The Tech-Driven Future of Banking: Assessing Sbi's Operational Efficiency in The Digital Era

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***Abstract*—Purpose:The primary purpose of this study is to assess the impact of technology and digitalization on the operational efficiency of State Bank of India (SBI). It explores the relationship between digital and non-digital banking operations and how digital advancements contribute to SBI's profitability and overall operational performance. The study also aims to evaluate the short-term and long-term effects of digitalized banking technologies on the bank's operational profits.**

I. INTRODUCTION

The banking industry plays a pivotal role in the financial and economic development of a nation. In India, banks are the backbone of the financial sector, facilitating capital formation, credit allocation, and financial inclusion. Among these, the State Bank of India (SBI) holds a dominant position, serving millions of customers across urban and rural regions. As global economies transition towards digital transformation, the banking sector is rapidly evolving, integrating cutting-edge technologies to enhance operational efficiency, improve customer experiences, and optimize financial services. With the increasing dependence on digital platforms, the future of banking is shaped by the adoption of financial technologies (FinTech), artificial intelligence (AI), blockchain, and real-time data analytics. SBI, as the largest public sector bank in India, is at the forefront of this technological revolution, leveraging digital innovations to enhance operational efficiency and provide seamless banking services.

The integration of technology in banking has significantly reshaped the traditional banking model, shifting from a branch-centric approach to a digital-first ecosystem. The emergence of internet banking, mobile banking, and automated teller machines (ATMs) has revolutionized the way customers access financial services. SBI has continuously adapted to these changes by implementing core banking solutions (CBS), AI-driven customer support systems, and secure digital payment mechanisms. The bank's digital transformation journey is not only focused on improving service delivery but also on strengthening cybersecurity measures, enhancing transaction security, and ensuring regulatory compliance in an increasingly digital world.

With globalization and rapid technological advancements, the banking industry is experiencing an unprecedented shift towards automation and data-driven decision-making. The adoption of cloud computing, big data analytics, and machine learning algorithms has empowered banks to streamline operations, reduce manual errors, and provide personalized financial services to customers. SBI has recognized the potential of these technologies and has actively invested in digital initiatives, including the introduction of YONO (You Only Need One) – a comprehensive digital banking platform that integrates banking, financial services, and lifestyle offerings in a single application. Through such innovations, SBI aims to cater to the evolving needs of tech-savvy customers while maintaining efficiency in its vast network of branches and ATMs.

Operational efficiency in banking refers to the ability of financial institutions to maximize output while minimizing costs, errors, and redundancies in their processes. The application of digital technologies in banking operations has led to greater efficiency in fund transfers, loan processing, customer authentication, and risk management. SBI's approach to enhancing operational efficiency includes leveraging robotic process automation (RPA) to automate repetitive tasks, implementing AI-powered chatbots for customer interactions, and utilizing blockchain technology to secure transactions and prevent fraud. These technological interventions not

only enhance productivity but also contribute to a more robust, resilient, and competitive banking ecosystem.

Furthermore, the Indian government and regulatory authorities such as the Reserve Bank of India (RBI) have been actively promoting digital banking initiatives through policies such as the Digital India campaign, Unified Payments Interface (UPI), and Bharat Bill Payment System (BBPS). These initiatives have encouraged banks, including SBI, to accelerate their digital transformation efforts and adopt new-age financial technologies to stay competitive in the evolving market landscape. With increased internet penetration and smartphone adoption, digital banking has become a necessity rather than a luxury, compelling SBI to continuously innovate and redefine its operational strategies.

Despite these advancements, the implementation of banking technology presents certain challenges. Issues such as cybersecurity threats, digital fraud, data privacy concerns, and technological infrastructure gaps pose significant hurdles in achieving seamless digital transformation. SBI, being a customer-centric bank, has been actively addressing these challenges by investing in robust cybersecurity frameworks, enhancing encryption protocols, and conducting awareness programs to educate customers about safe digital banking practices.

In conclusion, technology-driven banking is no longer a futuristic concept but a present-day reality that is reshaping the financial sector. SBI's journey in embracing digital transformation underscores the importance of integrating innovative technologies to enhance operational efficiency, optimize service delivery, and meet the dynamic needs of modern consumers. As the banking landscape continues to evolve, SBI's strategic focus on technological advancements will determine its competitiveness and success in the digital era. This study aims to assess the impact of banking technology on SBI's operational efficiency, exploring the role of digital innovations in driving growth, efficiency, and customer satisfaction in the contemporary banking sector.

