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## **Fin Tech Adoption and Its Impact on Service Efficiency in Banking and Insurance**

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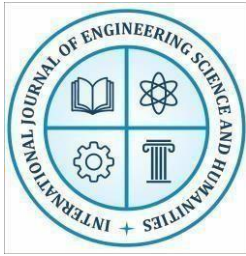
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**Abstract-** This study looks at how using FinTech can affect the banking and insurance industries' service efficiency, operational effectiveness, and customer happiness. The primary objectives were to assess FinTech application levels, identify essential digital technologies that enhance operational efficiency, evaluate their effects on transaction speed, cost reduction, and service quality, analyse the influence on customer satisfaction relative to implementation levels, and compare performance metrics between institutions with varying implementation levels. The quantitative research design utilised a cross-sectional study to collect primary data using structured questionnaires administered to employees, managers, and consumers, complemented by secondary data sources including annual reports, industry publications, and regulatory papers. The questionnaire encompassed variables related to FinTech adoption, including digital payments, mobile banking, AI integration, automation, and cloud infrastructure, as well as variables concerning service efficiency, such as transaction processing, error reduction, operational costs, reliability, and customer satisfaction. We used SPSS and R to complete the study, which included descriptive statistics, correlation analysis, regression models, and independent sample t-tests to see how the relationship and differences worked. The findings indicate that digital payments (Mean = 4.25) and mobile banking (Mean = 4.30) have a very high adoption as well as AI (Mean = 4.05) and cloud integration (Mean = 4.10). The efficiency of the service increased dramatically, and the transaction speed (Mean = 4.18), the reduction of the errors (Mean = 4.12), the customer satisfaction level (Mean = 4.22), and the reliability level (Mean = 4.15). The results of correlation analysis indicate strong positive relationships ( $r = 0.70$   $0.78$ ), whereas the results of regression indicate significant predictive effects of FinTech adoption ( $B = 0.68$ ,  $t = 9.45$ ,  $P = 0.000$ ,  $R^2 = 0.62$ ). Comparisons by sector indicate that banking is better in adoption, speed and quality of service provision than insurance. Such results confirm that strategic FinTech implementation is beneficial to achieve operational excellence, competitiveness, and sustainable growth.

**Keywords-** FinTech Adoption, Service Efficiency, Banking Sector, Insurance Sector, Digital Transformation, Customer Satisfaction, Transaction Speed, Operational Performance.

### **1. Introduction**

FinTech has become a groundbreaking impetus to the modernization of the banking and insurance sectors, an essential revolutionary change in the digital age of designing, offering, and managing financial services. Banking and insurance activities traditionally were very

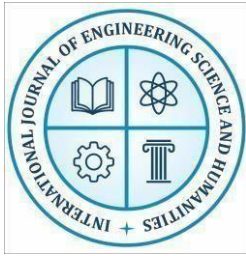


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manual based and physical branch networks coupled with slow administrative processes that usually led to operational inefficiencies, increased transaction costs and slower service delivery (Albuainain & Ashby, 2025; Onabowale, 2025). The recent rapid rise of powerful digital technologies like artificial intelligence, machine learning, blockchain, big data analytics, cloud computing, or mobile apps has made this environment very different because they make services faster, more accurate, more open, and easier to get to. The embrace of FinTech is not just the use of new software applications but a strategic change of direction to making decisions based on data, automated operations and customer-focused service-based models that focus on efficiency and convenience. Digital payment systems, mobile banking platforms, automated customer onboarding systems, and AI-driven fraud detection systems have cut operational redundancy and processing time by a drastic margin in the banking industry. As an example, the payment gateways and Unified payment interfaces can transfer funds in real time meaning that the delays inherent in the interbank process are eliminated and automated credit scoring models can analyze customer information in seconds to assess their loan eligibility without reliance on human evaluation and paperwork (Jafri et al., 2024; Safiullah & Paramati, 2024). In a similar situation, robotic process automation (RPA) automates back-office duties including checking compliance, reconciling finances, and making reports. This cuts down on administrative costs and mistakes made by people Scalability, data storage efficiency and system interoperability are further improved by the integration of cloud-based infrastructure as this gives the banks the capacity to process large volumes of transactions safely and effectively. Within the insurance sector, commonly called InsurTech when combined with digital innovations, adoption of FinTech has enhanced the accuracy of the underwriting, claims, policy administration and customer engagement. High-tech predictive analytics algorithms are risk profiles designed based on historical and real-time data to enable insurers to charge individualized premiums and tailored cover plans, and an automated claims processing system that automatically verifies documents online and speeds up payment, which greatly reduces the turnaround time (Almashhadani & Almashhadani, 2023; Khatwani et al., 2023). Chatbots and AI-based virtual assistants guarantee 24/7 customer support and help address queries immediately and eliminate service bottlenecks, whereas Internet of Things (IoT) technologies, including telematics devices in cars and wearable health monitors, will allow insurance companies to use usage-based and behavior-based pricing models, which will be more transparent and efficient in operation. The efficiency of banking and insurance services may be gauged by shorter transaction time, cut costs of operations, more reliable services, customer satisfaction and better use of resources; these aspects are positively impacted by the implementation of FinTech (Asif et al., 2023; Baker et al., 2023). Through automation of the routine activities, reduced paper work and enhanced level of accuracy in data, financial institutions can channel the human resources more towards strategy planning and innovation instead of administrative operations hence soaring up productivity. Moreover, online services are able to provide financial services to remote and underserved communities, increasing



