The role of digital technologies on growth of mutual funds industry: An impact study

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\textbf{ABSTRACT}

This study aims to evaluate the effect of rapid changes in financial technologies and their impact on the financial services industry of India. A descriptive study has been made on the implementation of financial technologies in modern-day financial services industries. An intensive literature review has been done from the existing most recent available journals, newspaper articles, government websites, and magazines. We have discussed the effects of the financial technologies on the existing financial system of India, threats and challenges faced by the regulators in regulating the novel disruptive technologies. We have also discussed potential threats, challenges and future prospects of upcoming technologies in the mutual funds industry in India. Based on the literature review, it is found that financial technologies (FinTech) have a positive and important effect on the financial services industry of India. The AUM (Asset Under Management) has seen a tremendous jump in the recent past. It has also increased the customer experience with better access to the back office, even from remote places. In addition, the paper has also discussed the challenges faced by the regulators, who are yet to fully understand the implication of the fast-changing technological environment around us. Finally, this article contributes to the knowledge building and understanding of financial technologies and its impact on the financial industry, challenges, and future prospects.

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\textbf{Introduction}

Financial Technologies (FinTech) is shaping the future of financial services industry. With increased digitalization, financial services industry has become more efficient, highly productive and capable to accelerate the economy for the next level. Disruptive technologies are responsible for drastic change in various industries. It has changed the face of the world, each time a new innovative technology is introduced, it leads to death of existing products, or it may lead to phenomenal change in the way existing industry operates. According to PWC report, new technologies like robotics, big data, virtual reality, artificial intelligence, block chain have the potential to impact the industries across the world, and asset management companies will witness a disruptive change in the way it currently operates. Already Asset Management Companies (AMC) have started implementing it in their research, marketing and operations. They have seen the effects of early adaption, still a lot is under progress, which can change the entire operations of mutual fund house.

History of Mutual Funds dates back to the year 1774, from a Dutch Merchant named Adriaan Van Ketwich. With due course of time, there was development in the technology, it helped human civilization to achieve greater heights and come up with innovative products. The idea given by Adriaan Van Ketwich was extensively used by Europeans in 1880s, and they came up with innovative variants of mutual funds. It was 1980, when mutual funds caught attention of the world, with its incredible performance. Since then, mutual fund Industry has gained more acceptance in people’s mind and also with the application of new innovative techniques, it is possible for the fund houses to make it more popular and acceptable by masses.
This research paper seeks to provide a framework to identify various issues that recent technologies and digitalization presents for the financial markets in India. It covers new and emerging technologies like big data, artificial intelligence, cloud computing, distributed ledger technology and augmented or virtual reality. This paper contributes to the literature in four different aspects. Firstly, it starts with the origin of mutual funds, and a brief industry of mutual funds in India, it covers the transition stage from one mutual funds company to present day well diversified multi-million-dollar worth industry. The second contribution is the impact study by adoption of technology in Indian mutual funds industry. This study is based on the research work from published articles and government sources. It shows the trend of Indian mutual funds industry, especially after adoption of digital technology. Thirdly, we have tried to capture the challenges faced by the regulatory agencies. The regulators are not prepared for the implications of a complete change in traditional method of operations by the financial services industry. The last section contributes to understanding the anticipated technological breakthrough in future, and how is it going to impact financial services industry and its customer.

We have tried to study the current structure of operations in asset management companies. This paper covers the background on the development of Artificial intelligence and machine learning in the financial services industry. Different types of customer-oriented AI applications for improved customer experience, artificial intelligence in operations of the fund houses, robotics and AI in portfolio management, regulatory and compliance supervision. The change in mutual fund industry due to adaptation of new recent technologies, also the future prospect and impact of next generation technologies in the mutual fund industry