II. REVIEW OF LITERATURE

Yoganandham, G. (2024), This paper examines the role of modern banking technologies in driving global economic growth, focusing on innovations like blockchain, AI, and digital payments. The study uses a comprehensive literature review and case studies to explore how these technologies enhance financial inclusion, operational efficiencies, and entrepreneurship. Findings highlight the transformative impact of these technologies on banking practices and their influence on financial accessibility. The paper concludes that adaptive policies are essential to mitigate risks while maximizing the benefits of these advancements in global finance.

Tehseen, S., Hussain, A., & Riaz, A. (2023), This study investigates the influence of financial technology (FT) on corporate environmental performance (CEP), with a focus on green finance (GF) and green innovation (GI) as mediators and resource commitment (RC) as a moderator. Data were collected from managers in manufacturing companies in Pakistan using an adopted questionnaire and analyzed through structural equation modeling. Findings show a positive relationship between FT and CEP, with GF and GI mediating and RC moderating this effect. The study concludes with recommendations for regulators to align regulations with technological and environmental goals, highlighting the need for integrating green initiatives into business strategies.

Komandla, V., & PERUMALLA, S. (2017), This article explores how traditional banks are adopting digital innovations to remain competitive in the era of fintech startups. The authors use a qualitative analysis of strategies employed by banks, including AI, blockchain, and big data, alongside partnerships with fintech companies. Findings reveal that banks are integrating cutting-edge technologies to enhance customer service and operational efficiency. The conclusion stresses the need for overcoming legacy system challenges and regulatory constraints for successful digital transformation in banking.

Khushboo Khanbelwal M.S and Shwetha Choudhary M.S. (2010), The author has attempted to define the effect of IT. The study work is based on secondary data that includes case analysis. And their results are information technology that has significantly affected our country's entire banking system and their implementation in banking has a very forward-looking future in India.

Ipshita Bansal and Rinku Sharma (2008), The author sheds light on the achievement of Indian banking services-Formulation of Customer Service Committee, Improvement in the collection and handling of checks, settlement of Deceased Depositors claims, Improvement in Grievance Redressal Mechanism, Door Step Banking, Credit Card facilities, etc.

Sahoo B. K., Sengupta J. K. and Mandal A. (2007), The author tries to examine Indian business banks trends over the period from 1997-98 to 2004-05. First, the growing annual average developments in TE for all ownership organizations show an affirmative gesture about the impact of the reform process on Indian banking sector performance. Second, the greater cost-efficiency accrual of private banks over nationalized banks indicates that, although ancient, nationalized banks do not represent their learning experience due to X inefficiency variables resulting from public property.

Venugopal Dharmalingam (2004), The study explains that by leaps and bounds, the post-nationalization of banks has improved the banking operations. Banks are adopting a core banking system to stay competitive, which offers interconnection between branches. While formulating a technology policy, banks take into consideration the five to ten-year vision and compliant technology to Basel II standards.

Adhivarahan (2001), The research tried to explore the provisions of the Information Technology Act 2000 and its consequences for banks functioning. The research pointed out that the number of e-fraud occurrences and internet infringements in India is the highest. As such, cases of cybercrime must be handled with utmost care in the banking sector. A statutory body comparable to the 'Internet Fraud Center' in the United States should be created in India for this purpose.

Kohli (2001), The study highlighted the significance of innovation and problems arising from technology adoption. According to author, technology emerges in the financial services industry as a key driver of company. The advance in computation and telecommunications has revolutionized the economic sector, and net banking is catching up quickly. With the growing use of techniques such as WAP transforming e-commerce into m-commerce, banking company is in for a significant overhaul.

III. RESEARCH GAP

Existing literature has extensively explored the role of information technology, fintech innovations, and their impact on customer satisfaction and banking efficiency. However, most studies focus on broad technological transformations across the banking sector or on individual technologies, without assessing their collective impact on the operational efficiency of specific banks. Additionally, the influence of digital banking advancements on traditional institutions, especially large public sector banks, remains underexplored. This research gap is evident in the limited analysis of how such innovations specifically affect the operational performance of a major player like the State Bank of India in the digital era. Therefore, a comprehensive evaluation of SBI's operational efficiency through a tech-driven lens is needed, highlighting "*The Tech-Driven Future of Banking: Assessing SBI's Operational Efficiency In the Digital Era*"**.**

Objectives of the StudyThe study has framed the following objectives based on the research gap, which emerged through literature survey.

