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## ABSTRACT

The paradigm shift in business outlook is triggered by unfolding technological disruption and emergence of digital era leaving no room for complacency and status-quo attitude. The Fourth Industrial revolution opened the gates of technological disruption and rise of digital revolution forcing the business enterprises to change their business outlook and national governments to join the bandwagon. Many technologies like IOT, Artificial Intelligence, Robotization, Machine Learning, Digital sciences, Touch commerce etc., are finding their applications in business. Fintech, Mobile commerce, Payment Apps and gateways, Retail and Shipping are rapidly emerging. This paper addresses and examines various dimensions and developments.

**Keywords:** *Digital Era, Digital Revolution, Business Outlook, Industrial Revolution*

## INTRODUCTION

“The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres” observed by Klaus Schwab Founder and Executive Chairman, World Economic Forum (Schwab, 2016).

The paradigm shift in business outlook is triggered by unfolding technological disruption and emergence of digital era leaving no room for complacency and status-quo attitude. One buzz-word that is often googled is ‘Digital Transformation’. Business leaders, of late, are aware that adopting and successfully implementing digital technologies, strategies and processes allows them new leeway of scaled up markets, cost optimisation and consumer satisfaction.

The Conference Board, an international research group the findings from *C-Suite Challenge 2019™* show, what CEOs feel. Globally, CEOs say their 2<sup>nd</sup> biggest internal concern is creating new business models due to disruptive technology. Compliance with data privacy regulations scores relatively high in Europe at 8<sup>th</sup>, compared to 10<sup>th</sup> globally.

“While CEOs are quite anxious about the external challenges the global economy poses to their businesses right now, the survey results suggest they’re aware of

the need to stay focused on the longer-term disruptive forces impacting their future go-to-market plans,” said Bart van Ark, and Chief Economist of The Conference Board. “That awareness reinforces the need to continue the development of new business models (Van Ark, 2019).

By 2030, according to a recent McKinsey Global Institute report, as many as 375 million workers—or roughly 14 percent of the global workforce—may need to switch occupational categories as digitization, automation, and advances in artificial intelligence disrupt the world of work (McKinsey Global Institute Report, 2017).

The major focus that the Fourth Industrial Revolution has on business would be on customer expectations, on product enhancement, on collaborative innovation, and on organizational forms. Customers will be increasing with the focus of the economy, implying the need for improving the customer service. Moreover, physical products and services, can be improved with digital capabilities. A world of customer experiences, data-based services, and asset performance through analytics, meanwhile, requires new forms of collaboration, particularly given the speed at which innovation and disruption are taking place.

## LITERATURE REVIEW

The phenomenon of digitization is reaching an inflection point. The effects of an increasingly digitized world are now reaching into every corner of our lives because three forces are powerfully reinforcing one another – consumer pull (the connected millennials), technology push and economic benefits.

**The technology-driven world** in which we live is a world filled with promise but also challenges. Cars that drive themselves, machines that read X-rays, and algorithms that respond to customer-service inquiries are all manifestations of powerful new forms of automation. Yet even as these technologies increase productivity and improve our lives, their use will substitute for some work activities humans currently perform—a development that has sparked much public concern (Manyika *et al.*, 2017).

Google has thrown up the top five technology trends you need to know to work in any industry (Wayup Experts, 2018). They are as follows:

### 1. Internet of Things (IOT)

One of the biggest tech trends to emerge in recent years is the Internet of Things. Simply put, the Internet of Things (abbreviated IOT) is the idea that all technological devices can be connected to the internet and to each other to create the perfect marriage between the physical and digital worlds. **How it's affecting business:** The cool thing about IOT is that it's not only changing the way we do business but also the business models we use to do it. For example, according to Deloitte, flexible consumption models (also known as pay-per-use models) are becoming increasingly more popular across all industries as new customer data becomes available.

IoT devices power much of the developing data-based economy and are transforming the relationship between the physical and digital worlds. Business Insider Intelligence forecasts that there will be more than 64 billion IoT devices installed around the world by 2026, and that companies and consumers will spend nearly \$15 trillion on IoT devices, solutions, and supporting systems through 2026. Annual investment is expected to surpass \$1 trillion in 2021.

### 2. Machine learning

Another exciting emerging technology is machine learning, which is essentially a computer's ability to learn on its own by analyzing data and tracking repeating patterns. For example, social media platforms use machine learning to get a better understanding of how you're connected with those in your social network. They do this by analyzing your likes, shares and comments and then prioritizing content from your closest connections, serving you that content first.