To find out the impact of the recent technological developments on mutual funds industry and financial markets. Technologies like Big Data, Artificial Intelligence, Block Chain mechanism, robo-advisors, etc. can even change the way financial markets are operating now. The aim is to find out the impact of change, and its future implications. The objective of the study are as follows:

i. To study the current trends in growth of mutual fund industry in India
ii. To examine the emergence of technology in mutual fund industry
iii. To study the impact of technology on mutual funds and financial markets
iv. To study the current regulatory considerations regarding use of Artificial Intelligence and machine learning, and lastly,
v. To study the implications of artificial intelligence for financial stability

Literature review

Disruptive financial technologies is not only the future, but it is already here and it is cannibalizing the traditional business in financial industry. The question is, are we ready for the fast-changing model of business or are we already late to adapt to it. Financial Technologies like robo-advisors, artificial intelligence, bitcoins and crowdfunding is witnessing strides in its progress. Leaving less time for the industry partners to react to it. Well the fact is, it has just begun, and lot more yet to come forward. The industry partners and regulators need to gear up to face it and take advantage of it. With the study of past research work done by eminent contributors, it was helpful for us to understand financial technologies, and its continuous change to the world.

Abdullah et al. (2008) conducted a regression analysis on the awareness and adoption of Fintech in mutual funds of Malaysia. They found out in their research that there is no significant relationship between age and performance expectancy, effort expectancy, social influence, and facilitating conditions. The same result was for the relationship with gender and performance in mutual funds selection criteria. According to their research, performance variable was the main criteria for mutual funds selection among investors. One of their findings show that good education profile tend to use technology application in internet banking and mutual funds’ investments.

Alexandra Andhov (2018) came up with a conclusion in his research that financial technology is still at a very nascent stage. Their discovery was amazing, awareness of digitalization depends on the improvement of the capacity of computers, intelligent algorithms, availability of massive data storage possibilities. It has been tough for EU to create an environment of trust for the investors, where they can have confidence in the industry with its transparency, decentralization, tamper-resistance, accountability and privacy. With increased transparency, the confidence level among the investors will increase, also it will lead to increased efficiency of work, with lesser paper-work through digitalization.

Daniel O’Keefe et al. (2016) from KPMG surveyed fifteen hundred bank clients about their awareness of and interest in portfolio advisory was 8 to 15 percent, but it was equally astonishing that 51.8% of the investors were aware of intelligent portfolio management, and 48% of the investors were aware of Personal Advisor Services. They also quoted an increased shift in new and existing investors towards robo-advisory, according to their research, robo-advisory could be worth $2.2 trillion by the year 2020. Teo, ErnieG.S. and Chuen, David Lee Kuo (2015) suggested use of LASIC (Low Margin, Asset Light, Scalable, Innovative and Compliance easy) Principles on two of China’s successful Financial Technologies firms (Alibaba and M-Pesa) to study the impact of various internal and external factors affecting success of new fintech companies. They came to conclusion that in today’s world, connectivity plays a very vital role. Customers want more customized, convenient and secured investment options. Financial institutions today connect more with the customers via their phones, computers and social media, than in physical. Connectivity Inclusion has to be the new priority for the businesses in order to have a sustainable growth in the future.
With new technologies, some concerns were raised by Santiago Carbo-Valverde (2017) in his article “The impact on Digitalisation on Banking and Financial Stability”. With new innovative financial technologies, it would be difficult to regulate and manage the technologies. An important challenge is ensuring adequate control over the new financial players. However, he also highlighted that Fintech could be used as an opportunity to reduce marginal costs and increase efficiency in financial services. New job creation, new skills will be required in financial services sector.

Not only the financial services have to reinvent themselves and brace up for the new financial technologies, but the banking is also witnessing a transformation within itself.

Anna Omarini (2017), has concluded in her research that not only the technology itself would be disruptor, but the firms implementing these upcoming technologies have an impact on how they implement these new technologies will cause disruption in the market.

Vijaya Kittu Manda (2018), focused on the use of blockchain mechanism for operations of mutual fund industry. Blockchain can process for NAV calculations on a real-time basis, which can in turn save time and paperwork. Redemptions could be processed on a real-time basis, as all the information they need could take data as and when they want from the blockchain. He is optimist that implementation of blockchain will have a very positive impact in the evolution of digitalization and automation of mutual funds industry.

