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Revamping stock market investments in India: The digital technologies role

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Abstract
The technology revolution has had a significant and long-lasting impact on the world since the public access to the internet, and indeed the Indian securities market too has gone through comparable developments. It has taken a long time for the Indian capital market, which had its formal beginning in the nineteenth century, to develop and is now thought to be at a pretty mature stage, supported by a complex framework. Due to the internet, geographical limitations have been lifted and more customers may now access financial services and products. Investors are now more frequently purchasing and selling shares online than they were being courted by their brokers by themselves. E-trading has made it possible to trade from anywhere at any time, which has helped save time, energy, and money. The major goal of this essay is to examine how digitalization has changed stock market investing in India. It also looks at the importance of digitalization.

Keywords: Digitalization, stock market investments, digital infrastructure, dematerialisation

1. Introduction
Technology has become such a fundamental part of our lives that it permeates whatever we think about nowadays. By making it easy for clients to access business operations from anywhere around the world, digitalization has enhanced business processes and increased their value. Following digitalization, the Indian Stock Market likewise had a cutting-edge development that increased the efficiency of stock trading and increased the transparency of data. The financial services sector has seen a considerable change as a result of digitalization, which has had an impact on both the trading strategies employed and the level of financial literacy of average investors (phone, internet, software, broking house).
Digital is gaining ground in all industries. Capital markets are a data-driven industry. Early in the process, its leaders saw the promise of digitalization and were among the first to incorporate it into their everyday operations to boost productivity, reduce costs, and benefit their customers. In the past, capital markets excelled in the country's economic index and had higher profit margins. The financial crisis of 2008, however, significantly changed the financial services sector. Regulators had to establish strict rules as a result of the credit crisis, which increased budgetary requirements, attracted greater penalties and fines and decreased revenue because of restrictions on proprietary trading. As participants in capital markets faced diminishing profit margins due to increased expenses, fintech companies started to fill the gap by offering greater customer experiences through faster digital processes. The established financial services corporations were faced with a major challenge, which led them to adopt a digital strategy mindset. Given the complex IT landscape and operating objectives of traditional firms, the change to digital needs to be precise and long-lasting.
In the financial market sector, the COVID-19 pandemic has also stepped-up efforts for "Digital First," primarily to encourage more efficiency, transparency, and cost savings.

2. Review of Literature
- Obidjon khamidov, Abdukhakim mamanazarov and Volodymyr kulishov (2021) [3] They attempt to give a paradigm of indications for the digitalization of Ukraine's financial market in their essay, which recognizes both positive and negative elements of the country's financial markets going digital.

- D. V. Lubyagina (2020) [2] His paper highlights the current issue of the adoption of digital financial instruments and the application of blockchain in the Russian financial industry to increase market transparency and decrease participant risk.
- Ajay Shukla and Shriram Nerlekar (2019) [1] In their paper, the authors evaluate the current condition of online commerce in India as well as the market size that is attainable there. They then come to a conclusion by listing the major winners and major losers in the game.
- Pooja.S and Shirmila. T (2019) [4] They determined that stock market trading has changed significantly as a result of digitization and technology improvements in their study, which sought to understand investors' understanding of using various mobile applications and software available for trading in stocks.

The majority of the material mentioned above discusses how financial markets, online trading, the use of software, etc. have been affected by digitalization. This essay will discuss how India's stock market investments have changed over time as a result of digitization.

3. Objectives of the study

The goals of this study, which centres on how recent changes in stock market investments have been influenced by digitalization, are as follows:

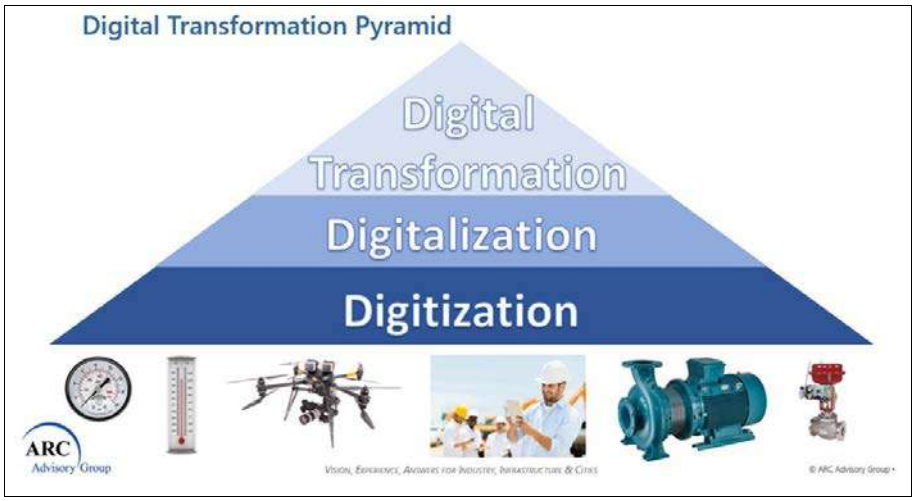
1. To comprehend the significance and purpose of digitalization
2. Research the impact of digitalization on Indian stock market investments.