1.To analyze the relationship between digital banking technologies and operational efficiency in SBI.

2.To assess the impact of emerging banking technologies on enhancing operational performance of SBI.

Hypothesis

H_0: There is no Significant relationship between the technologies with Operational Efficiency

H_0: There is no Significant impact of Technologies on the operational efficiency.

Scope of the Study

The present study has been emphasized on the role of technology usage impact on the banking operations from the period of 2014-15 to 2023-24. The present study is making an attempt to identify the overall business of the banks into digital and non-digital banking operations. How the digital operations are contributing significantly for the overall business of the bank.

IV. RESEARCH METHODOLOGY

Research Approach: This study adopts a quantitative research approach to examine the framed objectives, focusing on the role of fintech in enhancing operational efficiency, particularly in the State Bank of India (SBI).

Data Collection and Period: The study utilizes secondary data covering the period 2014-15 to 2023-24, sourced from credible platforms such as NPCI and Money Control.

Key Variables: The study considers variables such as digital and non-digital business, number of computerized and non-computerized branches, per-employee cost, and number of employees in each type.

Data Analysis Techniques: The study applies Ordinary Least Squares (OLS) regression to estimate unknown parameters and uses the Vector Error Correction Model (VECM) to analyze short-run dynamics and long-term equilibrium adjustments.

V. DATA ANALYSIS

Objective – 1 To assess the impact of emerging banking technologies on enhancing the operational performance of SBI

Table – 1-Vector Auto Regression Model of digitalized business with Operating Profit SBI's Bank

VAR Lag Order Selection Criteria						
Endogenous variables: DOPERATING_PROFIT COMPUTERIZED_BUSINESS DCOMPUTERIZED_BRANCHES DCOMPUTERIZED_EMPLOYEE COMPUTERIZED_PER_EC						
Exogenous variables: C						
Sample: 1 37						
Included observations: 34						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2126.889	NA	2.00e+48	125.4052	125.6297	125.4818
1	-1984.820	233.9954	2.08e+45	118.5189	119.8656*	118.9781
2	-1952.743	43.39851*	1.52e+45*	118.1025*	120.5717	118.9446*
* indicates lag order selected by the criterion						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Secondary Data (NPCI)

The lag order selection criteria table shows that the LR test statistical test and Final prediction error tend to be fit at lag 1. Likewise, it is observed that criterion such as the Akaike Information Criterion and the Hannan Quinn Information Criterion are fit lag 1, while Schwarz Information Criterion is observed to be fit lag 1. Almost all of the criteria appeared fit at lag 1 and concluded that lag 1 was optimal for the classification of VECM.

Table – 2

Wald Test:

Null Hypothesis (H_0): There is no relationship between the technologies with Operational Efficiency

Alternative Hypothesis (H_1): There is a relationship between the technologies with Operational Efficiency

C(1)=C(3)=C(4)=C(5)=C(6)=C(8)=C(9)=C(10)=C(11)=0

Table – 3-Wald Test of digitalized business with Operating Profit SBI's Bank

Wald Test:			
System: %system			
Test Statistic	Value	Df	Probability

Chi-square	1.436636	3	0.6970
Null Hypothesis: C(1)=C(3)=C(8)=0			
Null Hypothesis Summary:			

Source: Secondary Data (npci)

The Wald test results indicate a Chi-square value of 1.436636 with a probability of 0.6970, which is greater than the 0.05 significance level. This suggests that the impact of digitalized banking technologies on SBI's operational profit exhibits a short-run relationship rather than a long-run effect. Since the probability value exceeds 0.05, the null hypothesis, which states that emerging banking technologies do not have a significant impact on operational profit in the long run, cannot be rejected. This implies that while digitalization influences short-term performance fluctuations, its long-term impact remains inconclusive. Further analysis with a long-run model may be required to determine the sustained effects of banking technologies on SBI's operational efficiency.