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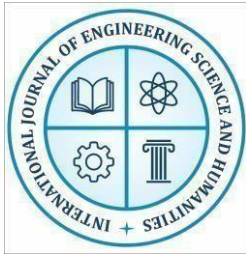
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financial accessibility and increasing coverage of institutional access without necessitating the expensive physical infrastructures. In spite of these benefits, the aspects of FinTech adoption are associated with challenges that institutions should address diligently, such as risks to cybersecurity, data privacy, complications in regulatory compliance, and integration with the legacy systems (Guang-Wen & Siddik, 2023; Kaddumi et al., 2023; Yan et al., 2023). Due to the increasing digitization of financial services, financial institutions need to invest in strong encryption mechanisms, multi-factor authentications, regulatory technology (RegTech) systems, and employee training initiatives to make their operations secure and compliant. Also, technological change may be inherently resisted in an organization due to the absence of technology and digital literacy in some customer groups, which would lead to a considerable decrease in the successful implementation of the change and the need to implement extensive change management measures and customer education programs. However, the effect of adoption on the efficiency of the services in the long term is great, as it increases the agility of the operations, the ability to manage risks, and the ability to serve as a strong competitive advantage in an ever-changing financial landscape. When successfully incorporated into institutions, digital innovations can help them to react faster to market demands, open new financial products, and maintain closer relationships with customers because of the opportunities to provide them with personalized and seamless service experiences. Also, the relationship between traditional banks and FinTech companies encourages innovation since it combines regulatory abilities with technology responsiveness, which can speed up the construction of viable service delivery models. In short, using FinTech may make banking and insurance services much more efficient by automating many tasks. data use optimization, lower operational expenses, and customer experience and also introduces manageable challenges that demand strategic planning and effective governance frameworks, which puts digital transformation as a key proponent of sustainable growth, competitiveness, and long-term institutional sustainability in the contemporary financial environment.

## 2. Literature Review

(Siddiquee, 2025) FinTech solutions, mobile phone adoption, and the friendly regulatory environment are rapidly converting the banking sector in Bangladesh to a digital one by making operations more efficient and consumer friendly, however, also introducing issues such as cybersecurity threats, digital illiteracy, and infrastructure shortage. The survey method adopted by the study is a quantitative, cross-sectional, stratified and sampled survey of 400 bank customers and practitioners who were to be analyzed with a random sampling methodology through structured questionnaires and analyzed using descriptive and inferential statistics on SPSS. The findings revealed that 83 percent of the respondents believed that the digital platforms reduced the transaction time, cost, and errors to achieve greater efficiency, 81 percent stated the convenience and 78 percent valued the 24/7 service (high customer satisfaction). It was found that the rate of trust in digital transactions was high (70 percent) and 39 percent of the participants expressed concern over cybersecurity. The adoption rate was high among



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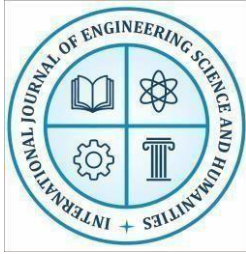
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younger and educated and urban populations with the barriers such as technical glitches, digital literacy and inadequate IT infrastructure. Overall, the acceleration of the service, accessibility, and automation of services has become possible due to digitalization enabled by FinTech. According to the sustainable development, a quality ICT infrastructure, a long-term digital literacy initiative, easy-to-use application, and a stringent regulatory and cybersecurity framework are required to deliver a safe, inclusive, and effective banking system.

(Salman, 2025) examines the significance of adoption of FinTech in enhancing the financial performance of the Iraqi National Insurance Company in the context of balancing the revenues of the premiums with the claims payment. The conceptual framework was developed to learn the relationship between the application of FinTech and the improvement of the financial performance, which relied upon the literature related to the digital financial technologies and the performance strategies. A structured questionnaire comprising of questions which were rated on Likert scale was distributed among the purposive sample of 150 employees of three departments of the information systems, finance, and sales/customer service who were asked to respond to the questions, and they were analysed in SPSS. The results indicate that there is a large positive association existing between the application of FinTech and financial performance ( $R = 0.621$ ), and technological factors explain 38.6 percent of the difference in performance. These findings confirm that the operational efficiency, earnings management, and financial performance, in general, directly affect the strategic implementation of FinTech positively. The research finds that the necessity to incorporate FinTech solutions is a critical driver of improved financial performance that confirms that digital innovation is a measurable and meaningful step to strengthen the financial health of the company and its achievements in its activities.

(Ferilli et al., 2024) discusses the relationship between financial, social, and infrastructural factors, and the digital financial divide (DFD) in Europe, particularly through the prism of developing FinTech and the Covid-19 pandemic. The discussion implemented with the assistance of the difference-in-difference model is able to prove that the role of innovation in the financial services is a considerable factor in the decline in the DFD, and the improved digital infrastructure and social development can only help to facilitate it. The digital gap grew in the post-Covid regions of low financial literacy. The findings provide utilitarian knowledge to the government, policymakers, and the banking control agencies because they illuminate on what is of priority with interventions possible to reduce the DFD. The findings also offer some insights which can be utilized by the financial institutions in order to formulate specific digitalization plans in order to impact less access and literacy gaps that can further boost financial services in an inclusive manner and decrease the inequality in digital financial inclusion within the various European regions.