4. Digitalization and its Significance

The term "digitalization" refers to the processing of data from throughout the organisation and its resources utilising cutting-edge digital technologies, which causes significant changes to corporate operations and may result in new business models and social transformation.

The Gartner Glossary says: “Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities. It is the process of moving to a digital business.”

Digitalization is distinct from digitization, which refers to the process of converting information into digital format while digitization refers to the use of digital technology to change processes, functions, and business operations. In this context, it's also important to define "digital transformation," which refers to the integration of digital technology across all organisational functions. This process fundamentally changes how businesses operate and how they offer value to customers.



***Source*:** https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation

Today, digitalization is crucial. The first step in the digitalization process is document imaging. Digitalization will show signs of efficiency and cost reductions when done properly. These are some benefits of digitalization:

Productivity Increases: One can free their personnel from boring work tasks and allow them more time to work on difficult, innovative initiatives that will increase productivity by automating manual, repetitive tasks.

People can work more efficiently and precisely when organisational processes are automated. Not least of all, process automation makes it possible for employees to get the most out of their workdays.

Operational cost reduces: Every business wants to save time and, more importantly, money. Manual tasks and processes are naturally slower than automated ones since they are completed one at a time.

Operations that are inefficient can cause businesses to lose up to 30% of their yearly income. Manually performed business operations are considerably more prone to waste resources. Digitalization allows for the most efficient and cost-effective use of the essential resources.

Transparency: Transparency in business processes is essential for long-term success. Management's trust in how operations are carried out will rise as a result of digital tracking techniques and their state. An organisation becomes more visible when its processes are well-documented and its workflow is transparent. Management don't have to worry about workers forgetting whatever they're meant to be doing because everyone knows what they should be doing. When leaders visualise their processes, they are able to see opportunities and bottlenecks

instantly.

Quality and Consistency: One of the biggest advantages of digitalization is that it makes sure each task is completed consistently, resulting in output that is dependable and of a high calibre. If, for instance, the company streamlines its customer service follow-up process, the consumers will constantly receive the same degree of assistance from them. Businesses may start producing greater, more feature-rich products thanks to the assurance of consistency and quality as well as the advantages of time and efficiency, with very little to no rise in manufacturing time or costs.

5. Digitalization in India

India's digitization has moved significantly since the Digital India initiative was adopted. In order to provide citizens with services online, the Indian government launched the Digital India programme to build online infrastructure and internet access. Additionally, it aims to equip the country with digital technologies. To offer speed internet to rural areas, the Indian government started the "Digital India" programme. In addition to Make in India, Bharatmala, Sagarmala, Startup India, BharatNet, and Standup India, Prime Minister Narendra Modi announced the Digital India Mission on July 1, 2015.

The Digital India Mission primarily focuses on three areas

- Providing universal access to the digital infrastructure as a foundational service
- Governance and on-demand services.
- To ensure the digital empowerment of every citizen.

Digital India was established with the intention of promoting inclusive development in the areas of electronic products, services, manufacturing, and job opportunities.

The slogan of the Digital India Mission is "Power to Empower." Three fundamental pillars support the Digital India strategy. The creation of digital infrastructure, the provision of services online, and digital literacy are these three things. The following is a list of this initiative's main goals:

- To make the Common Service Centre (CSC) available to everyone in the region.
- To provide high-speed internet in every gramme panchayat.
- The "Digital India" effort unifies all of these ideas into a single, comprehensive vision so that each can be understood as a part of a larger goal.
- The Digital India Programme also encourages restructuring several existing programmes so that they may be implemented in concert.

Because of digital technology, some of India's most difficult problems—which have persisted for decades—have been overcome. It is still extremely difficult to distribute government programmes to the intended receiver while minimizing leakage or abuse. The most disadvantaged individuals now receive all of the benefits to to which they are legally entitled thanks to the Jan-Dhan-Aadhaar-Mobile (JAM) trinity. DBT technology has been used to transfer cash advantages of about Rs 23 lakh crore over the past eight years. This has resulted in 2.22 lakh crore in savings for the government.

The digital ecosystem assisted in successfully addressing the pandemic issue. Bulk texts, people in quarantine zones delivering important information and utilising digital technology for vaccination, as well as digital instruction for students when schools were closed, are just a few of the many shining instances of empowerment, inclusiveness, and opportunity.