Table – 4-Vector Auto Regression Model of non - digitalized business with Operating Profit SBI

VAR Lag Order Selection Criteria						
Endogenous variables: DOPERATING_PROFIT DNON_COMPUTERIZED_BUSINESS, DNON_COMPUTERIZED_BRANCHES DNON___COMPUTERIZED_EMPLOYEE DNON_COMPUTERIZED_PER_EC						
Exogenous variables: C						
Sample: 1 37						
Included observations: 34						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1594.207	NA	4.92e+34	94.07101	94.29548*	94.14756
1	-1557.356	60.69585	2.50e+34	93.37389	94.72068	93.83319*
2	-1527.039	41.01681*	2.02e+34*	93.06114*	95.53025	93.90318
* Indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Secondary Data (npci)

The lag order selection criteria table shows that the LR test statistical test and Final prediction error tend to be fit at lag 1. Likewise, it is observed that criterion such as the Akaike Information Criterion and the Hannan Quinn Information Criterion are fit lag 1, while Schwarz Information Criterion is observed to be fit lag 1. Almost all of the criteria appeared fit at lag 1 and concluded that lag 1 was optimal for the classification of VECM

Wald Test:

Null Hypothesis (H_0): There is no relationship between the technologies with Operational Efficiency

Alternative Hypothesis (H_1): There is a relationship between the technologies with Operational Efficiency

C(1)=C(3)=C(4)=C(5)=C(6)=C(8)=C(9)=C(10)=C(11)=0

Table – 6ald Test of non - digitalized business with Operating Profit SBI's Bank

Wald Test:			
System: %system			
Test Statistic	Value	df	Probability
Chi-square	1.882235	3	0.5972
Null Hypothesis: C(1)=C(3)=C(8)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(1)		1.780097	2.628402
C(3)		0.077824	0.204452
C(8)		-0.051986	0.088779

Source: Secondary Data (npci)

The Wald test results show a Chi-square value of 1.882235 with a probability of 0.5972, which is greater than the 0.05 significance level. This indicates that the relationship between non-digitalized banking operations and SBI's operating profit exists only in the short run. Since the probability exceeds 0.05, the null hypothesis, which states that non-digitalized banking factors do not have a significant long-run impact on operational profit, cannot be rejected. This suggests that while traditional banking operations may contribute to short-term fluctuations in profit, their long-term influence remains uncertain. A deeper analysis using long-run models would be necessary to evaluate the sustained effects of non-digitalized banking on SBI's operational efficiency.

Objective - 2: To analyze the digital banking technologies Impact on the operational efficiency in SBI.

The study examines the Impact of Digital Banking Technologies on the Operational Efficiency of SBI Bank. The study applied the OLS as a statistical method and framed the following hypothesis.

Hypotheses of the study:

H_0: Technologies doesn't has impact on the operational efficiency

H_1: Technologies has impact on the operational efficiency

Table – 7-Ordinary Least Square of digitalized business on Operational Profit of SBI's Bank

Dependent Variable: DOPERATING_PROFIT				
Method: Least Squares				
Sample (adjusted): 2 37				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	454.8657	566.7641	0.802566	0.4283
COMPUTERIZED_BUSINESS	7.660607	3.21E-07	2.385851	0.0233
DCOMPUTERIZED_BRANCHES	4.554026	0.170968	3.240519	0.0028
DCOMPUTERIZED_EMPLOYEE	5.054601	0.023955	2.279351	0.0297
COMPUTERIZED_PER_EC	-2.087967	0.183197	-0.480175	0.6345
R-squared	0.646309	Mean dependent var		1462.236
Adjusted R-squared	0.600672	S.D. dependent var		4708.578
S.E. of regression	2975.464	Akaike info criterion		18.96243
Sum squared resid	2.74E+08	Schwarz criterion		19.18237
Log likelihood	-336.3238	Hannan-Quinn criter.		19.03920
F-statistic	14.16180	Durbin-Watson stat		1.898261
Prob(F-statistic)	0.000001			

Source: Secondary Data (npci)

The analysis evaluates the impact of digital banking technologies on SBI's operational efficiency, specifically examining the relationship between computerized banking variables and operating profit. The coefficient value of computerized branches (4.554026) and its probability value (0.0028) indicate a significant positive impact on operating profit. Similarly, the number of computerized employees (coefficient: 5.054601, p-value: 0.0297) also contributes positively to operational efficiency. However, the per-employee cost for computerized branches shows an insignificant effect (p-value: 0.6345). The R-squared value of 0.6463 suggests that approximately 64.63% of the variation in operating profit is explained by the independent variables, confirming the model's reliability. The F-statistic value (14.1618) and its probability (0.000001) indicate the overall significance of the regression model. Based on these results, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming that digital banking technologies significantly enhance SBI's operational efficiency. This study highlights the crucial role of technology in optimizing banking operations and improving financial performance.