(Shafique et al., 2023) promotes the relationships between FinTech innovation, change in the banking industry, and use of FinTech-based services by customers within the banking industry of Pakistan. A quantitative research approach was used and surveyed the employees of the bank



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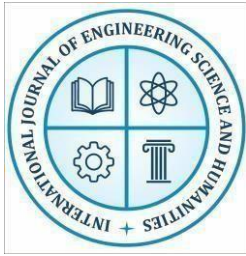
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through structured survey questionnaires to estimate FinTech innovation, sectoral transformation, and customer uptake. These results indicate that FinTech innovation and customer adoption have a positive strong correlation with the middleman of transformation of the banking sector. This underlines the reason why the banks are sensitive to the change in business models and services in a bid to leverage the FinTech solutions. Following the new technologies and support to organizational change, banks will have capabilities to enhance interaction with customers in addition to greater services delivery, and attain sustainable growth, and compete in current dynamic environment of the financial sector. The findings may also be practically useful to the banking leaders and policymakers as the basis of an understanding of how to introduce a digital transformation, increase the resilience of the operations, and make the Pakistani banking industry develop in an innovative way.

(Anifa et al., 2022) explores the transformation of financial services industry, in particular, payments and financing, by the Fourth Industrial Revolution, through FinTech innovations. FinTech has been able to disrupt the traditional financial services within a short period of time, especially to individuals who are not well served by the traditional financial institutions due to the advanced technology and digital interconnectivity. FinTech usage and its investment are on the rise all around the world, and it encompasses different applications, such as payment and financing, and asset management and insurance. Due to the current gaps in the literature regarding the issue of impact, upcoming opportunities, and regulatory considerations of FinTech, this study will be a systematized review of peer-reviewed journal articles published in the period of 2014-2022. The findings lead to the statement that the FinTech innovations are hugely influential in terms of the financial service delivery and business reorganization and a proper regulatory framework is crucial to maintain the ecosystem in a fair and stable state. Visualizing the major innovations and the implications of the same, this study will become a part of the theoretical background as well as provide an exceptionally dense reference base to those who wish to find their way in the new circumstances of technology-oriented financial services and use FinTech as the means of sustainable development.

(Varma et al., 2022) examines how FinTech has been disruptive in the banking industry, and specifically blockchain technology and the new digital innovations. Being the place of convergence between technology and finance, FinTech has disrupted the traditional banking services, introducing radical transformations and the associated threat. Resting on the in-depth thematic overview of recent literature, the research proves the unprecedented opportunities of FinTech to revolutionize the operations in the banking industry worldwide due to the integration of the technologies of blockchain, artificial intelligence, machine learning, and high-end decision-making systems. Despite the fact that these innovations have increased efficiency, improved decision-making, and financial security across the system, they can also be problematic since they have increased the cost of operations, displaced jobs, introduced cybersecurity threats, and dependence on technology. The findings point out that the partnership between FinTech companies and financial institutions and good regulatory control



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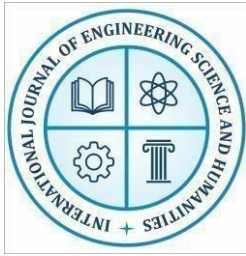
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are able to help minimize the adverse externalities and improve innovation and stability. The results of the current research may be of immense benefit to the regulators, policymakers, academicians, and practitioners in the banking industry to navigate through the opportunities and threats posed by emerging financial technologies.

**Table 1. Literature Summary**

Authors/Year	Methodology	Research gap	Findings
(Basdekis et al., 2022)	Two structured questionnaires for consumers and employees	Impact of rapid FinTech expansion on Greek banking system underexplored	Consumers prefer banks; mobile usage age-dependent; employee readiness education-linked.
(Yan et al., 2022)	Survey of 351 employees; SEM-ANN analysis	Mediating role of green finance/innovation in FinTech adoption and sustainability performance not examined	FinTech adoption boosts green finance, innovation, sustainability; mediation confirmed; emphasizes sustainable banking.
(Jibrin et al., 2021)	Quantitative survey of 200 respondents across 10 firms	Effect of digital payment adoption on operational performance in insurance sector limited	Digital payments moderately improve cost management; regulation, training, cybersecurity crucial.
(Ntwiga, 2020)	Data Envelopment Analysis; panel regression of financial statements 2009–2018	Effect of FinTech-bank collaboration on efficiency not fully assessed	FinTech-collaborated banks show higher efficiency, lower costs; effect not significant.



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(Adhitya Sembel, 2020)	& Seven Class IV banks; CAMEL, stock return, risk, regression.	Limited studies on mobile banking impact, financial, stock performance.	CAR, LDR increased; ROE, NPL decreased; macroeconomic mixed effects.
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### 3. Research Methodology

The study design is a quantitative, cross-sectional study because the researcher is aimed at examining the adoption of FinTech and its impact in the banking and insurance services on the efficiency of the services. Data is collected using structured questionnaires that demand information on employees, managers, and customers on the variables of the FinTech adoption, service effectiveness, and demographics, and a pilot study is carried out to make the questionnaires clear and reliable. Reliability assessment is carried out using Cronbachs Alpha and validity assessment using the expert review and Exploratory Factor Analysis. Information is checked using SPSS/R based on such types of descriptive statistics, correlation, regression, and t -tests/ ANOVA with the purpose to investigate interrelations and industry differences. Some of the ethical standards practiced include informed consent, confidentiality and safe data management.

