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TECHNOLOGY REVOLUTION IN THE SECTOR OF FINANCE

Mr. Ahmed Raza Halim Farooqui[1], Prof. Amit Singh[2]
[1,2] Swayam Siddhi College of Management and Research.

Abstract
The financial sector has undergone a profound transformation driven by the rapid advancement of technology. Things like artificial intelligence, blockchain, and mobile banking have made financial systems faster, more accurate, and easier to use. This study looks at how these technologies have improved financial services, from speeding up processes to making them more secure and accessible to people worldwide. It also examines challenges like cybersecurity risks, job loss, and the complex rules that come with these changes. By understanding the past and present of financial technology. The study investigates the shift from traditional manual financial systems to highly automated digital processes, exploring the benefits and drawbacks of these changes. By analyzing past developments and current trends, the research offers a comprehensive understanding of the ongoing technological revolution in the financial sector and its broader implications on society and the economy.
Keywords: Technology, Artificial Intelligence, Blockchain, Mobile Banking, Financial Systems.

► *Corresponding Author: Mr. Ahmed Raza Halim Farooqui*

Introduction:

Technological revolution has rapidly impacted the sector of finance, leading towards various changes with its own pros and cons. The technological revolution is reshaping the various traditional method of finance by emerging technologies such as Artificial Intelligence, Digital Payment Modes, Net Banking and many more. Before the technological revolution, the working in the sector of finance was mainly depended on the manual work with the basic use of technological tools with less efficiency as compare to now.

Technological revolution are taking place with the objective of enhancement of tradition method, easy accessibility, enhancing efficiency, providing transparency, and to reach large scale audience quickly. This technological revolution has also created certain challenges such as cyber security concerns, a need of continuous adaption and regulatory complexity. Currently the technological revolution does not only focus on making work more efficient but also consider the ecosystem on a global scale.

Objectives:

- To study about the technological revolution in the sector of finance.
- Comparing the traditional and modern method for the clear image of the changes in the sector of finance.
- Understanding the pros and cons taken place due to the technological revolution in the sector of finance.
- Reason for changes in technology.
- Customer Experience and Employment Impact

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Literature Review:

Financial Innovations: A Deeper Literature Review with Focus on the Indian Economy - Vinod Kumar

Focusing on the Indian financial system, this paper examines the impact of financial innovations driven by increased internet and mobile technology penetration. It highlights the demographic factors contributing to the Fintech revolution in India. These studies collectively provide a comprehensive overview of the technological revolution in finance, exploring the integration of emerging technologies, their impact on traditional financial services, and the accompanying regulatory and operational challenges.

Challenges and Trends of Financial Technology (Fintech): A Systematic Review - Ryan Randy Suryono, Indra Budi, and Betty Purwandari (2020)

It examines the state of the art of financial technology research, identifies gaps in the field, and highlights challenges and trends for future research. It covers various fintech services such as funding, payment, e-aggregators, e-trading, e-insurance, and cryptocurrencies.

The Impact of Financial Technology (Fintech) on Traditional Banking: A Comparative Analysis - Anshika Agarwal and Purushottam Kumar Arya (2024)

It explores the impact of fintech on traditional banking models through a comparative analysis. It discusses key technological innovations like digital payments, blockchain, robo-advisors, and evolving customer expectations.

Artificial Intelligence in Finance: A Comprehensive Review through Bibliometric and Content Analysis - Salman Bahoo, Marco Cucculelli, Xhoana Goga, and Jasmine Mondolo (2024)

It provides a comprehensive overview of existing research on AI in finance. The review covers various AI applications in finance, including predictive systems, classification systems, big data analytics, and more.

Data and Methodology:

The study is based on the time series data from 1950-2020. The time period has been deliberately selected from 1950 as it was the year from when the introduction of technology has been started in the field of Finance.

Secondary Data has been used for the purpose of this study, which has been collected from various websites and Journals for this research.

Analysis and Interpretation:

Technological Revolution in the field of finance:

There is a significance role of a technology in the enhancement of various features or method in the working in sector of finance. Technology just not only enhanced the working but also increase the efficiency, accuracy and transparency leading towards the betterment. There are various tools one can use for the accounting, banking, analyzing companies portfolio, preparing financial statement, comparing of financial statement and for many more purposes too.