Table – 8-Ordinary Least Square of non-digitalized business of SBI's Bank

Dependent Variable: DOPERATING_PROFIT				
Method: Least Squares				
Sample (adjusted): 2 37				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	927.7276	537.3419	1.726513	0.0942
DNON_COMPUTERIZED_BUSINESS	2.745860	0.009523	4.815507	0.0000
DNON_COMPUTERIZED_BRANCHES	-9.149647	2.011012	-4.549772	0.0001
DNON___COMPUTERIZED_EMPLOYEE	1.561260	0.143425	3.913260	0.0005
DNON_COMPUTERIZED_PER_EC	10.43508	1.980052	5.270105	0.0000
R-squared	0.794041	Mean dependent var		1462.236
Adjusted R-squared	0.767466	S.D. dependent var		4708.578
S.E. of regression	2270.562	Akaike info criterion		18.42169
Sum squared resid	1.60E+08	Schwarz criterion		18.64162
Log likelihood	-326.5904	Hannan-Quinn criter.		18.49845
F-statistic	29.87885	Durbin-Watson stat		1.821373
Prob(F-statistic)	0.000000			

Source: Secondary Data (npci)

The analysis examines the impact of non-digitalized banking operations on SBI's operating profit, highlighting the significance of non-computerized branches, employees, and per-employee costs. The coefficient value of non-computerized employees (1.561260) and its probability (0.0005) indicate a significant positive influence on operating profit. However, the negative coefficient of non-computerized branches (-9.149647, p-value: 0.0001) suggests a decline in profitability as the number of such branches increases. The per-employee cost of non-computerized branches (coefficient: 10.43508, p-value: 0.0000) has a notable positive effect, implying higher costs contribute to operational efficiency in some aspects. The R-squared value of 0.7940 indicates that 79.40% of the variation in operating profit is explained by the model, reinforcing its robustness. The overall model significance, confirmed by an F-statistic of 29.87885 (p-value: 0.000000), leads to the rejection of the null hypothesis. The findings confirm that non-digitalized banking operations significantly impact SBI's operational efficiency. The study concludes that while non-digitalized business still contributes to profitability, digital transformation remains crucial for sustained efficiency and growth.

VI. FINDINGS

1. The study found that non-computerized business negatively impacts SBI's operational profit, with a coefficient of -0.08 at lag 1. This suggests that traditional, non-digital banking operations

reduce profitability due to inefficiencies, increased manual processing, and higher operational costs. The findings indicate the need for SBI to minimize reliance on non-computerized operations to improve efficiency.

2. The results reveal a positive relationship between non-computerized employees and SBI's operational profit, with a coefficient of 0.51 at lag 1. This implies that despite being part of traditional banking operations, these employees contribute positively, possibly through customer relationship management and personalized banking services. However, long-term reliance on manual labor could hinder scalability and cost efficiency.
3. The computerized business variable exhibits a significant negative relationship with operational profit, with coefficients of -1.80 at lag 1 and 2.33 at lag 2. This suggests that while automation is expected to improve efficiency, the initial phases of technological transformation may lead to higher costs, process disruptions, or adaptation challenges before yielding profitability.
4. The study found that computerized branches positively impact operational profit, with a coefficient of 3.47 at lag 1. This highlights the role of digital banking infrastructure in improving efficiency, reducing transaction time, and enhancing customer satisfaction. Expanding computerized branches could be a key strategy for SBI to optimize its operations.
5. The Wald test results (Chi-square: 1.436636, p-value: 0.6970) indicate that digitalized banking technologies have only a short-run impact on SBI's operational profit. This suggests that while digitalization initially improves efficiency, long-term benefits may depend on sustained investments, technology integration, and customer adaptation.
6. Similarly, the Wald test results (Chi-square: 1.882235, p-value: 0.5972) confirm that non-digital banking operations impact operational profit only in the short run. This implies that while traditional banking methods still generate revenue, they are not viable for long-term sustainability in an increasingly digitalized banking sector
7. The study identifies computerized branches as a crucial factor in enhancing SBI's operational profit, with a coefficient of 4.554026 (p-value: 0.0028). This reinforces the idea that digital banking infrastructure plays a key role in cost reduction, customer convenience, and revenue generation. SBI should continue expanding its computerized branch network.
8. The findings reveal that computerized employees significantly improve operational efficiency, with a coefficient of 5.054601 (p-value: 0.0297). This suggests that trained employees in digital banking operations contribute to streamlined processes, faster service delivery, and overall productivity improvements. SBI should focus on upskilling and expanding its digital workforce.
9. The study also found that non-computerized employees positively influence SBI's operating profit, with a coefficient value of 1.561260 (p-value: 0.0005). This indicates that traditional employees still play a role in banking operations, possibly through customer trust, manual intervention in complex transactions, and relationship-based banking services.
10. The study found that non-computerized branches negatively impact SBI's profitability, with a coefficient of -9.149647 (p-value: 0.0001). This suggests that maintaining non-digital branches leads to inefficiencies, higher costs, and reduced competitiveness in an era where digital banking dominates. SBI should consider gradually reducing non-computerized branches and transitioning toward a fully digital banking ecosystem.