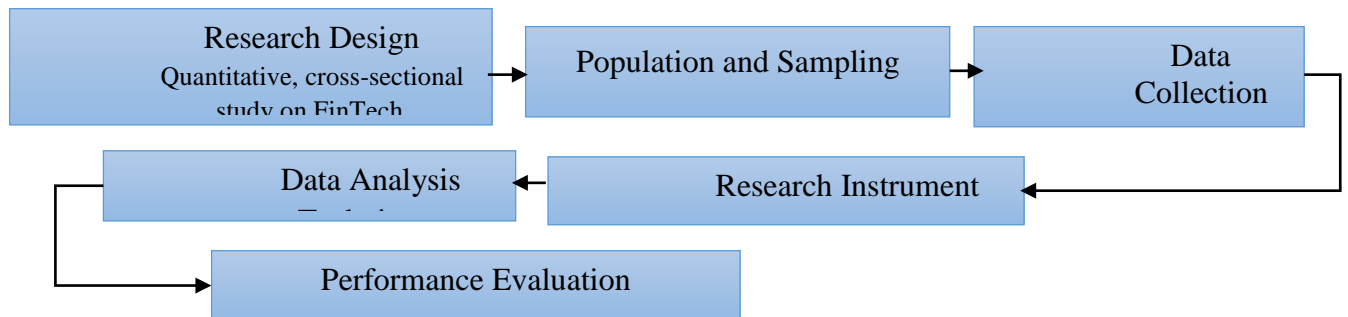


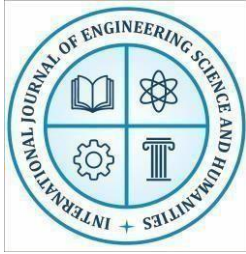
Figure. 1 Proposed Flow Chart

#### 3.1 Research Design

The study has adopted a research design that is quantitative to examine the relationship between the adoption of FinTech and the efficiency of its services within the banking and insurance sector. FinTech implementation level is quantified through explanatory and descriptive approach and the impact of the implementation on service performance indicators and operational performance indicators are evaluated. This research design is cross-sectional and its data is obtained at a single time on a sample of the financial institutions.

#### 3.2 Research Objectives

- a) To evaluate the extent of FinTech adoption across banking and insurance institutions and analyze implementation strategies effectively.



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- b) To identify key digital technologies contributing to operational efficiency and service innovation within financial service organizations.
- c) To assess the impact of FinTech implementation on transaction speed, cost reduction, and overall service quality.
- d) To examine the relationship between FinTech adoption levels and customer satisfaction in banking and insurance sectors.
- e) To compare service efficiency performance between institutions with high FinTech adoption and those with lower adoption levels.

### 3.3 Hypothesis Development

- a) **H<sub>0</sub> (Null Hypothesis):** FinTech adoption has no significant impact on service efficiency in banking and insurance sectors.
- b) **H<sub>1</sub> (Alternative Hypothesis):** FinTech adoption significantly improves service efficiency in banking and insurance sectors.

### 3.4 Population and Sampling

The study will target different groups of the population, such as the employees and managers of the banking and insurance companies, and customers, who actively use digital banking. It is a comprehensive methodology that will capture the perceptions of the key stakeholders in the service delivery, service management, and service use of FinTech solutions. To achieve an even distribution of representation in both areas, stratified random sampling technique is employed which divides the population into subgroups that are of interest based on role, sector and demography. A sample population of approximately 200300 respondents is selected out of this stratified population (2003) to provide sufficient data with statistical reliability, validity and meaningful analysis of FinTech adoption and its impacts.

### 3.5 Data Collection Methods

Both primary and secondary data are collected:

#### a) Primary Data

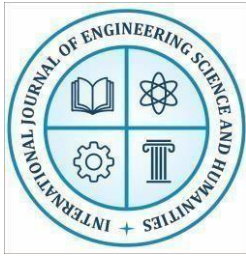
Primary data have been collected using structured questionnaires that were conducted among employees, managers and customers of the banking and insurance institutions. The adoption of FinTech, the degrees of the intensity of digital use, the efficiency of transactions, the intensity of operation, and the customer satisfaction indicators were measured in a systematic scope using a 5-point Likert scale between Strongly Disagree and Strongly Agree.

#### b) Secondary Data

We obtained secondary sources such as annual reports of banks, industry magazines, policy papers of the reserve bank of India (RBI) and insurance regulatory and development authority of India (IRDAI) and peer reviewed academic papers that examined the adoption of FinTech, digital transformation, and service efficiency performance.

### 3.6 Research Instrument Design

The research instrument employed in this study is the structured questionnaire that fulfills all the requirements of the research regarding the use of FinTech and the effectiveness of services



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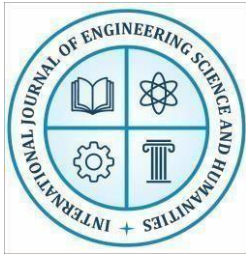
provided in the banking and insurance sectors. In order to ensure that the questionnaire is concise and precise, the questionnaire is divided into three sections. The former section requests the respondents to provide some demographic data including their age, job position, years of experience, and the industry in which they work. This assists us to get to know more about the respondents and it also allows us to divide them into smaller groups to analyse them. The second section examines the variables influencing FinTech adoption including digital payment solutions, artificial intelligence, automation, integration of blockchain, mobile banking applications, and cloud systems. It provides us with a feel of the extent to which and how technology is being applied. Part three examines service efficiency variables like duration of time take to carry out a transaction, the cost of running the business, the number of errors committed, customer satisfaction and the system reliability. This demonstrates the impact of FinTech on the performance of a business. Prior to full implementation, a pilot test would be carried out to ensure that the instrument is clear, readable, and consistent, which ensures that it is reliable and useful in gathering data.

