How AI has Proved to be a Game-Changer for Organizations to Conquer Covid-19

Dr. Anoop Pandey
Professor in Commerce,
Hemvati Nandan Bahuguna Garhwal
University (A Central University),
Pauri Campus, Uttarakhand

Anuj Kumar
Assistant Professor,
Apeejay School of Management, Dwarka,
Delhi

Parnika Mangla
Post Graduate Student,
Bharati Vidyapeeth
(Deemed to be University),
Institute of Management and Research,
New Delhi,

Cherry Jain
Post Graduate Student,
Bharati Vidyapeeth (Deemed to be University),
Institute of Management and Research,
New Delhi

Abstract

Covid-19 is causing a global disruption; there is no denying that this pandemic has drastically altered how organizations work. This havoc has fueled an unprecedented wave of advancing AI innovations to be on the forefront. This research is showing the current state of the rapidly changing AI industry, how assistive and efficacious AI can be to the large tech corporates in battling the problems faced due to this deadly Covid-19 looking through their lenses.The media of information used to support the adopted methodology for this paper is dense in its sources - published newspapers, videos, blogs, reports, journals, etc. In our approach, AI is considered beneficial for big organizations and has been approached from three diverse lenses, i.e., agility, resilience, and sustainability. For this article, our key focus groups have been the managerial tier and students. In this article, we see how innovation can be a rescuer for some companies and an opportunity for others. With our study, we intend to help startups and IT companies improvising their deployed technologies by suggesting various off-center concepts to stride through this crisis. We have endeavored to map out the journey of global corporations, who have made their way from 'striving to thriving' during this pandemic. Covid-19 has exposed the role of innovation, artificial intelligence, and data science as critical components to cut through the inefficiencies in the corporate workflow, operations, and offerings. The objectives of the paper to determine the biggest hurdles faced by organizations during Covid-19 and to determine the tools used by organizations to tackle these challenges. The broad deployment of AI in critical sectors, such as health care and GAFAM companies, will ultimately have a positive impact, securing jobs and making them more effective, and uplifting the growth of global economies in the future. This paper can be categorized as conceptual research, which will help organizations to understand the importance of artificial intelligence, especially during COVID time. All the companies are looking to find out a solution that can help them in encountering the current situation of COVID and helped them to get back to normal. In this paper, secondary resources have been used to understand how effectively artificial intelligence is helping the GAFAM companies. The article will discuss in which areas the involvement of artificial intelligence is increasing. Modern-day managers can learn about the usage of artificial intelligence in a different manner, and they can implement the same in their organizations as well.

Keywords:COVID-19, Artificial Intelligence, Information

Technology, GAFAM Companies, Management

Objectives

To determine the biggest challenges faced by organizations during Covid-19

To determine the tools used by organizations to tackle these challenges

AI's role as a significant game-changer for organizations to tackle the pandemic

Introduction of covid-19 and its scenario

The enigmatic Coronavirus (COVID-19) is not an undisclosed affair anymore. In December 2019, pestiferous pneumonia broke out in Wuhan, China, which was subsequently discovered as a zoonotic coronavirus, like SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome), which has already been on the radar since 2003(SARS) and 2012(MERS) outbreak. The virus has several "regularly arranged" protuberances on its exterior, which makes the whole pathogen look like the crown of an emperor, hence the name "Coronavirus." The prime way the virus spreads is through the respiratory droplets exiled by a person who is coughing and sneezing and requires an animal or a human host to multiply. However, later WHO acknowledged the fact that COVID-19 transmission can be airborne and aerosol (The Hindu, 2020). On Jan 30'2020, coronavirus was declared as a Public Health Emergency of International Concern (PHEIC) by the World Health Organization (WHO, World Health Organisation, 2020). As of July 15, 2020, (WHO has declared 13,150,645 cases of '2019-nCoV', including 574,464 confirmed deaths (WHO, 2020). The IMF has predicted the global growth to be nearly -3.0 percent in 2020, the worst since the Great Depression (Gopinath, 2020) . The WHO chief, Tedros Adhanom Ghebreyesus, stated that 'the coronavirus outbreak is not even close to being over, 'the worst is yet to come (Pajwani, 2020). They are further adding that there is a huge possibility that scientists might never be able to develop an effective vaccine for this illness (Sarkar, 2020; Kumar & Ayedee, 2021) .