VII. CONCLUSION OF THE STUDY

The study examines the impact of technology and digitalization on the operational efficiency of State Bank of India (SBI), particularly focusing on the business-to-business segment. It explores the relationships between various digital business parameters, such as business per branch, employees, and their associated costs, and their influence on SBI's operating profit. The findings reveal that the presence of computerized branches significantly enhances SBI's operating profit, while non-computerized branches have a negative impact. Furthermore, the study finds that computerized employees positively contribute to operational efficiency. Through the application of the Vector Error Correction Model and Ordinary Least

Squares method, the research shows that while digital business volume influences profitability in the short run, computerized branches have the most substantial effect on operational performance. The study concludes that SBI and other public sector banks should prioritize digitalization across all verticals to improve efficiency, profitability, and customer loyalty. Additionally, the research suggests that further investigation into the impact of IT expenditure on operational profit could provide valuable insights for future growth and optimization in banking operations.

REFERENCES

[1] Abhivarahan Adhivarahan, V. (2001), "Information Technology Act, 2000 - The Legal Viewpoint" IBA Bulletin, Vol. XXII, No. 12, Dec. 2001, Indian Banks' Association (IBA), Mumbai.

[2] Brett, F. Woods. (1997), E-Money: Financial Management in the Electronic Age. Paladin Press, USA.

[3] Ipshita Bansal and Rinku Sharama (2008),"Indian Banking Services: Achievements and Challenges", The ICFAI University, Journal of Services Marketing, Vol VI, No.2.

[4] Khushboo Khanbelwal M.S. and Shwetha Choudhary M.S. (2010), "Impact of information Technology on Customer Satisfaction in Banking System", Readers Shelf, Volume No.6, Issue No.6.

[5] Kohli, S.S. (2001), 'Indian Banking Industry: Emerging Challenges.' IBA Bulletin, Vol. XXIII, No.3 March 2001, Indian Banks' Association, Mumbai.

[6] Komandla, V., & PERUMALLA, S. (2017). Transforming Traditional Banking: Strategies, Challenges, and the Impact of Fintech Innovations. Educational Research (IJMCER), 1(6), 01-09.

[7] Sahoo, B. K., Sengupta, J. K. and Mandal, A. (2007), "Productive Performance Evaluation of the Banking Sector in India Using Data Envelopment Analysis", International Journal of Operations Research, 4(2), 6379.

[8] Tehseen, S., Hussain, A., & Riaz, A. (2023). GREENING BOTTOM LINE & TECH-DRIVEN SUSTAINABILITY: FINANCIAL TECHNOLOGY JOURNEY CREATING BETTER ENVIRONMENT. Gomal University Journal of Research, 39(4), 433-447.

[9] Vageesh, N. S. (2000), 'New Private Banks: New Kids on the Block,' Business Line, March 15, 2000.

[10] Venugopal Dharmalingam (2004), "Technology in Banks: Some Thoughts for the Future", Professional Banker, 2004.

[11] Yoganandham, G. Transformative Impact: The Role of Modern and Innovative Banking Technologies in Driving Global Economic Growth. Tuijin Jishu/Journal of Propulsion Technology, 45(1), 2024.