The fintech innovation ecosystem with the quickest rate of growth is found to be in India. India's breakthrough in digital payments has received notice on a global scale. This was made feasible by cutting-edge digital payment systems like Unified payment Interface and Aadhaar-Enabled Payment Systems (AEPS). During Covid-19, when banks and ATMs were closed, on-site cash delivery was possible thanks to AEPS-based micro-ATMs at CSCs and post offices.

With more than 61,400 start-ups as of March 2022, India has the third-largest start-up ecosystem after the US and China. In India, 555 districts had at least one new company between the years 2021–2022, according to the Economic Survey 2022. During this time, around 14,000 firms received recognition. It is quite encouraging that many of these businesses are based in small towns or rural areas. About 44 startups have achieved unicorn status.

6. Transforming Stock market Investments

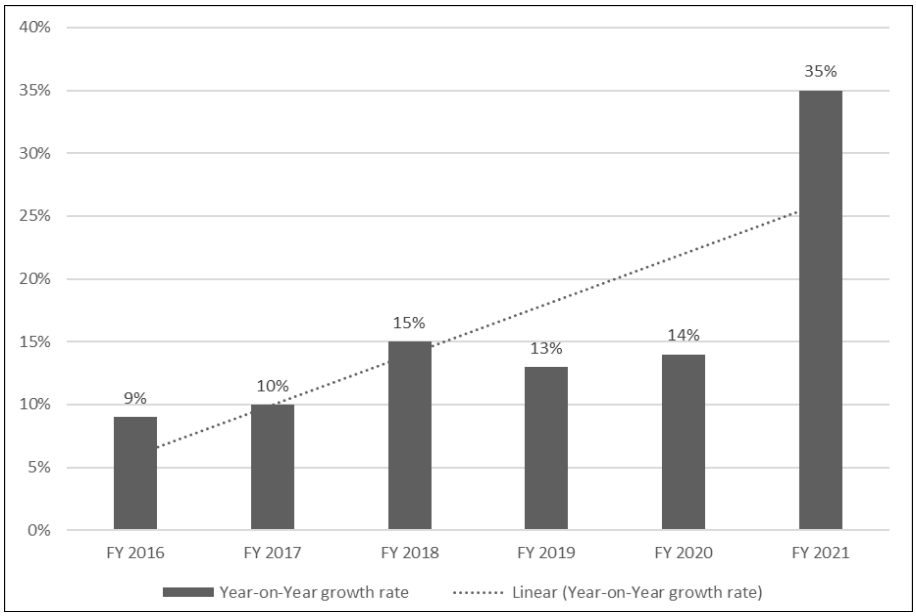
The two most significant and prominent stock markets in India are the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). BOLT was later introduced by BSE in 1995, while Automated Electronic Exchange Trading System was initially introduced by NSE in 1992. Platform for automated exchange trading (BSE On-Line Trading). NSE and SEBI offer free financial literacy programmes to individuals of all ages through reading material publications, presentations, seminars, workshops, etc. with the specific goal of promoting financial literacy among the populace. The transformation of stock market investments in India has been largely attributed to the dematerialization of shares.

Dematerialisation: In 1991, two organisations created to work alongside the then-Indian government spearheaded the endeavour to dematerialize share certificates and digitise trading accounts.

The first was the National Securities Depository, now referred to as the NSDL. The depository was essential to the creation of Demat accounts and was initially designed to support the country's economic development. The NSDL was in charge of creating and then infrastructure maintenance that would be consistent with international standards for the purpose of managing securities that were now being transformed into Demat form. The NSDL created useful tools that helped dealer’s lower costs, risk, and time lag. The security of trading and Demat accounts on the Indian capital markets was significantly aided by these, in turn.

The Bombay Stock Exchange (BSE) served as the primary advocate for the establishment of the central depository services Ltd (CDSL), the second depository, in 1999. The CDSL was a joint venture with numerous nationalised

banks, including Bank of Baroda, SBI, and Union Bank of India, as well as HDFC and Standard Chartered, as opposed to the NDSL, which was a partnership with just one nationalised bank. However, like the NSDL, CDSL wanted to keep costs down while also ensuring that investors could rely on their trading and Demat accounts without worry. However, the year 2016 is used for this study, following the adoption of the Digital India initiative in 2015, to examine how digitization has changed stock market investing in India.