Introduction of artificial intelligence

The age of AI is upon us; it is engulfing us in many respects. There are many advantages and disadvantages of artificial intelligence, but potentials are more in the discussion. Kumar & Kalse (2021) argued that governments and corporates are using artificial intelligence because this technology is much more advanced than old-age computers (Kumar & Kalse, 2021). It is revamping the way how people live, travel, and work jointly in today's era. It helms your smartphone, tunes your social media, and enhances the E-commerce sites you visit; Artificial Intelligence has been all around us (Kok, 2009). The way AI is endorsed and used in every industry is preternatural. According to Larry Tesler, a renowned computer scientist, "AI is whatever that has not been done yet" (Chaudhary, 2020). The AI software can help in various ways to investigate information, doing programming, and other necessary calculations. It is helpful in dealing with situations on a real-time basis.

Picture 1- Role and Importance of Artificial Intelligence
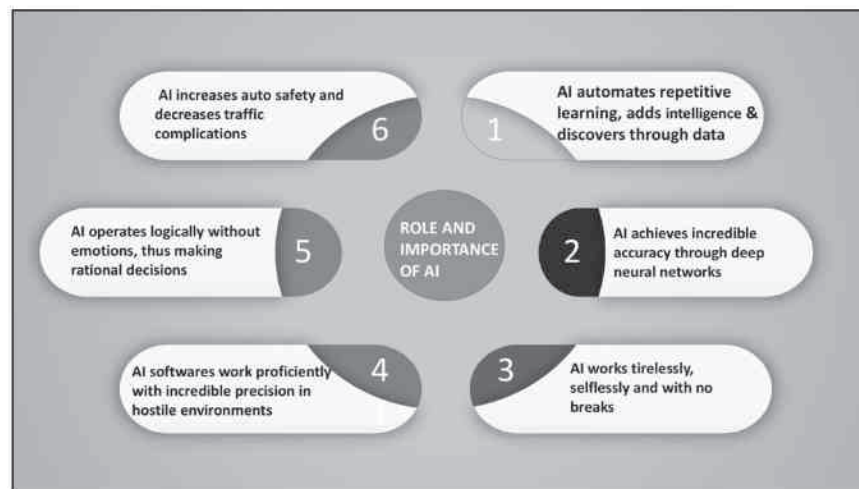
Source: Authors' own

Challenges faced by organizations during covid-19

The Covid-19 is not only instilling a fear of the "End of the world" in our minds; rather,but it is also bringing a paramount impact on different businesses and crashing the world economy. The business landscape is changing at a blistering pace. According to the Goldman Sachs survey, transportation, education, restaurants, and recreation sectors are likely to manifest the steepest hit towards this ubiquitous downfall (Dugal, 2020). Remember that the famous 2008 financial crisis phrase "too big to fail"? And what had emerged to set that happy tone for the financial sector's future? Its artificial intelligence directed upstarts. The World Bank and IMF assert that we are heading towards a worse recession which will be more impactful than the 2008 recession. Moody has slashed India's GDP growth rate forecast for 2020 to 2.5% from 5.5% (Puri, 2020). The large tech corporates have also faced walloping losses. The major problems faced by organizations are:

Infodemic

It seems that every minute we get besieged with an indefatigable flood of Covid-19 information. Large corporations are currently struggling with gazillion complications, and it is strenuous to know where to prioritize time and resources (Kumar & Ayedee, 2021). A new report from The Guardian and Tech Transparency Project found that a series of videos promoting fake coronavirus cures are minting ad dollars for the companies (Paul, 2020). The videos are seen advertising unscientific approaches such as "home remedies, meditative music, and potentially unhealthy amounts of over-the-counter supplements like vitamin C as alternative virus treatments. Cyfirma, a cyber-security vendor, claimed that North Korean-sponsored hackers could target around twenty lack Indians via Covid-19 themed phishing campaign (Economic Times, 2020).

Global Supply Chain Disruption

The incertitude of the advancing pandemic was not accounted for in the Business Continuity Planning, leading to lower levels of production caused due to global supply chain disruption. The future of supply chain systems will be affected by trade wars, global politics, and national policies. The implications for financial reporting and tax are increasing due to upheavals in the workforce, operational, and supply chain.