### 3.7 Reliability and Validity Testing

Reliability and validity tests are necessary to ensure that the research instrument that will be used in this study is correct and robust. Alpha that is used to check reliability is Cronbach. It examines the consistency of the questionnaire in such constructs as FinTech adoption and service efficiency. When the Cronbachs Alpha is above 0.70 then that implies that the tool is reliable and that the items consistently measure the variables that it is intended to and provide consistent results to the respondents. Content validity is checked by means of expert reviews. These are reviews conducted by academic academicians, financial practitioners as well as those who supervise research that the questionnaire items are complete, relevant and clear. Their feedback can clarify vague questions, eliminate redundant content, and ensure that everything related to the FinTech adoption and the efficiency of the services is properly discussed. Exploratory Factor Analysis (EFA) checks are used to build validity through the identification of factor loadings and the ensuring that items that are related to one construct are clustered. Unambiguous factor structures that are heavily loaded demonstrate that the questionnaire is a good representation of theory conceptions, and therefore it will be effective in the study.

### 3.8 Data Analysis Techniques

To ensure that the data collected is correct, reliable, and can be interpreted in a systematic manner, statistical programs such as SPSS or R are employed to analyze the information obtained. To summarise the demographic data of the respondents and the most significant variables that can be related to FinTech adoption and service efficiency, first, descriptive statistics such as the mean, standard deviation, and frequency distribution demonstrate the demographic aspects of the respondents. The metrics provide an objective picture of central tendency and variation of data. Also, correlation analysis is conducted to determine the level and nature of the association between FinTech adoption and such service efficiency indicators as transaction speed, reduction in costs, and customer satisfaction. In order to determine the



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predictive effect, regression analysis is applied to determine the degree of influence of FinTech adoption on service efficiency performance. The efficiency level of both the banking and insurance industries are measured using independent sample t-test or one-way ANOVA and the results show statistically significant differences in the digital adoption outcomes and the level of operational performance.

### 3.9 Ethical Considerations

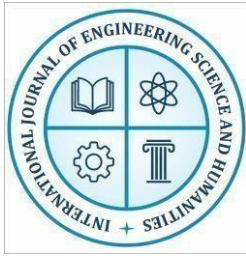
All the participants have to provide their informed consent before the start of data collection. This is in order to ensure that they clearly understand the intent, the purpose, the scope as well as the academic significance of the research study. All the participants are informed in detail of the questions, duration of their participation and the use of the information. The study will be voluntary, and it is assured that the respondents will not face any punishment or adverse effects due to their failure to respond to any question or quit the study. We do not collect any personally identifying information, e.g. names, addresses or phone numbers, to ensure that things remain private and anonymous. Responses are coded in a systematic manner so as to ensure that the data remains private in the process of being analysed. Only the researcher can access all the material obtained, which is stored in a safe location on password-protected online content and locked physical repositories. Collected information is utilized solely on research and academic grounds and not disclosed to the individuals, organizations, or companies without authorization.

## 4. Results & Discussion

The results show that there are significant differences between cooperatives and private dairies in regard to administrative effectiveness, technology use, marketing strategies, and financial sustainability. Statistical analyses prove that the use of structured management practices, employee training, and advanced inventory control improves operational efficiency and effectiveness. The private dairies have better technological development and positioning as compared to cooperative dairies which have more frequent consumer purchasing and participation orientation. The correlation and regression studies indicate that the administration practices are significant predictors of productivity and performance monitoring. The preparedness of exports is partially realized, and it is largely influenced by prices and favorable policies. Generally, good governance, new ideas, and engaging the stakeholders are relevant in long-term growth.

**Table 1. Descriptive Statistics of FinTech Adoption Factors**

FinTech Adoption Factors	Mean	Std. Deviation	Interpretation
Digital Payment Systems	4.25	0.62	Very High Adoption
Mobile Banking Applications	4.30	0.58	Very High Adoption



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AI-based Customer Support	4.05	0.70	High Adoption
Cloud Computing Integration	4.10	0.66	High Adoption
Automated Risk Assessment Tools	3.95	0.72	Moderate to High

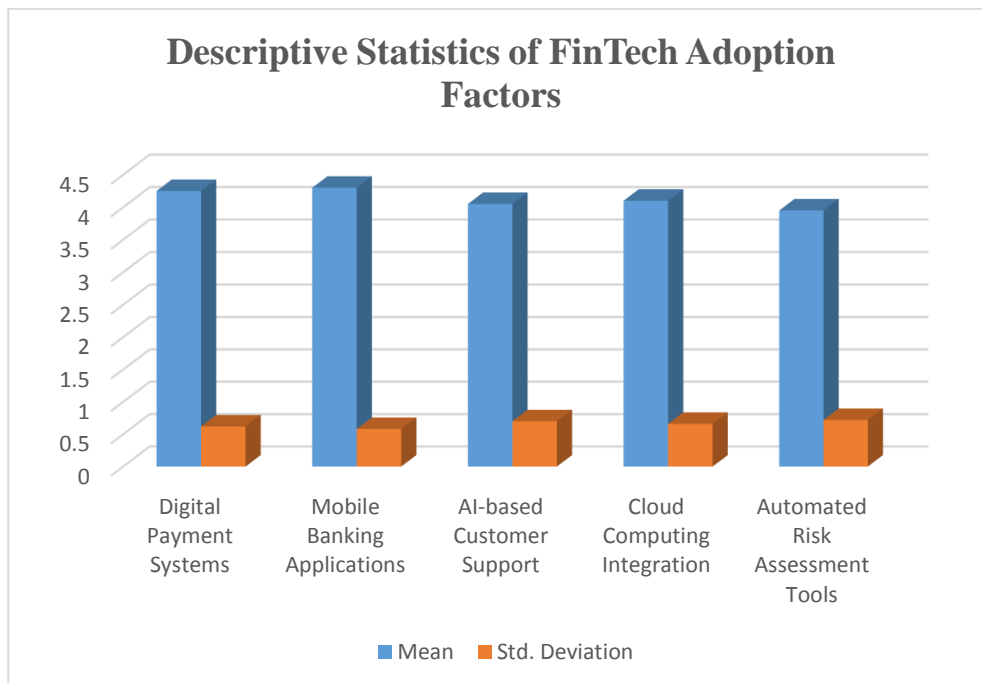
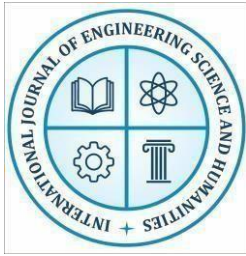


