square is .080. The residual sum of squares is divided by its degree of liberty.

Sig.:

The p-value that has been obtained is less than 0.001 meaning that the model is highly significant. This signifies that the educational background has a bearing on the ability to acquire technical skills.

Conclusion:

Therefore, the analysis of variance shows that the model taking into account such a predictor as an educational background for technical skills holds statistically valid value ($p < 0.001$). The F-value (19.211) indicates that educational qualifications do in fact influence technical skills.

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.752	.149	11.721	<.001	1.453	2.051
	Educational Background	-.153	.035	-.499	<.001	-.223	-.083

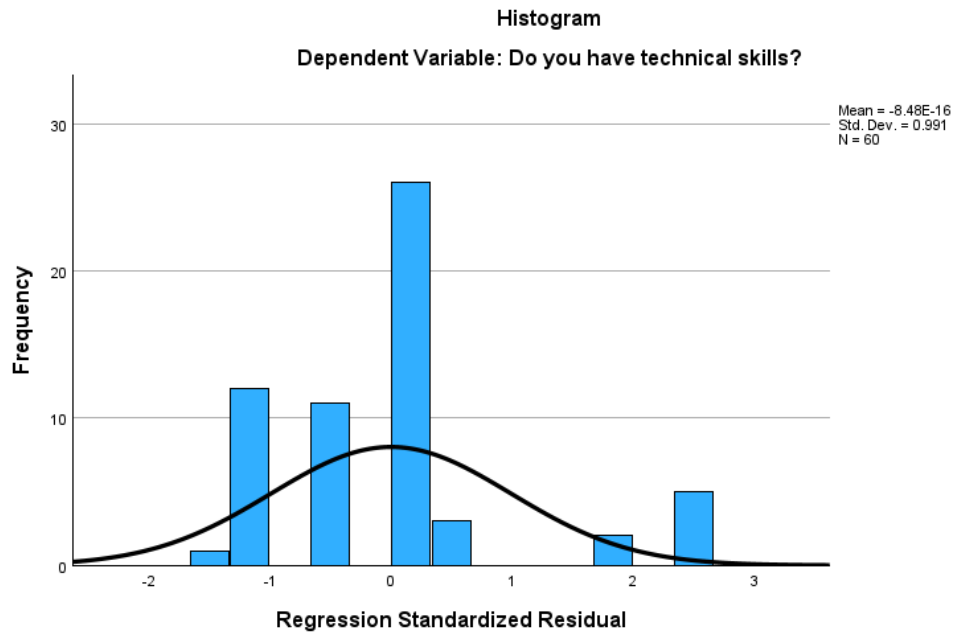
a. Dependent Variable: Do you have technical skills?

The educational background coefficient has a negative sign implying that higher education levels are less likely to have technical skills. This relationship is significant at a moderate negative level (Beta = - 0.499) which means that with an increase in educational background, there is a tendency to decrease in the technical skills which are possessed by an individual. The model is within acceptable ranges of reliability but has a good level of significance ($P < 0.001$).

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.83	1.45	1.12	.161	60
Residual	-.446	.707	.000	.281	60
Std. Predicted Value	-1.754	2.038	.000	1.000	60
Std. Residual	-1.575	2.499	.000	.991	60

a. Dependent Variable: Do you have technical skills?



7.Recommendations and Conclusion

Conclusion

This research on "The Impact of Technological Advancements on Government Banking Operations within the Kandy Area" illustrates considerable instances where modern technologies have taken the pivotal role in influencing contemporary government banking. It was found from this research that technological changes have improved operational efficiency, customer service, and employee performance among government banks within the Kandy region. Technologies such as artificial intelligence, machine learning, blockchain, and mobile banking have integrated into the bank to enhance processes, reduce costs, and also improve the service delivered. In addition, this study explains that the security measure and compliance issues are vital to engendering trust in customers for protection against data breach.

Despite such a broad range of advantages, several concerns were identified with regard to the acceptance of new technologies. Resistance to change on the part of employees and customers, proper training and support, and security and privacy of data were some concerns raised. The result shows that even with a lot of potential for technological advancements in banking operations, careful planning and strategic implementation would be needed to tackle these issues to maximize benefits.