Contractual Obligations

Cash-flow problems will test the undercapitalized businesses that would entail alternative procurement of funds and/or the need to subsidize in the wake of the crisis to ensure readiness (Kumar, Syed, & Pandey, 2020; Kumar, 2020). Businesses have been disrupted, operations have been impaired, and contractual commitments are being revisited to check the contracts which contain the 'Force Majeure Clause.' If an event or a situation falls within the scope of force majeure, the parties to the contract will be released from performing their respective responsibilities as these events arean act of God.

Transition in Work Culture

The abrupt transition in the work culture has taken a toll on the general safety, health, and welfare of the employees (Ayedee & Kumar, 2020). They will have to adapt to a new environment, battle a new set of obstacles, and witness an unparalleled convergence of work and private life. Around two-thirds of the ITBPO's 4.3 million workforces across the nations have switched to a work-from-home model, which has become the new normal to sustain continuous services throughout the lockdown (Nandi, 2020) .

Company Restructuring

The staffing concerns are ratcheting worldwide due to COVID-19 because companies have less salary to pay. These staffing concerns are for both full-time and part-time employees. The prolonged decline in investments has led to company restructuring, lower earnings that are ultimately leading to layoffs, and freezing recruitments, thus distressing the future pipeline of skilled workforce. An ILO report found that about 55 million workers are at risk of losing their jobs, with the worst affected region being Southeast Asia and the Pacific (76%), followed by the Americas (74%), Africa (72%), and Europe (45%)(Sharma, 2020). It would be a frivolous challenge for the companies as they will now have to prepare for new team structures, cross-functional teams as opposed to the inflexible top-bottom organizations that would work remotely, enabling clear decision points and transparency.

Status of GAFAM companies

Each of the GAFAM (Google, Apple, Facebook, Amazon, and Microsoft) group of companies reported positive sales growth for the first three months of 2020, given the fact that China has already faced tough conditions due to COVID in February'2020. Apple is the only company among these five companies which did not report a double-digit growth rate during this period, while Amazon reported a 26% increase in sales (Ricter, 2020). The American giant Apple Inc. was most harmed by the pandemic because of the hampered supply and demand of the iPhone from China and gradually from the rest of the world. However, it was able to recover from App store sales and subscriptions. The mandate of the government of India that the e-commerce businesses only streamline orders of essential goods such

as grocery stores in the initial period of lockdown has resulted in Amazon cutting back on a lot of its offerings. After the staff at numerous logistics centers tested positive for the coronavirus, Amazon warehouse workers went on a strike in Germany (Shead, 2020).

In the second quarter, many countries have opted for the lockdown to control the widely spread pandemic. The lockdown helped in breaking the chain of COVID, but it created destabilization in jobs and a reduction in revenues. Due to less production, there was some reduction in carbon emission by the companies. The researchers have also seen an interaction between climate change and COVID-19 (Kumar & Ayedee, 2021). The organizations have also seen an upturn in demand when the government calls off the lockdown. Slowly and steadily, demand started increasing, and those are hopeful signs for the market.The large tech giants showed "optimism" in the later phase of the lockdown. The parent company "Facebook" has been in great distress due to the increase in WhatsApp and Messenger calling, leading to a strain on the company's server, forcing them to prepare for the extra load as people all over the world are struggling to cope with the stress and loneliness created quarantines through free WhatsApp calling. The number of users of the company reached near to 400 million (The Indian Express, 202). Facebook, whichaccounts for more than half of online advertising spending, has seen a trenchant decline in annual revenues

for the first time in history (Beasley, 2020).

Google and its parent company Alphabet have 'substantially' downscaled hiring planned for 2020. It has faced difficulties in providing everyone with necessitous instruments such as laptops, security keys, and training Nooglers to work efficaciously and dynamically (Beasley, 2020). Chamath Palihapitiya, ex-VP of Facebook, said big tech companies "will break up" over the next ten years and will not be able to immune to regulation. Companies like Facebook and Google will be "taxed to death, then get trust-busted"(Dixit, 2020).