**How it's affecting business:** In addition to shaping your day-to-day interactions with friends on social

media, machine learning is also changing the way companies do business with customers. According to Deloitte, companies like Google are using machine learning on mobile devices which can continue learning even when offline. The result? Machine learning is reshaping the way businesses interact with their customers in a big way by helping them anticipate and meet customer needs more easily.

### 3. Virtual Reality (VR)

Remember watching movies about virtual reality like *Bahubali* and thinking how cool it would be if it was like that in real life? Although VR has been around since the 1950s, now it is geared to deliver the fully immersive digital experience users have been craving, thanks to recent improvements to both hardware and programming, and the effects are going to be felt across almost every industry from retail to education.

**How it's affecting business:** Virtual reality has been a popular component of video games for several years and this trend is continuing to expand. In addition to video games, VR is likely to affect companies across the board as they adopt the technology to help them engage customers more effectively and optimize their sales and marketing efforts. It's also a potentially useful tool for learning and is increasingly being adopted by educational organizations.

### 4. Touch Commerce & Mobile Commerce

You can buy anything you want with the touch of a finger may have seemed like a fantasy a few years ago, but it's now a reality. Merging touchscreen technology with one-click shopping, touch commerce allows consumers to buy products easily from their phones.

**How it's affecting business:** According to Deloitte, this is one of the biggest things to hit eCommerce in recent years with purchases of this type expected to increase by 150% this year alone and retailers in almost every industry anticipating an increase in sales directly related to this new technology.

The integration of mobile and digital channels into the lives of consumers has shifted the needle substantially in terms of how US customers bank. Today, 89% of US consumers say they use mobile banking channels, an increase from the 83% who said the same in 2017, per Business Insider Intelligence's latest Mobile Banking Competitive Edge Study. Moreover, 70% of US consumers say that mobile banking has become the primary way they access their accounts. Growth in mobile banking adoption is taking place across all age

demographics, with 79% of baby boomers now using mobile channels for banking, compared with 69% last year (Business Insider, 2019).

### 5. Cognitive Technology

Cognitive technology is in the same vein as machine learning and virtual reality except that it's a broader concept. For example, the cognitive technology umbrella includes things like natural language processing (NLP) and speech recognition. Combined, these different technologies can automate and optimize a lot of tasks that were previously done by people, including certain aspects of accounting and analytics.

**How it's affecting business:** Although cognitive technologies have a broad range of applications, Deloitte predicts that the industry sector most affected by this trend initially will be the software sector with 95% of enterprise software companies projected to adopt these technologies by 2020.

With emerging technologies changing professional industries including banking, eCommerce, healthcare and education, staying up-to-date on the latest trends will give you a better understanding of your chosen industry and make you a more competitive candidate. Best of all, this knowledge might open new doors within your field and others.

### Other Emerging Technologies

**Artificial Intelligence** - AI means that machines can perform tasks in ways that are "intelligent." These machines aren't just programmed to do a single, repetitive motion - they can do more by adapting to different situations.

AI is defined as the ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with the environment, problem solving, and even exercising creativity. Examples of technologies that enable AI to solve business problems are robotics and autonomous vehicles, computer vision, language, virtual agents, and machine learning. (McKinsey Global Institute Report, 2017)

More organisations now are turning to artificial intelligence driven by new levels of customer expectations, heightening pressures from new competition, increased regulation, an incredible growth of structured and unstructured data, and easier access to greater computing power. Already, about a third of enterprises are exploring AI solutions, and another third are experimenting, according to research from the

Economist's Intelligence Unit. And just under 45% of executives say delaying AI implementations would make their businesses vulnerable.

### AI benefits the following industries most:

- Healthcare
- Financial Services
- Manufacturing
- Transportation
- Security/Defence
- Oil and Gas
- Marketing/Retail
- Media

### The benefits of AI to organisations are numerous:

- New Levels of Service
- Alternate Sources of Revenue
- Increased Profit
- Business Expansion
- Improved Efficiency and Cost Structures.