**Recent trend in growth of mutual fund industry in India**

Mutual funds in India started with the formation of Unit Trust of India (UTI) by the initiative of Government of India and Reserve Bank of India, in the year 1963. It was formed by an Act of Parliament by Reserve Bank of India, and RBI was the administrative and regulatory authority of UTI. Mutual fund Industry in and around the world is witnessing a robust and unprecedented growth over the last decade or so. With the adaptation and implementation of new technology, financial services industry has shown phenomenal acceptance and have managed to reach the corners of the world. With increased transparency and access to information, investors have shown more confidence in the financial markets.

![Asset Under Management](image)

**Fig.1:** Asset under management, **Source:** International Investment Funds Association (IIFA) **Data pertains to the first quarter of the respective calendar years for open-ended funds only.**

Indian investors have shown three times jump in the contribution to Asset Under Management (AUM) in mutual funds over the last three to five years. Year 2017 has proved to be one of the highest grosser by reaching a total corpus of Rs. 17 trillion, despite the poor show by equity and capital markets due to the demonetization and global surge in oil prices. Around Rs. 3.71 trillion contributions came in the year 2017 only, the highest ever contribution till date. The Systematic Investment Plans (SIP) monthly contribution has hit a record high of Rs. 4,500 crore, which is expected to rise even further high. ETFs have also seen a sharp rise in contribution by investors. Rs. 40,000 to Rs. 45,000 crores were invested through the ETFs and arbitrage funds, which represents almost 10% of total contribution. Another reason for sharp rise in mutual fund contribution is scrapping of entry load from the mutual funds. With rising incomes and good economic policies, mutual funds industry saw a surge in mutual funds AUM and several fund houses were formed. One of the reasons for sudden rise in mutual fund contribution is technology. Technology has made it possible for the asset management companies to expand its territory to places, where it doesn’t have any physical presence. People are now able to get information, suggestion and even they can invest in mutual funds without visiting the representative offices of the AMC. Mutual Fund industry has adapted itself to the changing technological environment in and around itself. And it has seen a positive response from the investors. Investors can now even get the e-KYC done online, without even the physical contact with any of the representatives of the mutual fund industry. Also, SEBI (Securities Exchange Board of India) the regulatory body of the MF industry, has made necessary changes in the regulations, so that it can take proper advantage of the new technologies into the mutual fund industry.
Impact of technology on mutual funds and financial markets

Artificial Intelligence has been into the mainstream news, as it is always making headlines, every time it’s something new and remarkable. Stephen Hawking’s warning on the Artificial Intelligence cannot be ignored, whereas there are still people and government who can’t stop working on Artificial Intelligence. AI has already created its space in the industry, with its applicability into many aspects. It has helped company to reduce inaccuracy and increase efficiency. It is already used in ECM (Enterprise Content Management) by mutual fund companies. AI does the job of processing large data, arranging, classifying, checking for error, and thus reducing the redundancy and duplication of data.

Computers is known for analyzing and processing huge amount of data within fraction of seconds, combined with intelligence, smart analyzing and interpretation of data could help fund managers to do the historical analysis of the stocks. With greater intelligence AI is utilized for making security analysis and arriving at an optimum portfolio with risk-reward ratio. It can also be used to customize the needs of the investors and suggest the best possible investment options. Here Robo-Advisors are being developed, which can work based on certain algorithms to understand individual customers, its needs, risk parameters, etc. and then can process the data to suggest right products for the investors. Since it will be automated, chances of inaccuracy are minimized.

With next generation technology, entire investment process is now paperless, efficient and easy to invest. It has helped the fund houses to increase its efficiency in distribution channel, it is now possible to reach places, which was earlier difficult to reach. With e-commerce platforms, mutual funds would be under the reach of vast majority of the investors. Technology is transforming the asset management companies, it is now being reorganized and more centralized than before. Mobile, social media, cloud computing, Blockchain mechanism, big-data, analytics and Fin Tech is now redefining the future of asset management.