The big tech companies are expected to report a loss of approximately $1 billion due to the cancellations of different types of high technology conferences. Those conferences were supposed to be organized by Facebook, Google, and Barcelona (Narayan, 2020). Those companies need to think of some alternative ways. Probably, they can go to online conferences (Ayedee & Kumar, 2020). The Seattle-based firm Amazon claims coronavirus's greatest effect on its market worldwide has been in India (Bhalla, 2020). A steep decline in discretionary IT spending is also expected. According to Kotak, a 3-10% reduction in the fair values of IT stock across the companies is predicted (Economic Times, 2020). The GAFAM-BAT companies are using their business acumen, tech brainpower, user base, and data to vanquish these difficulties
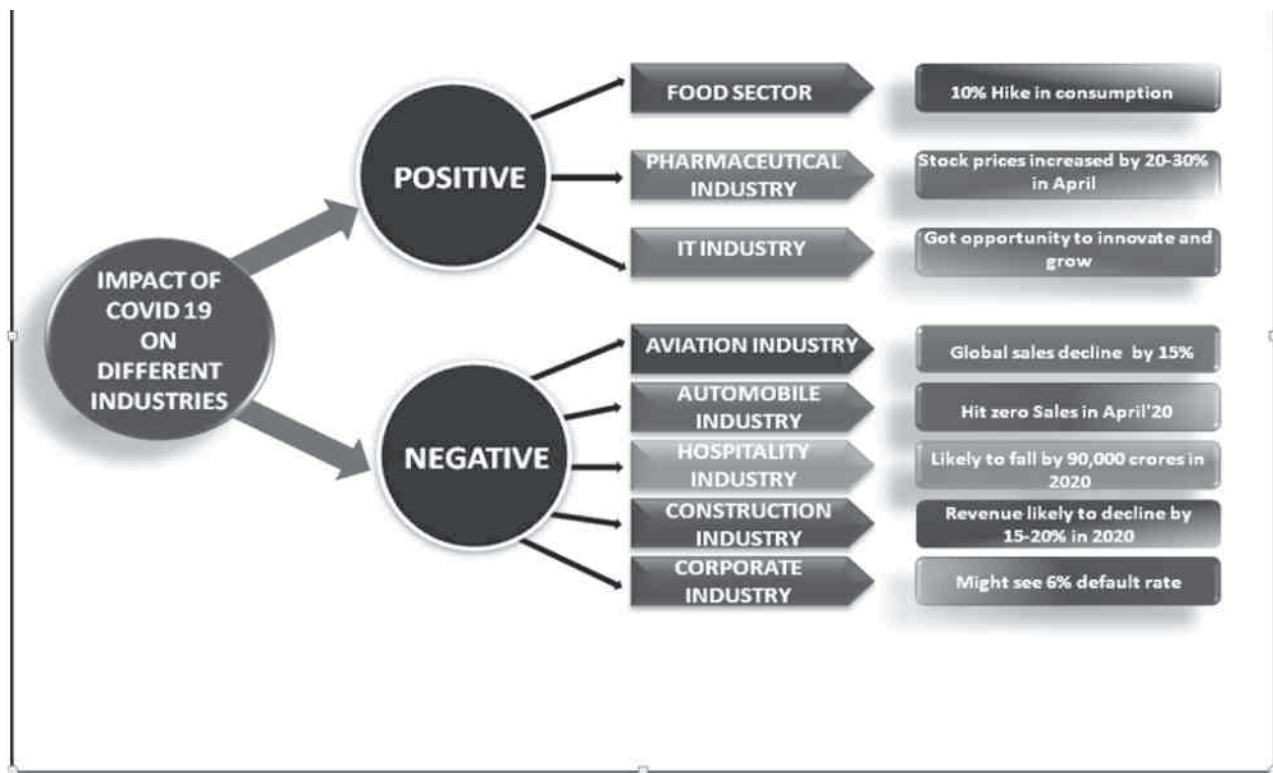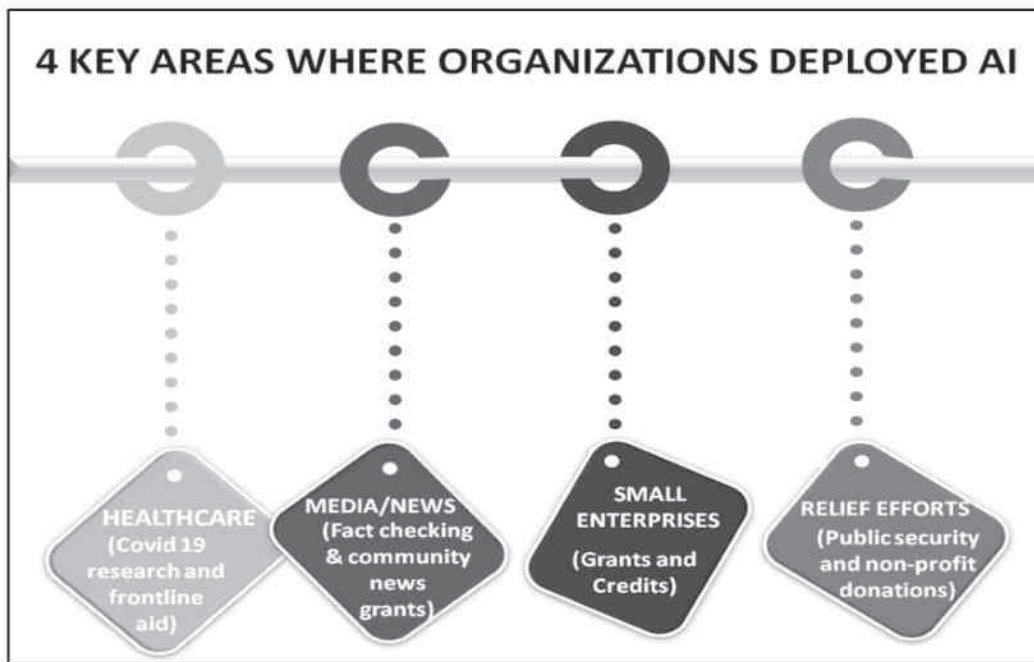