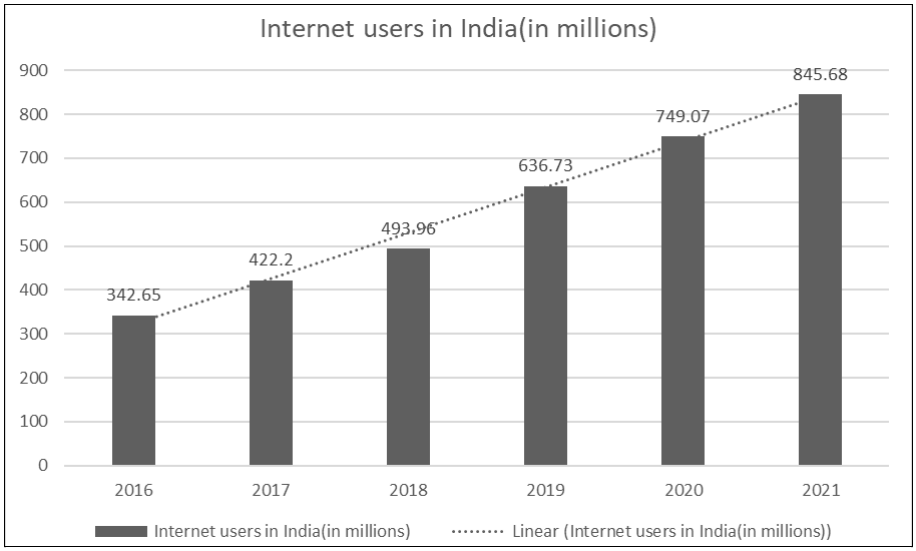
***Source*:** statista.com

Fig 1: Year-on-Year Growth rate of dematerialisation accounts in India from financial year 2016 to 2021

Digital Infrastructure: The digital systems that power an institution's information technology and daily operations are referred to as its "digital infrastructure." Examples of digital infrastructure include:

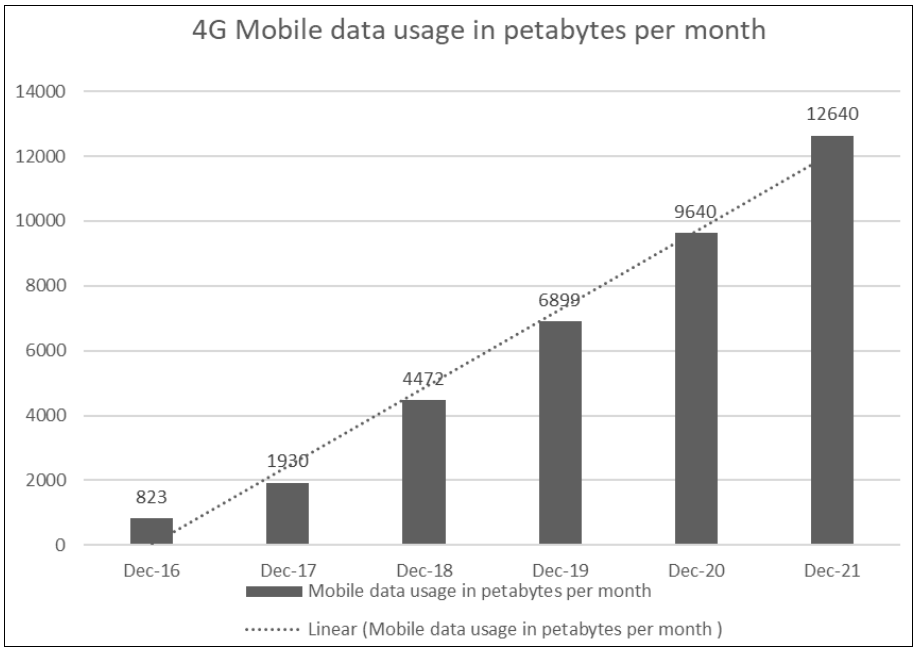
- Internet as backbone
- mobile telecom broadband
- Digital communication suites and apps for the internet
- The data centres and networks
- Enterprise portals, Platforms, systems and software's
- Cloud services and application
- Integrations for operational security and API'S
- Data encryption and user identity.

Strong internet infrastructure, increased digital communication, and apps for online stock broking in the nation have all contributed significantly to the transformation of investments in the country, whether they be security investments or physical investments. Stock market investments have also benefited significantly. With a strong digital infrastructure, investors can trade easily from their homes, places of employment, and wherever else they feel comfortable. Additionally, it gives them education and information about the market. The following statistics demonstrate how the country's digital infrastructure has evolved over time:



***Source**: Statista.com*

Fig 2: Internet users in India (in millions) from financial year 2016 to 2021



***Source*:** Statista.com

Fig 3: 4G Mobile Data usage in petabytes per month in India from 2016 to 2021

7. Conclusion

The stock market has changed significantly since the emergence of digital technology or digitalization. An investor can now find out anything they want to know about a company's finances, including graphs, reports, historical financial data, and financial performance. Today, technical analysts have easy access to a wide variety of charts for a wide range of Indices and companies. Additionally, it is obvious that more demat accounts have been opened during the study period. A second indication of how India's digital infrastructure is genuinely altering how people participate in the stock market is the country's evident upwards trajectory in internet and mobile data consumption across the study period.

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