At the more granular level, AI is expected to turn data into insight and unveil patterns in gigantic data sets more quickly. It's expected to help visualise data, speed up analytics, and drives outcomes faster. According to IDC, "widespread adoption of cognitive systems and artificial intelligence across a broad range of industries will drive worldwide revenues from nearly \$8 billion in 2016, to more than \$47 billion in 2020...experiencing a compound annual growth rate of 55.1% over the 2016-2020 forecast period (International Data Corporation, 2017). Machine learning is technically a branch of AI, but it's more specific than the overall concept. Machine learning is based on the idea that we can build machines to process data and learn on their own, without our constant supervision. Both AI and ML can have valuable business applications. Determining which one is best for your company depends on what your needs are. In fact, with things like machine learning and touch commerce becoming increasingly popular across every industry from banking to healthcare, technology is revolutionizing the way we do business and making high-tech approaches an integral part of our lives.

### Cloud Computing:

Cloud computing is a model for enabling ubiquitous, convenient, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be

rapidly provisioned and released with minimal management effort or service provider interaction.

**Businesses use cloud computing** to access information anywhere with any compatible device. Rather than storing information on computer or a server in the office, **cloud computing** stores data on the internet.

**Major reasons why companies use cloud services:**

- Maintaining Focus on the Business
- Business Agility
- Reduced Capital Expenditures
- Access from Anywhere
- Staffing Efficiency

**Block Chain:**

Blockchain is a term widely used to represent an entire new suite of technologies. Block chain has become more popular for it has become the underlying technology for crypto currency like bitcoin put out by Satoshi Nakamoto in Oct 2008.

“At a high level, block chain technology allows a network of computers to agree at regular intervals on the true state of a distributed ledger,” says MIT Sloan Assistant Professor Christian Catalini, an expert in block chain technologies and crypto currency. “Such ledgers can contain different types of shared data, such as transaction records, attributes of transactions, credentials, or other pieces of information (Church, 2017).

A block could represent transactions and data of many types — currency, digital rights, intellectual property, identity, or property titles, to name a few. Participants in the network verify or validate the blocks, eliminating the need for a trusted entity like a regulator or an accounting firm to authenticate the information in them. According to experts, the blockchain is secure and tamper-proof by design because transactions cannot be changed once the network has verified them.

There are two types of costs blockchain could reduce for business: the cost of verification and the cost of networking. Every business and organization engage in many types of transactions every day. Each of those transactions requires verification. In many cases, that verification is easy. You know your customers, your clients, your colleagues, and your business partners. Having worked with them and their products, data, or information, you have a pretty good idea of their value and trustworthiness.

Blockchain technology could mean greater privacy and security for you and your customers. Developing countries such as India, Kenya and others in East Africa are discovering an increasing array of applications for blockchain. Block chain is finding innovative uses in banking and financial services, supply chains, agriculture and in managing land ownership records (land titling) in those countries, according to panellists who spoke at the Wharton India Economic Forum held recently in Philadelphia (Knowledge@Wharton, 2018).

**Some Business Applications of Technology:**

**Fintech**

Fintechs have emerged globally across all sectors of finance, including lending, banking and wealth management.

Mckinsey Report Feb 2018 observed:

The fintech landscape is evolving at an accelerated pace, as new firms and innovations enter the market while others drop out and ideas are rapidly developing. Fintech will bring greater efficiency through innovative technologies such as cloud and quantum computing.

The use of advanced analytics and artificial intelligence is set for rapid growth, as the amount of available data circulating through capital markets grows, and amid increasing interest in the application of advanced analytics to market, financial, and economic data.

Venture capital investors have been pouring billions of dollars into fintech companies, in the hopes that they can gain market share from incumbent financial institutions by offering easier to use and cheaper digital financial services. Venture capital-backed financial technology companies raised a record \$39.57 billion from investors globally in 2018, up 120% from the previous year, according to research by data provider CB Insights (Irrera, 2019). From blockchain-powered mobile wallets and cryptocurrencies, to payment chatbots, biometrics, machine learning and a dizzying range of new finance opportunities, merchants are now absolutely spoiled for choice when it comes to digital payment systems.

Over the course of the last decade, digital payments have become virtually synonymous with global trade and commerce. Digital payment volumes have risen by more than 10% each year. By 2020, researchers at Capgemini say that digital payment platforms will be responsible for processing an eye-watering 726 billion transactions annually-and payments via apps are



expected to reach an annual \$318.8bn within the next two years. The mobile payments market alone is expected to generate more than \$1trn worth of revenue by the end of 2019 (Riggins, 2019).