Source: Authors' own

According to the report by Mckinsey and Co, till mid-May, about 32 million jobs are at stake in India (Mckinsy & Company, 2020) . The pharmaceutical, IT, and education sectors are in a better position in comparison to the aviation sector. The tourism industry is also affected badly. SMEs sector is also affected badly, but they are focusing on social media to go online and attain sustainability as well (Kumar & Ayedee, 2018; Kumar & Aggarwal, 2018). For the first time, India knocks zero automotive sales in April, and it is highly dubious that the sector will have any relief in the future. It has been noticed that the Q1 consumption in discretionary domains such as textiles, furnishings, construction, and real estate is deteriorating. The hotel industry is also likely to fall by 90,000 cores by 2020. It is projected that the food sector will not see a thorn in consumption exceeding 10% if the present scenario plays out. The International Energy Agency states that the global energy demand would slump by 6% in 2020. About 25% of MSME loans are likely to turn bad (Mckinsy & Company, 2020). A 6% default rate in the corporate sector and a 3% default rate in the retail segment have also been forecasted.

Unemployment, business risk, financial risk has soared sharply, leading to plummeted liquidity and profitability (Money Control, 2020) .

AI's increasing significance in large organizations

As the black swan events like the Covid-19 redesign, the world economy, and humanity explores innovative ways to collectively respond, technology is inevitably at the forefront. Agility, adaptability, and automation will attract the attention of businesses, consumers, and governments. From password crackers executing virus simulation to virus-slaying robots, there are countless ingenious ways corporates are contributing to help conquer this illness. Aarthi Subramanian, Head digital officer of Tata Sons, said that COVID-19 would escalate the scaling of high-tech software across businesses and investments in cloud, artificial intelligence, and cybersecurity (Microsoft News Center India, 2020).

Picture 3- Key areas where AI deployed by the organization

Source: Authors' own

AI has been helping organizations in the following ways: -

Remote Working

Large organizations and small ventures alike were agile enough to adapt to 'working from home from the beginning of the pandemic. Before the pandemic, less than 50% of organizations had a work-from-home system. Banks, regulated industries, and many financial services organizations did not encourage remote working, and now all of them are in a hurry to develop remote work strategies with the help of AI software (Roy, 2020). The virus could be revolutionary and shift the company's work culture that is anchored in worldwide connectivity.

