

Technology - The backbone of Capital Markets



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India today is at the helm of digital transformation. Be it SMEs, start-ups or the government, everyone has undergone or is seriously thinking of digital transformation.

Every business, irrespective of scale, size or industry, is adopting digital technologies to improve business efficiency, become competitive and to provide a better experience to the tech-

savvy end-consumer. The average age of the young Indian population has been the game changer and is whole heartedly pushing for and embracing technology in all walks of life. Indian government has also been giving significant impetus to businesses to invest in new technologies and harness the benefits of digital. The recent Union Budget 2018 was focused on emerging technologies such as Artificial Intelligence (AI), Blockchain and more.

Businesses across the country have made significant investments in digital technology. Banking, financial services and insurance (BFSI) sector is the best example of digital transformation in India. The concept of a digital bank and virtual debit/credit cards is soon becoming mainstream.

Digital disruption is making the financial sector more transparent, accessible, inclusive and efficient. Moreover, it also helps the regulators get a better sense of the risks that participants typically take.

Capital Markets and Technology

Capital market is a platform where investors and buyers get into the trade of financial securities, including stocks, bonds and other instruments. Capital market helps in channelizing excess funds from savers to the organizations, which later invest them into productive usage. In general, this market trades mostly in long-term securities.

Technology and capital Markets have been inseparable since the introduction of Demat and electronic trading. Technology has transformed the Indian Capital markets to one of the best in the world and reduced transaction time while greatly empowering the investor. About two decades ago, NSDL e-Governance Infrastructure Ltd. pioneered the concept of holding and settlement of

securities in electronic form in India. The company established state of the art Depository system for settlement of securities in dematerialized form. This system provides for a safe and efficient form of holding and transacting in securities to crores of investors. Introduction of the depository infrastructure drastically reduced settlement time from over a month to T+2 today. Coupled with the depository system, electronic trading introduced by the National Stock Exchange reduced transaction time.

Capital market in India has become so technology intensive that competitive edge is directly derived from effective use of latest technologies. Moreover, the capital markets are now so dynamic that not only the rates even new asset classes are introduced. Equity transactions for instance are aimed at a sub-millisecond transaction window which are continuously upgraded to consume lesser time. The transaction from the trading application to the exchange and back should be executed in less than a millisecond by ultra-low latency applications. This cannot be achieved without the adoption of cutting-edge technology infrastructure.

Investor access, seamless transactions, data consistency reconciliation, monitoring and regulatory compliance are some of the components of today's complex assortment of market challenges. Comprehensive adoption of digital solutions at all levels including the micro level, will allow us to meet those challenges with greater confidence. This will greatly ease operational demands of market participants, promote good industry practices, empower all market stakeholders and propel the market into future.

Last year SEBI constituted a panel to advise them on recent and medium-term fintech development trends in securities markets globally alongwith opportunities and challenges from new solutions and their impact on Indian securities market. This would further widen the reach of the Financial Markets encompassing various platforms, both traditional and alternative like peer-to-peer lending and crowd funding.

Here are a few important trends in the Capital Markets that are causing technological disruptions;

- **Artificial intelligence (AI):** Capital market entities have been turning to algorithms to do the job that humans have been doing for decades. With greatly increasing processor capabilities and inversely proportional costs, AI is being largely used to predict trends, objectively assess market risks and even to gauge investor sentiments. These technologies are being readily accepted because they enhance the probability and capability of investors and corporations to increase profits. Today,

AI techniques allow systems to learn from user interactions and patterns.

- **Machine advisers:** Softwares today have evolved to understand financial goals, map risk profiles, calculate income sources and other intricate details of an investor to come up with personalized investment portfolios. These Machine advisers can budget allocated funds, reallocate funds in case of changes, book profits, square off positions and even remodel asset portfolios based on self-learning algorithms.
- **Blockchain:** Blockchain technology originally created for the digital currency Bitcoin, has evolved to become much bigger. Blockchain today is being embraced across all spectrums of technology systems and more so in the financial services industry. The 'distributed ledger' technology, records financial transactions in a secure, transparent, traceable and efficient way. Hence, it not only suits for providing a global financial transactions system but also for digital accounting & auditing and monitoring financial transactions of any nature.
- **Big data analytics:** The Financial markets generate loads of data every second. This data needs to be securely stored and more importantly analyzed in record time to keep up with the highly dynamic market. Big data analytics is a unique way that makes it possible to analyse the critical data, highlight correlations and trace anomalies that would be otherwise impossible to find out. The harnessing of big data requires leveraging of state of the art technologies. Moreover, data today comes in all forms right from transactional data to social media data, captive customer data, etc. These insights

can change the way institutional as well as retail investor trade in the market.

- **Cloud Storage:** With data comes the most pertinent question and that is of secure storage of data. This becomes highly important considering the criticality of financial data. The data not only needs to be securely stored but should have seamless access to the right stakeholders. Data storage today has moved on from huge physical space requirements to unimaginably compact storage options. Cloud and virtual storage options are being optimally used by the analysts today to become more accessible and overcome data storage, accessibility and security challenges.

As India moves towards a more digitized future, data and information will be the foundation, upon which its smarter and brighter tomorrow will be built. The recipe of a successful business is incomplete without data; data holds the key to achieving an organizations goal. All large organizations are leveraging these technologies and stepping up their game to see themselves at the top of the chart. However, it is difficult to predict how quickly these developments will transpire in the financial markets industry. India has already made great progress in pushing through the digital economy and coming years will see additional investments in digital transformation which will be used to strengthen overall digital strategy. In the long term, technology should usher in greater transparency & efficiency and empower stakeholders and market intermediaries to adapt to regulatory changes in the local markets and create synergies with global financial markets.