### **Retail**

Asia is booming in retail with a growth rate far higher than rest of the world. Market conditions have allowed for swifter digital penetration than any other region worldwide and have led to the creation of ecosystems for retailer and consumer ease, revealed Bain & Company's latest Asia retail report (Retail Asia, 2018).

Asia is followed by Europe and the US, with China, Korea, and India at the forefront. In 2017, China's online retail penetration was 20 percent and its CAGR (13-17) was 33 percent. In comparison, the US achieved an online retail penetration rate of 12 percent in 2017 and a CAGR (13-17) of only 11 percent. Most dramatic is India, which had a CAGR (13-17) of 53 percent, highlighting the rapid growth seen in the market.

As digitisation of the retail sector continues to expand in Asian and global markets, ecosystems will continue to evolve based on the needs of both the consumers and retailers, the report added (Retail Asia, 2018).

The data revolution and proliferation of technology-enabled business models, from online retail platforms like Alibaba to car-hailing apps like Uber are changing business contours and customer expectations.

### **Communications**

"The power of change that mobile technology unleashes is extraordinary. No other technology has ever scaled as fast. You might have received your first mobile phone in the 1980s. Since then, we have added some 7.8 billion mobile subscriptions globally, and by 2023 this will grow to a staggering 9.1 billion mobile subscriptions. In a research paper with the Imperial College of London, we found that, on average, a 10 percent increase of mobile broadband adoption causes a 0.6–2.8 percent increase in economic growth, depending on the model specifications. In 2016 alone, this equated to anywhere between US\$500 billion to \$2 trillion worldwide" (Ekholm, 2018).

The communication revolution is another example of business application. Billions are affected by internet availability and access. Twenty years ago, less than 3 percent of the world's population had a mobile phone; now two-thirds of the world's population has one, and one-third of all humans can communicate on the

Internet. Technology allows businesses such as WhatsApp to start and gain scale with stunning speed while using little capital.

### **Way Forward:**

The future scenario will unfold technological innovation with supply-side wonders, coupled with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth.

Major shifts on the demand side can also be noticed, as growing transparency, consumer engagement, and new patterns of consumer behavior triggered by access to mobile networks and data and all these forcing companies to adapt the new ways they design, market, and deliver products and services.

And the emergence of global platforms and other new business models and business outlook, means that talent, culture, and organizational forms will have to be rethought.

Future-ready business enterprises can innovate to engage and satisfy customers while at the same time reducing costs. Their goal is to meet customers' needs rather than push products, and customers can expect to have a good experience.

In the words of **MARTIN MÜHLEISEN**, Director of the IMF's Strategy, Policy, and Review Department (Muhleisen, 2018).

"The digital revolution should be accepted and improved rather than ignored and repressed. The history of earlier general-purpose technologies demonstrates that even with short-term dislocations, reorganizing the economy around revolutionary technologies generates huge long-term benefits. This does not negate a role for public policies. On the contrary, it is precisely at times of great technological change that sensible policies are needed. The factories created by the age of steam also ushered in regulations on hours of work, juvenile labor, and factory conditions."

### **DISCUSSION**

Digitisation is the order of the day and India, to leverage on this phenomenal upsurge, India started Digital India, Start Up India and Stand Up India, and business outlook is rapidly changing. Research conducted by Microsoft and International Data

Corporation (IDC) shows that digital transformation will add an estimated \$154 India's GDP by 2021, as well as increase the growth rate by 1% annually (Economic Times Bureau, 2018).

Overall, the inexorable shift from simple digitization (the Third Industrial Revolution) to innovation based on combinations of technologies (the Fourth Industrial Revolution) is forcing companies to reexamine the way they do business. The bottom line, however, is the same: business leaders and senior executives need to understand their changing environment, and relentlessly and continuously innovate.

## CONCLUSION

The businesses all over the globe, especially which are growth oriented and ambitious for capturing the new markets to scale up their operations and reach, have been facing the scourge of technological disruption. The digitalization of business is the crying need to overcome the challenges of disruption. Successful and market-oriented firms are changing their business outlook by adopting emerging technologies like IOT, Artificial Intelligence, Robotization, Machine Learning, Digital sciences, Touch commerce etc., Digital technological applications can be extensively found in Fintech, Mobile commerce, Payment Apps and on, Retail and Shipping. The Fourth Industrial Revolution gained considerable ascendancy in business all over.