Recommendations

Recommendations

1. Enhanced Training Programs:

- Design and provide overarching training programs for the employees so they are much better equipped with the skills and knowledge necessary for new technologies. Regular workshops and seminars overcome obstacles such as resistance to change and increase productivity on the whole.

2. Customer Awareness Campaigns:

Awareness campaigns to educate customers about how to avail the benefits of new technologies include tutorials, informative brochures, and other customer support services in order to make the shift to Digital Banking very smooth.

3. Robust Security Measures:

Advanced technologies-integration of biometric verification, encryption, and AI-driven fraud detection-will enhance the security protocols. In this way, it ensures data privacy and security to gain trust from customers and satisfy regulatory requirements.

4. Continuous Improvement and Feedback Mechanism:

Include a feedback mechanism to make valuable information from employees and customers available regarding their experiences with the new technologies introduced. That will give an indication of what may go wrong, and how effectively the technological solutions will meet the needs of all parties involved.

5. Planning of Strategic Technology Integration:

- Develop a strategy for the progressive adoption of new technologies, considering the peculiar needs and challenges such banking operations encounter in government machinery. This shall include a focused timeline, resource deployment, and key indicators of performance for monitoring progress regarding stated success goals.

6. Engagement with Technology Providers:

The collaborations regarding technology shall be strengthened with the providers for updated information on the situation in current development and to customize the solutions based on specific requirements of government banks. Technical support and know-how can also be arranged through such liaison.

By responding to the recommendations given above, government banks in Kandy would be in a better position to face challenges relating to the adoption of technology and to exploit modern advancements to enhance their operations, customer satisfaction, and general efficiency.

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8. Appendices

8.1 Questionnaire

"The Impact of Technological Advancements on Government Banking Operations within the Kandy Area"

wgchathurya1024@gmail.com [Switch accounts](#)

Not shared

* Indicates required question

Demographics | ජනවිකාස :

Your role in the government banking sector *

| රජයේ බැංකු ක්ෂේත්‍රයේ ඔබේ කාර්යභාරය:

☐ Manager | කළමනාකරු

☐ Assistant Manager | සහකාර කළමනාකරු

☐ Chashier | මුදල් අයකුම්

☐ IT Staff | තොරතුරු තාක්ෂණ කාර්ය මණ්ඩලය

☐ Clerk | ලේකරු

☐ Customer | පාරිභෝගිකයා

☐ other | අනෙක්

If you are a bank employee, select the bank you work for. If you are a customer, select the bank you deal with the most. | ඔබ බැංකු සේවකයෙක් නම්, ඔබ සේවය කරන බැංකුව තෝරන්න. ඔබ ගනුදෙනුකරුවෙකු නම්, ඔබ වැඩිපුරම ගනුදෙනු කරන බැංකුව තෝරන්න. *

Choose

If you are a bank employee, choose years of experience in the banking sector. If ^{*}
you are a customer, select the period of time you are dealing with the bank. | ඔබ
බැංකු සේවකයෙක් නම්, බැංකු සංගණය වසර ගණනාවක සම්පූර්ණ කෙරුණි. ඔබ
ගනුදෙනුකරුවෙකු නම්, ඔබ බැංකුව සමඟ ගනුදෙනු කරන කාල සීමාව තෝරන්න:

- ☐ Less than 1 year | වසර 1 ට අඩු
- ☐ 1-3 years | අවුරුදු 1-3
- ☐ 3-5 years | අවුරුදු 3-5
- ☐ 5-10 years | අවුරුදු 5-10
- ☐ More than 10 years | අවුරුදු 10 කට වැඩි කාලයක්

Educational Background | අධ්‍යාපනික සසම්බන්ධතා ^{*}

- ☐ Secondary Education | ද්විතියික අධ්‍යාපනය
- ☐ GCE Ordinary Level | සාමාන්‍ය පෙළ
- ☐ GCE Advanced Level | උසස් පෙළ
- ☐ Diploma / Higher National Diploma | ඩිප්ලෝමාව / උසස් ජාතික ඩිප්ලෝමාව
- ☐ Graduate / Undergraduate | උපාධිධාරී / උපාධි අපේක්ෂකයා
- ☐ Masters Degree | ශාස්ත්‍රපති උපාධි
- ☐ PHD | දෘෂ්ටි ආවරණීය උපාධි
- ☐ Other | වෙනත්