Comparing of traditional and modern method of technology used over period of time:

Let's look into the various technology which was used earlier and the technology which is currently used for better understanding.

Prior 1950's:

a) Accounting were recorded in a physical ledger, and transaction were handled manually.
b) Early calculating devices like arithmometers and comptometers supported basic computations.

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c) The telegraph and stock ticker machines enabled faster financial communication, but operations like check processing were still manual.
d) Banking was entirely branch-based, with all deposits, withdrawals, and loans processed manually. Checks were manually verified and cleared, often taking days for interbank transactions.
e) Shares and bonds were issued as physical certificates, which required manual handling and storage.

A Timeline beginnings of Technology in Finance (Post 1950's):

1950's:
The credit card was introduced in this period which began the framework of plastic money. Along with this bank also started using Main frame computers for the managing the accounting as it helps to manage the big data easily.

1960's:
Automated Teller machine (ATM) was introduced allowing the users to withdraw the money very easily. And bank started to use Magnetic Ink Character Recognition (MICR) for negotiable documents making the accuracy process more efficient.

1970's:
The SWIFT network was launched for global interbank transaction. The Stock Exchange Market also started experimenting electronic trading system moving from manual process.

1980's:
The personal computer came into the market allowing the financial firm to manage their data management and customer interfaces.

1990's:
The world spread of internet brought online banking system into the scene. Financial market transitioned itself into the electronic trading, with the help of exchange like NASDAQ.

2000's:
Launch of mobile banking took place leading towards the growth of digital payment with a motive of promoting cashless transaction.

2010's:
Blockchain Technology came into the scenario led by Bitcoin distrupting the traditional payment method with the objective of avoiding corruption.

2020's:
The Covid-19 has played a vital role in the usage of technology leading towards the acceleration in digital payment and remote banking. Advancement in Artificial Intelligence (AI) has also make the working of finance more efficient.

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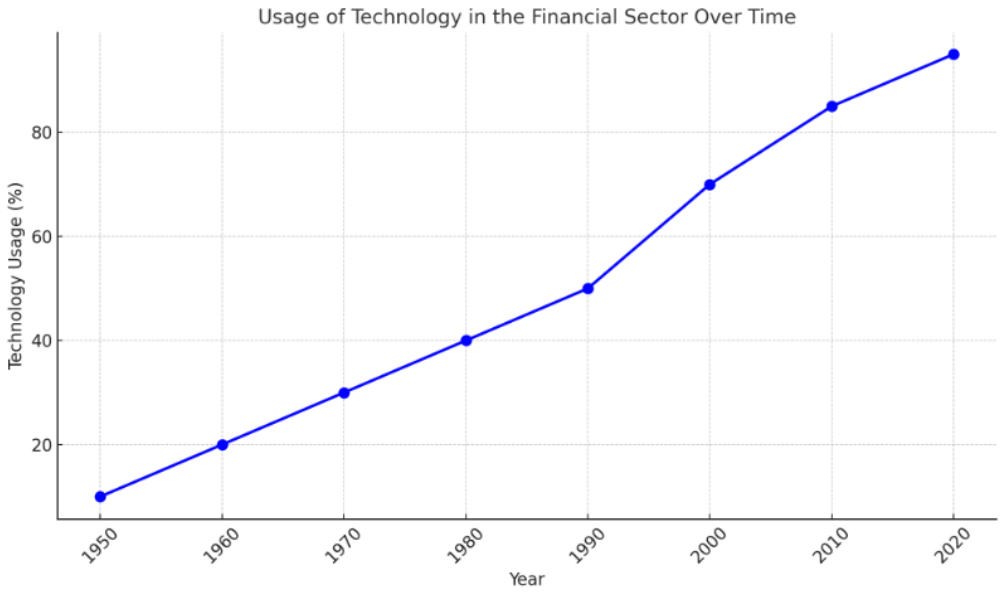
Graphical Representation:
Technology evolution:



Here is a graph that illustrates the usage of technology in the financial sector over time. The x-axis represents the years, while the y-axis shows the percentage of technology usage in the sector.