## REFERENCES

- Business Insider. (2019). Mobile Banking is a Key Driver for Bank Selection. MILLED, 24<sup>th</sup> January. Retrieved From: [https://milled.com/business-insider/report-snapshot-mobile-banking-is-a-key-driver-for-bank-selection-sSwcN\\_5I6lJYqsPM](https://milled.com/business-insider/report-snapshot-mobile-banking-is-a-key-driver-for-bank-selection-sSwcN_5I6lJYqsPM)
- Church, Z. (2017). Ideas Made to Matter- Digital Currency: Blockchain, Explained. MIT Management Sloan School, 25<sup>th</sup> May. Retrieved From: <https://mitsloan.mit.edu/ideas-made-to-matter/blockchain-explained>
- Economic Times Bureau. (2018). Evolving Technologies: India's Big Leap into the Digital World. Economic Times, 26<sup>th</sup> December. Retrieved From: <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/indias-big-leap-into-the-digital-world/articleshow/67250495.cms?from=mdr>
- Ekhholm, B. (2018). How 5G could speed up Global Growth. World Economic Forum Annual Meeting, 12<sup>th</sup> January. Retrieved From: <https://www.weforum.org/agenda/2018/01/5g-mobile-speed-global-gdp-growth/>
- International Data Corporation (IDC). (2017). Worldwide Cognitive Systems and Artificial Intelligence Revenues Forecast to Surge Past \$47 Billion in 2020, According to New IDC Spending Guide. Business Wire, 26<sup>th</sup> October. Retrieved From: <https://www.businesswire.com/news/home/20161026005031/en/Worldwide-Cognitive-Systems-Artificial-Intelligence-Revenues-Forecast>
- Irrera, A. (2019). Fintech Companies Raised a record of \$39.16 Bn in 2018: Research. Reuters, 29<sup>th</sup> January. Retrieved From: <https://in.reuters.com/article/us-fintech-funding/fintech-companies-raised-a-record-39-6-billion-in-2018-research-idINKCN1PN0EL>
- Knowledge@Wharton. (2018). How the Blockchain Brings Social Benefits to Emerging Economies. Wharton University of Pennsylvania, 28<sup>th</sup> Nov. Retrieved From: <https://knowledge.wharton.upenn.edu/article/blockchain-brings-social-benefits-emerging-economies/>
- Manyika, J., Lund, S., Chi, M., Bughin, J., Woetzel, J., Batra, P., Ko, R. & Sanghvi, S. (2017). What the Future of Work will Mean for Jobs, Skills and Wages. McKinsey & Company, 13<sup>th</sup> December. Retrieved From: <https://www.mckinsey.it/idee/what-the-future-of-work-will-mean-for-jobs-skills-and-wages>
- McKinsey Global Institute Report. (2017). Jobs lost, Jobs gained: Workforce transitions in a time of Automation. McKinsey & Company, December. Retrieved From: <https://youtheconomicopportunities.org/sites/default/files/uploads/resource/MGI-Jobs-Lost-Jobs-Gained-Report-December-6-2017.pdf>
- Muhleisen, M. (2018). The Long and Short of the Digital Revolution. *IMF, Finance & Development Magazine*, 55(2), pp 4-8.
- Retail Asia. (2018). Asia is Leading the Global Digital Market. Retail News Asia, 17<sup>th</sup> December. Retrieved From: <https://www.retailnews.asia/asia-is-leading-the-global-digital-retail-market/>

- Riggins, N. (2019). Harnessing Digital Payments to Save Money and Improve Supplier Relationships. *The Global Treasurer*, 2<sup>nd</sup> January. Retrieved From: <https://www.theglobaltreasurer.com/2019/01/02/harnessing-digital-payments-to-save-money-and-improve-supplier-relationships/>
- Schwab, K. (2016). The Fourth Industrial Revolution: what it means, how to respond. *World Economic Forum*, 14<sup>th</sup> January. Retrieved From: <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
- Van Ark, B. (2019). C-Suite Challenge 2019: The Future Ready Organisation. *The Conference Board*, 17<sup>th</sup> January. Retrieved From: <https://www.conference-board.org/c-suite-challenge/>
- Wayup Experts. (2018). 5 Technology Trends You Need to Know Work in Any Industry. *Deloitte*. Retrieved From: <https://www.wayup.com/guide/deloitte-313295-sponsored-1-5-technology-trends-need-know-work-industry/>