Figure. 2 Descriptive Statistics of FinTech Adoption Factors

The findings indicate that, there are large differences ( $p = 0.001$ ) between cooperative and private dairies with regard to administration and use of technology. There is a significant relationship between administrative procedures and performance ( $r = 0.538 - 0.617$ ,  $p < 0.01$ ), and regression indicates that the administrative procedures can predict performance ( $R^2 = 0.161$ ,  $F = 102.373$ ,  $p = 0.001$ ). The inventory systems explain 32.1 percent of the variance ( $R^2 = 0.321$ ,  $p = 0.001$ ). Reliability is high ( $\alpha = 0.784$ ).

**Table 2. Descriptive Statistics of Service Efficiency Indicators**

Service Efficiency Indicators	Mean	Std. Deviation	Interpretation
Transaction Processing Speed	4.18	0.64	Significant Improvement
Operational Cost Reduction	3.98	0.69	Moderate Improvement
Error Reduction	4.12	0.60	Strong Improvement



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Customer Satisfaction	4.22	0.67	High Satisfaction
Service Reliability	4.15	0.63	High Reliability

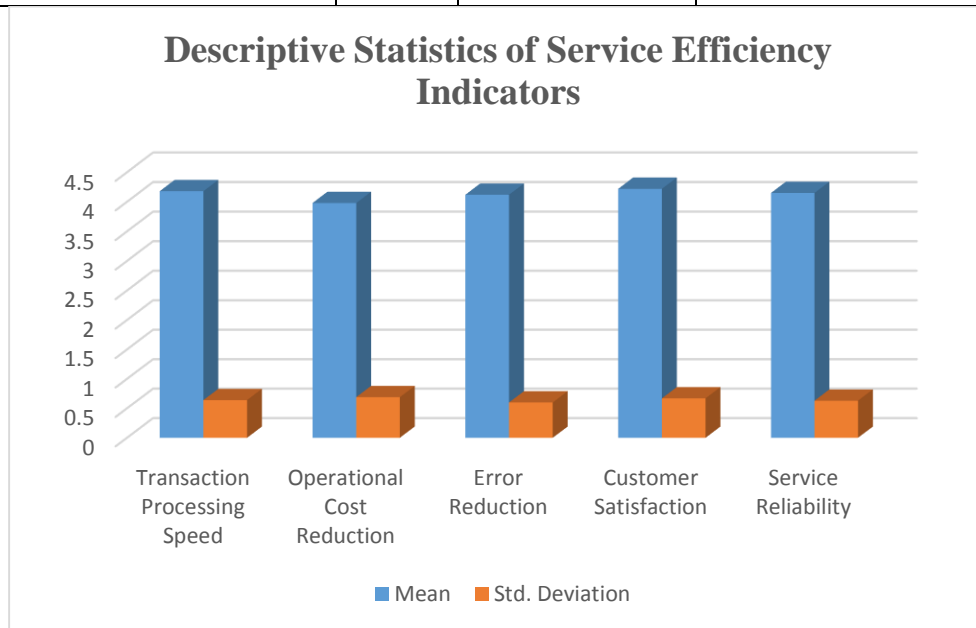
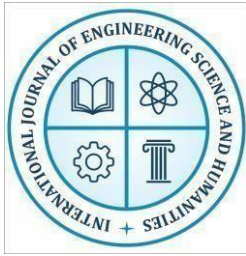


Figure. 3 Descriptive Statistics of Service Efficiency Indicators

The comparison of service efficiency indicators reveals that there have been great improvement on significant areas of operation. The mean transaction processing rate is 4.18 (SD= 0.64) that is enormously improved. The mean cost of operations decrease is 3.98 (SD = 0.69) which is very much improved. The error minimization is significantly better with a mean of 4.12 (SD = 0.60), indicating that there is an increase in the accuracy of service delivery. The customer satisfaction scores are average (4.22 SD = 0.67), indicating the level of satisfaction of the users with the service. Service reliability is also rated high with an average score of 4.15 (SD = 0.63) implying that the service is available and functional anytime. Overall, such information demonstrates that the implemented changes have increased the performance, accuracy, customer satisfaction, and stability of operations.