- 1950s to 1970s: Technology usage was low, as financial systems were still primarily manual.
- 1980s to 1990s: Technological integration began to grow with innovations like ATMs, early computers, and basic online banking.
- 2000s: The rise of digital banking, online payment systems accelerated technology usage.
- 2010s to 2020s: A significant leap in technology adoption with the growth of mobile banking, blockchain, AI, and digital currencies.

This graph highlights the gradual and then rapid adoption of technology in the finance industry, especially in recent decades.
Manual devolution:

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Here is the graph showing the decline in manual work in the financial sector over time:

- 1950s to 1970s: Manual work was predominant, with most tasks done by hand, including bookkeeping, transactions, and customer interactions.
- 1980s to 1990s: The introduction of basic automation, like ATMs and early computing, started reducing manual tasks.
- 2000s: As digital banking and online services became more widespread, manual processes decreased significantly.
- 2010s to 2020s: With the rise of fully digital platforms and technologies such as AI, blockchain, and mobile banking, manual work became minimal.

This graph clearly highlights how manual work in finance has dramatically reduced over time as technology has taken over various functions.

Understanding Pros and Cons of Technology Revolution:

Aspect	**Pro's**	**Con's**
1. Accessibility	Enhances access to financial services globally.	May lead to dependency on technology.
2. Efficiency	Improves efficiency and speed in financial processes.	Increased system complexity may arise.
3. Cost	Reduces operational and transactional costs.	Initial investment in technology can be high.
4. Accuracy	Ensures greater accuracy in financial transactions.	Over-reliance on systems can lead to errors if they fail.
5. Security	Strengthens fraud prevention and enhances security measures.	Cyber security risks leads to significant threats.
6. Innovation	Promotes the development of new financial products and services.	Rapid changes may outpace regulation, increasing risks.
7. Customer Experience	Enhances user experience with personalized and faster services.	Digital addiction and reduced human interaction can be side effects.

8. Employment Impact	Encourages growth in tech-related jobs and fintech startups.	Leads to job displacement in traditional roles.

Reasons for Adoption of New Technologies:

The financial industry is undergoing a rapid transformation, with the adoption of new technologies driven by a combination of market dynamics, customer expectations, and external pressures. The reason for the same are as follow:

1. Impact of Covid-19:

The **COVID-19 pandemic** has been a major catalyst for digital transformation. The shift to remote work has placed immense pressure on existing technology infrastructures, prompting organizations to enhance IT capabilities and cybersecurity measures. Additionally, the pandemic forced businesses to accelerate the adoption of digital channels to maintain operations and serve customers efficiently.

2. Threat of corporate mass extinction:

The financial sector is facing the **threat of corporate mass extinction** as it undergoes significant evolutionary change. To survive, financial institutions must reinvent their strategies, including the way they interact with customers and the rapidly changing world. Failure to adapt could mean losing relevance in an increasingly competitive and technologically advanced environment.

3. Reduce costs and increase operational efficiency:

Another driver of technology adoption is the need to **reduce costs and increase operational efficiency**. Financial institutions are facing challenges such as rising non-performing loans and low-interest rates, which are squeezing profitability. Technology offers a way to optimize operations and maintain financial stability in this challenging environment.

4. Regulatory and compliance risks:

Dealing with **regulatory and compliance risks** has also become more complex and expensive. To manage these challenges, financial institutions are adopting "regtech" solutions to streamline compliance processes and reduce associated costs. Similarly, regulatory bodies are using "suptech" solutions to improve supervision and oversight.

5. Customer engagement and experience:

Improving **customer engagement and experience** has become crucial as expectations shift. Modern customers demand greater accessibility, seamless functionality, and an enhanced user experience. To meet these expectations, financial institutions are leveraging technology to deliver customer-centric solutions.

Conclusion:

Technology has completely transformed the financial sector, making it much more efficient and user-friendly. Over the years, we've moved from manual tasks to automated systems, thanks to tools like ATMs, online banking, and mobile apps. These changes have made banking faster and more reliable but have also brought challenges like cyber threats, job losses, and the need to follow strict rules. To stay ahead, financial institutions must focus on using technology wisely—making sure it benefits both businesses and customers. By balancing innovation with responsibility, the financial sector can continue to grow and provide better services for everyone.

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