Gender | ස්ත්‍රී පුරුෂ භාවය ^{*}

- ☐ Female | ගැහැණු
- ☐ Male | පිරිමි

☐ I don't know / අනෙක් අයෙකුගේ ලිපිනය

☐ Other | වෙනත්

Gender | ස්ත්‍රී පුරුෂ තාවය *

☐ Female | ගැහැණු

☐ Male | පිරිමි

☐ Prefer not to say | ප්‍රකාශයක් කිරීමට

Age | වයස

Your answer

Do you have technical skills | ඔබට තාක්ෂණික කුසලතා තිබේද *

☐ Yes | ඔව්

☐ No | නැත

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Not shared

* Indicates required question

Awareness and Adoption | දැනුවත් කිරීම:

How aware are you of recent technological advancements in the banking sector? *

ඔබ තාක්ෂණික පිළිගැනීමේ දියුණුව ගැන ඔබ දන්නේ කොපමණ ද?

- ☐ Very aware | ඉතා දැනුවත්
- ☐ Somewhat aware | තරමක් දැනුවත්
- ☐ Not aware | දැනුවත් නැත

Has your bank adopted any new technologies in the past three years? පසුගිය වසර *

ඔබගේ බැංකුව නව තාක්ෂණයන් අනුගමනය කර තිබේද?

- ☐ Yes | ඔව්
- ☐ No | නැත

How would you rate the overall adoption of new technologies in your branch? *

ඔබේ ශාඛාවේ සමස්ත නව තාක්ෂණයන් භාවිතා කිරීමේ මට්ටම කොපමණ ද?

- ☐ Excellent | විශිෂ්ටයි
- ☐ Good | හොඳයි
- ☐ Fair | සාමාන්යයි

How aware are you of recent technological advancements in the banking sector? *

| බැංකු ක්ෂේත්‍රයේ ලිහිල්කාරීකා තාක්ෂණික දියුණුව ගැන ඔබ කෙතරම් දැනුවත්ද?

- ☐ Very aware | ඉතා දැනුවත්
- ☐ Somewhat aware | තරමක් දැනුවත්
- ☐ Not aware | දැනුවත් නැත

Has your bank adopted any new technologies in the past three years? සමූහය වසර *
තුන තුළ ඔබේ බැංකුව නව තාක්ෂණයන් අනුගමනය කර තිබේද?

- ☐ Yes | ඔව්
- ☐ No | නැත

How would you rate the overall adoption of new technologies in your branch? | *

ඔබේ ශාඛාවේ සමස්ත නව තාක්ෂණයන් භාවිතා කිරීම ඔබ ඇගයීමට ලක් කරන්නේ කෙසේද?

- ☐ Excellent | විශිෂ්ටයි
- ☐ Good | හොඳයි
- ☐ Fair | සාමාන්ය
- ☐ Poor | කොපහත්ම හොඳ නැත
- ☐ As I am a customer, I have no idea about it | මම පාරිභෝගිකයෙක් නිසා මට ඒ ගැන කිසිම අදහසක් නැත

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* Indicates required question

Operational Impact | මෙහෙයුම් බලපෑම:

Has the technological advancement in the banking system improved your daily activities? | බැංකු පද්ධතියේ තාක්ෂණික දියුණුව ඔබේ දෛනික කටයුතු වැඩිදියුණු කර තිබේද? *

- ☐ Significantly improved | සැලකිය යුතු ලෙස වැඩි දියුණු කර ඇත
- ☐ Somewhat improved | තරමක් දියුණු විය
- ☐ No change | වෙනස්කම් නැත
- ☐ Somewhat worsened | තරමක් නරක අතට හැරී ඇත
- ☐ Significantly worsened | සැලකිය යුතු ලෙස නරක අතට හැරී ඇත

Have these advancements improved the efficiency of your work processes? | මෙම දියුණුව ඔබගේ වැඩ ක්‍රියාවලිවල කාර්යක්ෂමතාව වැඩි දියුණු කර තිබේද? *

- ☐ Yes | ඔව්
- ☐ No | නැත

Have you encountered any challenges while adapting to new technologies? | නව තාක්ෂණයට අනුවර්තය වීමේදී ඔබට කිසියම් අභියෝගයකට මුහුණ දී තිබේද? *

- ☐ Yes | ඔව්
- ☐ No | නැත

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* Indicates required question

Security and Compliance | දරක්ෂාව සහ අනුකූලතාව:

How confident are you in the security of the new technologies being used? *

| තාවිත කරන නව තාක්ෂණයේ දරක්ෂාව ගැන ඔබ තෙතරම් විශ්වාස ද?