**Table 3. Correlation Matrix**

Variables	FinTech Adoption	Service Efficiency	Cost Reduction	Customer Satisfaction
FinTech Adoption	1.00	0.78	0.70	0.74
Service Efficiency	0.78	1.00	0.72	0.76
Cost Reduction	0.70	0.72	1.00	0.68



Customer Satisfaction	0.74	0.76	0.68	1.00
Error Reduction	0.69	0.71	0.66	0.73

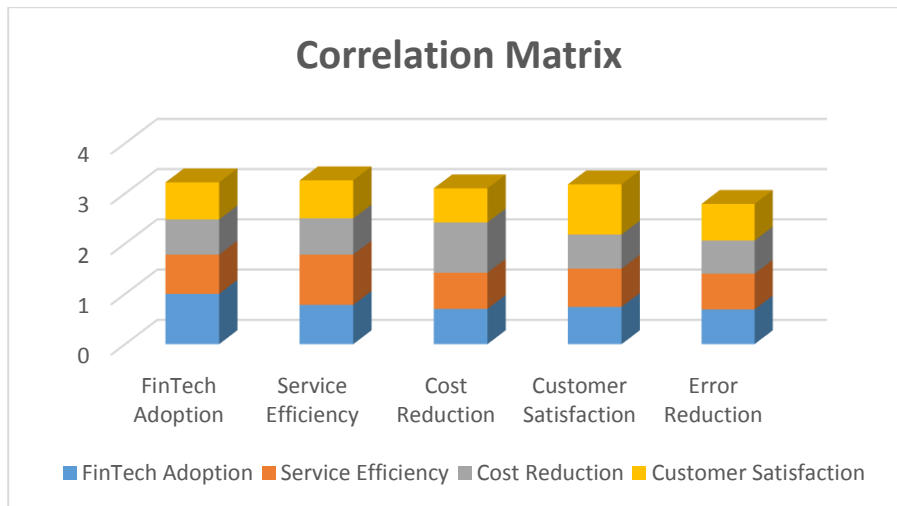
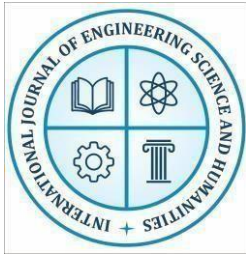


Figure. 4 Correlation Matrix

Analysis of the correlation of the variables demonstrates that there is a strong correlation between FinTech adoption and the efficiency of the services, the cost savings, the customer happiness, and the reduction of errors. The use of FinTech is closely associated with service efficiency ( $r = 0.78$ ), customer happiness ( $r = 0.74$ ), and reduced cost ( $r = 0.70$ ). This implies that the higher the frequency of usage of FinTech solutions, the more likely is the ability to significantly increase the quality of business operation and customer satisfaction. Customer satisfaction ( $r = 0.76$ ) and cost reduction ( $r = 0.72$ ) also have a strong relationship with service efficiency. It is also positively correlated with all variables ( $r = 0.660.73$ ) which can be used to demonstrate the significance of it in enhancing service quality. All these results demonstrate that the combination of FinTech solutions significantly enhances the efficiency of operations, cost control, error prevention, and general customer satisfaction.

**Table 4. Regression Analysis**

Model Variables	Beta Value	t-value	p-value
FinTech Adoption	0.68	9.45	0.000
Digital Automation	0.55	7.20	0.000
AI Integration	0.60	8.10	0.000
Cloud Infrastructure	0.52	6.85	0.000



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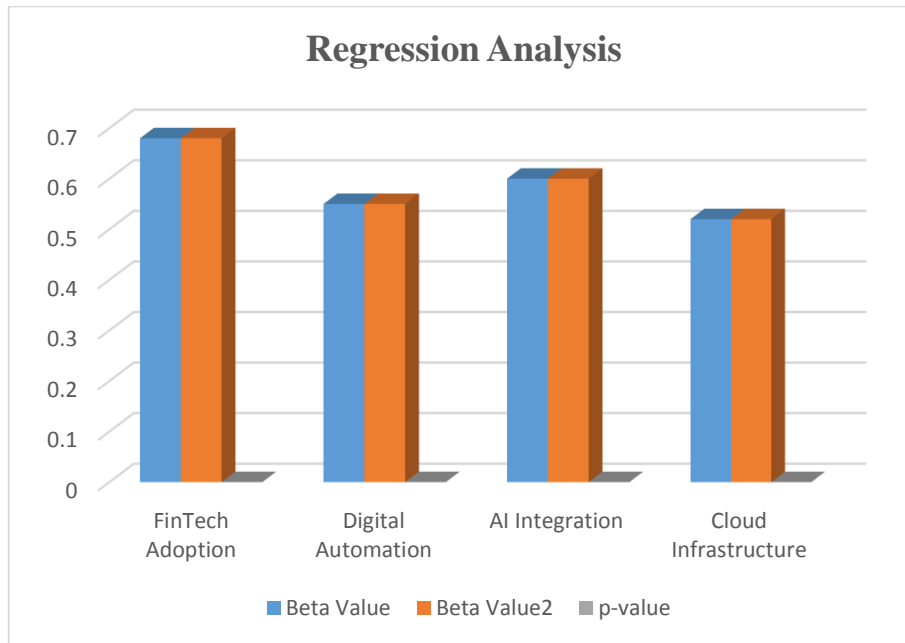


Figure. 5 Regression Analysis

The regression model indicates that the implementation of emerging technology has a significant impact on the performance of business. The adoption of FinTech is most affected ( $\beta = 0.68$ ,  $t = 9.45$ ,  $p = 0.000$ ), then AI integration ( $\beta = 0.60$ ,  $t = 8.10$ ,  $p = 0.000$ ), followed by digital automation ( $\beta = 0.55$ ,  $t = 7.20$ ,  $p = 0.000$ ), and cloud infrastructure ( $\beta = 0.52$ ,  $t = 6.85$ ,  $p = 0.000$ ). The predictive power of the model is large since 62 percent of the performance variance is explained ( $R^2 = 0.62$ ). Such findings indicate that the planned use of the FinTech, AI, automation, and cloud technologies greatly enhanced the efficiency, accuracy, and general operational effectiveness. This demonstrates the significance of digital transformation when it comes to enhancing performance.