Since AI has the potential to enhance the efficiency of the information processing, thus reduces the asymmetries, application of AI. AI may process large information for the investor and can come up with most probable recommendations, which may be helpful for the investor in taking investment decision. It can reduce the overall trading cost for the investors, can suggest most appropriate trading strategies for the investors according to the changing scenarios. AI can be used to target specific customer segment and come up with better recommendation.

AI can also be used for risk management, by making more appropriate and accurate estimation of risks. AI is used for better anticipating and detection of frauds, suspicious transactions, risk of cyber-attacks, hence leading to better risk management.
Artificial Intelligence can cause losses to the organizations financial institutions and across the financial system. It can cause a difficult situation for the regulators to monitor and supervise the investment action of AI. Lack of transparency may again be a problematic for both regulators and exchange.

**Regulatory considerations regarding use of artificial intelligence and machine learning**

Regulating artificial intelligence, is also termed as supervision. As AI and machine learning is already adopted by financial institutions in some areas like automated customer interactions, risk assessment, credit risk analysis, optimize capital, identify trading opportunities and optimizing trading execution. Regulations is required in areas where there is a third-party dependency, for example if an AI, developed by third party, incurs loss, then who is to be blamed? The third party, or the service provider or the investor.

Regulatory authorities worldwide have imposed stricter and various regulations on asset management companies. The proposed measures to increase regulations on the financial services sector:

i. More regulations on reporting norms, and also put more stress on asset management companies to discourage investors to redeem funds at distressed situation in financial market.

ii. Just like banks undertake stress testing more often, the financial services sectors should also frequently do stress testing of all the funds they manage.

iii. Low tolerance for regulatory breaches by asset management companies, leading to increased fines and increased cost of regulations. This could lead to increased burden of regulation on asset management companies and is going to significantly impact the small players.

iv. Minimum qualifications for investment professionals, so that the minimum competency level should be achieved in order to work in an investment advisory firms as well as fund management house.

v. Complete ban on commissions on sale of mutual funds in order to protect consumers.

vi. Increased reporting in order to bring more transparency into the system.

Robo-advisors could offer tailor-made customized products for the investors, creating individual tailor-made customized products, could create low correlation among the various other trading strategies, which could lead to greater market diversity in market movements. Low cost of trading and increased efficiency in processing of information could help reduce price misalignments and hence build-up of macro-financial price imbalances. More use of machine learning could lead to lack of data transparency to the consumers, and hence it would be more difficult to explain on how a credit or insurance decision was reached.

**Conclusions**

AI is now being adapted by increasing number of companies worldwide, and when it comes to financial industry, the asset management companies have already started making use of AI and machine learning. It has led to increased efficiency in operations of the financial institutions and also it has increased overall efficiency of the financial system and economy. More efficient risk management of the investment portfolio, helps to appropriate allocation of funds, also reduce cost of transactions and increase speed of the transactions. With adaptation of digitalization in mutual funds, it has shown a very positive sign of increased participation by the investors. Demonetization may have initially hampered the financial markets, but soon it witnessed highest ever contributions towards asset base of mutual funds, in the year 2017 as compared to over a decade. Investors can now make direct investments, without involvement of any broker or distributor, soon ecommerce platform will make it even more easier for the investors to invest in mutual funds. New technologies like Blockchain mechanism, robo-analytics, robo-advisors will help the asset management companies to increase their efficiency and performance in future. Distribution channels will utilize more of advanced technologies to make their work efficient and investor friendly. Technologies like robo-advisory can help the customer to have access to wealth of information and they can get personalized advisory at their convenience. However, there would be some challenges, which can be tackled by the active involvement of regulators, in bringing the necessary changes in regulations to be in the favor of the investors, by safeguarding the interest of the investors.

**References**