- ☐ Very confident | තරිම විශ්වාසයි
- ☐ Somewhat confident | තරමක් විශ්වාසයි
- ☐ Not confident | විශ්වාස නැත

Have there been any concerns related to compliance with regulatory requirements due to technological changes? *

| තාක්ෂණික වෙනස්කම් හේතුවෙන් නියාමන (නීති සහ කොන්දේසි) අවධානයට අනුකූල වීම් සම්බන්ධව යම් ගැටළු මතු වී තිබේද?

- ☐ Yes | ඔව්
- ☐ No | නැත

What are your expectations regarding the future impact of technology on your work/life? *

| මෑත රැකියාව(සේවකයා)/ජීවිතය(සාරිහෝගිතයා) තෙරෙහි තාක්ෂණයේ අනාගත බලපෑම් සම්බන්ධයෙන් ඔබේ අපේක්ෂාවන් මොනවාද?

- ☐ Very positive | ඉතා ධනාත්මකයි
- ☐ Somewhat positive | තරමක් ධනාත්මකයි
- ☐ Neutral | මධ්‍යස්ථ
- ☐ Somewhat negative | තරමක් සෘණ
- ☐ Very negative | ඉතා සෘණාත්මකයි

"The Impact of Technological Advancements on Government Banking Operations within the Kandy Area"

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* Indicates required question

General Feedback: | සාමාන්‍ය ප්‍රතිචාර:

What is your overall opinion on the impact of technological advancements in your *
branch? | ඔබේ ගාමාලේ තාක්ෂණික දියුණුවේ බලපෑම පිළිබඳ ඔබේ සමස්ත අදහස කුමක්ද?

- ☐ Very positive | ඉතා ධනාත්මකයි
- ☐ Somewhat positive | තරමක් ධනාත්මකයි
- ☐ Neutral | මධ්‍යස්ථ
- ☐ Somewhat negative | තරමක් ඍණ
- ☐ Very negative | ඉතා ඍණාත්මකයි

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Technology Awareness: | තාක්ෂණික දැනුවත් කිරීම:

How do you usually access banking services? | ඔබ සාමාන්‍යයෙන් බැංකු සේවා වෙත ප්‍රවේශ වන්නේ කෙසේද? *

- ☐ In-branch visits | ශාඛාවේ තුළ සංචාරයක්
- ☐ Online banking | මාර්ගගත බැංකුකරණය
- ☐ Mobile banking app | ජංගම බැංකු යෙදුම්
- ☐ ATMs | ATM යන්ත්‍ර
- ☐ Phone banking | දුරකථන බැංකුකරණය

How would you rate your experience with the bank's online or mobile banking services? | බැංකුවේ මාර්ගගත හෝ ජංගම බැංකු සේවා සමඟ ඔබේ අත්දැකීම් ඔබ ශ්‍රේණිගත කරන්නේ කෙසේද? *

- ☐ Excellent | විශිෂ්ටයි
- ☐ Good | හොඳයි
- ☐ Fair | සාධාරණයි
- ☐ Poor | දුර්වලයි
- ☐ I don't use online/mobile banking | මම අන්තර්ජාල/ජංගම බැංකු භාවිතා කරන්නේ නැත

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* Indicates required question

Future Expectations: | අනාගත බලාපොරොත්තු:

What additional technological features or services would you like to see in your bank? | ඔබ ඔබේ බැංකුවේ දැකීමට කැමති අමතර තාක්ෂණික විශේෂාංග හෝ සේවා මොනවාද? *

- ☐ More user-friendly mobile app | වඩාත් පරිශීලක-භිතකාමී ජංගම යෙදුම්
- ☐ Enhanced online security features | වැඩි දියුණු කළ මාර්ගගත ආරක්ෂක විශේෂාංග
- ☐ Faster transaction processing | වේගවත් ගනුදෙනු සැකසීම්
- ☐ More ATMs with advanced features | උසස් විශේෂාංග සහිත තවත් ATM යන්ත්‍ර