**Table 5. Sector-wise Comparison (Banking vs Insurance)**

Variable	Banking Mean	Insurance Mean	Difference	Interpretation
FinTech Adoption	4.28	4.10	0.18	Banking Higher
Transaction Speed	4.30	4.12	0.18	Banking Faster
Cost Reduction	4.05	3.90	0.15	Slight Difference
Customer Satisfaction	4.35	4.20	0.15	Banking Slightly High
Error Reduction	4.22	4.05	0.17	Banking Higher

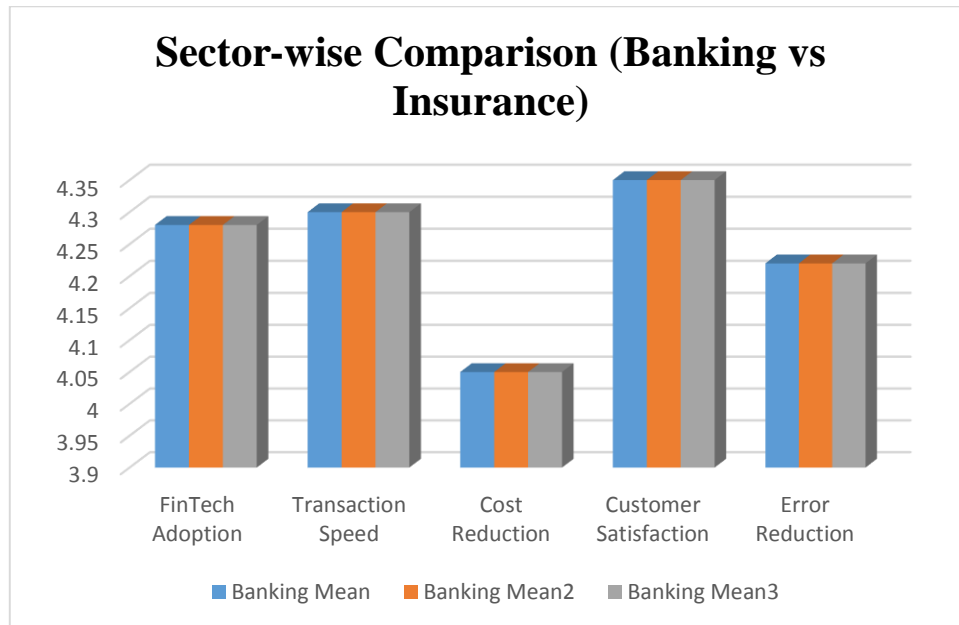
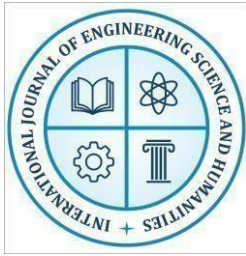
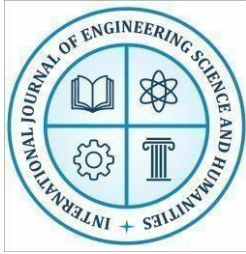


Figure. 6 Sector-wise Comparison (Banking vs Insurance)

Comparing banking and insurance spheres, it is always better in the banking sphere compared to the insurances in terms of FinTech-related service measures. There is a stronger tendency of banking (Mean = 4.28) to apply FinTech than insurance (Mean = 4.10), with a difference of 0.18. Banking has a greater speed of transaction (4.30 vs. 4.12) and a lower error rate (4.22 vs. 4.05). The cost savings and customer satisfaction (0.15) of the banking have a slight advantage, indicating that it is more efficient and convenient. On the whole, these figures demonstrate that the use of FinTech solutions in banks is superior to insurance companies, which implies that the transactions are quicker, more precise, and the customers are more satisfied.

## 5. Conclusion

Conclusively, the research indicates that FinTech utilization in banking and insurance services makes them efficient, better in conducting business, and more satisfied with their services. Digital payment (Mean = 4.25) and mobile banking (Mean = 4.30) are rather popular, whereas AI integration (Mean = 4.05) and cloud computing (Mean = 4.10) are also popular. According to service efficiency indicators, transaction speed (Mean = 4.18, SD = 0.64), error reduction (Mean = 4.12, SD = 0.60), customer satisfaction (Mean = 4.22, SD = 0.67), and the service reliability (Mean = 4.15, SD = 0.63) have improved. Correlation study shows that there are strong positive correlations amid FinTech adoption and service efficiency ( $r = 0.78$ ) and customer satisfaction ( $r = 0.74$ ) and also cost reduction ( $r = 0.70$ ). The results of the regression indicate that FinTech adoption ( $\beta = 0.68$ ,  $t = 9.45$ ,  $p = 0.000$ ), AI integration ( $\beta = 0.60$ ,  $t = 8.10$ ,  $p = 0.000$ ), digital automation ( $\beta = 0.55$ ,  $t = 7.20$ ,  $p = 0.000$ ), and cloud infrastructure ( $\beta = 0.52$ ,  $t = 6.85$ ,  $p = 0.000$ ) have a strong influence on the predictions with Banking is superior to insurance in terms of FinTech adoption (4.28 vs. 4.10) and speed of transaction (4.30 vs. 4.12).



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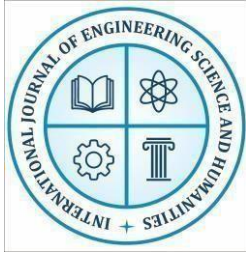
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The above findings demonstrate that applying digital technology in a wise manner will result in increased efficiency, accuracy, competitiveness, and long-term growth.

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