How likely are you to continue using the bank's technological services in the future? | අනාගතයේදී ඔබ බැංකුවේ තාක්ෂණික සේවාවන් දිගටම භාවිතා කිරීමට කොපමණ ඉඩ තිබේද? *

- ☐ Very likely | බොහෝ දුරට ඉඩ ඇත
- ☐ Likely | සාමාන්‍යයෙන් ඉඩ ඇත
- ☐ Unlikely | විය නොහැක
- ☐ Very unlikely | බොහෝ දුරට ඉඩ නැත

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8.2 Numeric Values

1. Demographics

1.1 Your role in the government banking sector:

Manager = 1

Assistant Manager = 2

Cashier = 3

IT Staff = 4

Clerk = 5

Customer = 6

Other = 7

1.2 Bank you work for (or deal with the most as a customer):

Peoples bank = 1

BOC = 2

Samurdhi bank = 3

RDB = 4

Other = 5

1.3 Years of experience (or duration of dealing with the bank):

Less than 1 year = 1

1-3 years = 2

3-5 years = 3

5-10 years = 4

More than 10 years = 5

1.4 Educational Background:

Secondary Education = 1

GCE Ordinary Level = 2

GCE Advanced Level = 3

Diploma / Higher National Diploma = 4

Graduate / Undergraduate = 5

Masters Degree = 6

PhD = 7

Other = 8

1.5 Gender:

Female = 1

Male = 2

Prefer not to say = 3

1.6 Age: (You can create intervals if needed)

1.7 Do you have technical skills?

Yes = 1

No = 2

2. Awareness and Adoption

2.1 How aware are you of recent technological advancements?

Very aware = 1

Somewhat aware = 2

Not aware = 3

2.2 Has your bank adopted any new technologies in the past three years?

Yes = 1

No = 2

2.3 How would you rate the overall adoption of new technologies?

Excellent = 1

Good = 2

Fair = 3

Poor = 4

As I am a customer, I have no idea = 5

3. Operational Impact

3.1 Has the technological advancement improved your daily activities?

Significantly improved = 1

Somewhat improved = 2

No change = 3

Somewhat worsened = 4

Significantly worsened = 5

3.2 Have these advancements improved the efficiency of your work processes?

Yes = 1

No = 2

3.3 Have you encountered any challenges while adapting to new technologies?

Yes = 1

No = 2

4. Customer Experience

4.1 How have technological advancements impacted customer service?

Greatly improved = 1

Improved = 2

No change = 3

Worsened = 4

4.2 Do you believe these advancements have improved customer satisfaction?

Yes = 1

No = 2

5. Security and Compliance

5.1 How confident are you in the security of the new technologies?

Very confident = 1

Somewhat confident = 2

Not confident = 3

5.2 Concerns about compliance with regulatory requirements due to technological changes:

Yes = 1

No = 2

5.3 What are your expectations regarding the future impact of technology?

Very positive = 1

Somewhat positive = 2

Neutral = 3

Somewhat negative = 4

Very negative = 5

5.4 How prepared do you feel for upcoming technological changes?

Very prepared = 1

Somewhat prepared = 2

Not prepared = 3

6. General Feedback

6.1 What is your overall opinion on the impact of technological advancements?

Very positive = 1

Somewhat positive = 2

Neutral = 3

Somewhat negative = 4

Very negative = 5

7. Technology Awareness

7.1 How do you usually access banking services?

In-branch visits = 1

Online banking = 2

Mobile banking app = 3

ATMs = 4

Phone banking = 5

7.2 How would you rate your experience with online/mobile banking services?

Excellent = 1

Good = 2

Fair = 3

Poor = 4

I don't use online/mobile banking = 5

7.3 Do you feel that new technologies have made banking more convenient?

Yes = 1

No = 2

Maybe = 3

8. Future Expectations

8.1 What additional technological features would you like to see in your bank?

More user-friendly mobile app = 1

Enhanced online security features = 2

Faster transaction processing = 3

More ATMs with advanced features = 4

8.2 How likely are you to continue using the bank's technological services?

Very likely = 1

Likely = 2

Unlikely = 3

Very unlikely = 4