Supply chain management

AI technologies are mobilizing novel and innovative analytics-driven technologies or updating the existing ones to support four captious corporate priorities caused by the pandemic that is protecting and supporting the workforce, managing strategic and financial decisions, managing protection, threats, and costs in the supply chain, and involving customers in new-fangled digital ways (Kumar & Kalse, 2021). These companies are anchoring algorithms to detect purchase pattern changes to manage supply chain disruptions and are focusing on building a more flexible and transparent model. In-store robots have been widely used to take over more transactional tasks such as checking inventory in shop aisles and fulfilling remote orders. Most of the huge ventures are integrating edge AI software solutions for better execution and greater efficiencies by accessing critical data in real-time. The use of AI in logistics and supply chain additionally brings about improving the procedures of logistics while decreasing the expenses and time. To improve the supply chain proficiency of startups and SME's, a worldwide SaaS organization, Locus has introduced a free application 'QuickStart,'' during the pandemic (Das, 2020).

Improvising Agricultural Sector

The emergence of AI in farming has been a boon for the Agricultural sector. During the pandemic, AI technologies are being used to resolve farming problems, which further increases farm productivity. Agri-tech startups like Mantle Labs are offering their cutting-edge AI-driven yield monitoring solution to the retailers free of charge for a period of 3 months to give extra flexibility and assurance to supply chains in the UK. The innovation attempts to evaluate satellite pictures of crops to signal the issues to farmers and retailers so that they can more readily manage supply chains, procurement, and stock planning (Agri Epicentre, 2020). Microsoft is also trying to build new tech solutions to bring precision agriculture to farmers globally(Agarwal, 202 0).

Human Resource management

The Human resource sector of major corporations throughout the globe is now shifting its reliance on AI. Hiring employees is one of the difficult jobs in an organization as it can either build or ruin the organization (Kumar & Ayedee, 2019). Artificial intelligence for hiring talent is an application that is intended to streamline or automate some processes of recruitment, particularly tedious, high-volume jobs, for example, applying AI to resumes to auto-screen applicants, perform sentiment examination based on job responsibilities to distinguish the potentially biased language, among others. This method will support a startup and private companies to save the panelist's time via robotizing the high-volume assignments, and accordingly, improving the nature of employing talents.

Artificial intelligence initiatives by GAFAM companies

As the pandemic has compelled people to shop, entertain themselves, and connect with their loved ones through online platforms, Amazon, Apple, Facebook, Google, and Microsoft (GAFAM) have become near-essential services. Excessive usage has given the company the power to invest as other industries step back. While companies like Amazon, Facebook were adjusting to the challenges that had risen by their employees working from home, they also had to deal with the excess load on their systems, which was brought by the public relying heavily on their popular messaging and teleconferencing software. Their reliance on physical manpower had to shift to solutions based exclusively on technology, particularly AI. Amazon's AI 'Distance Assistant' consists of a TV screen, sensors, and an AI-powered camera to monitor the movements of employees and thereby warning staff if they do not obey social distancing laws (Porter, 2020).

To subsist with the novel coronavirus eruption, Microsoft too has introduced the bots & that is only the beginning. It has collaborated with the Centers for Disease Control and Prevention to use its new Healthcare Bot system for self-screening the individuals pondering whether they require coronavirus treatment or not (Boyle, 2020). For the consumers, the company has incorporated an AI-powered feature, 'intelligent cloud,' into its cloud computing service, MS Azure, into the latest MS Office bundle, Microsoft 365. IBM, keeping up with these trends, has made available a free-to-use AI platform, 'Watson Assistant for Citizens', for 90 days, which answers users' common queries relating to COVID-19 (Thomas, 2019) .

Picture 4- Major AI Initiatives are taken by GAFAM Companies

AI INITIATIVES TAKEN BY GAFAM COMPANIES DURING COVID-19

G
- Free Video Call Service, Google Meet
- AI deployed Google Maps and Google Search used to locate stranded workers
- Google has empowered 5000 cloud employees in 'Ethical AI'

Apple
- Acquired DarkSky, a weather smartphone app
- Acquired NextVR, a virtual reality company
- Acquired Voysis, a digital assistant and speech recognition software company
- Acquired Xnor.ai, an AI startup

f
- Launched similarity detector, SimSearchNet for finding and analyzing near-duplicates of a given image to battle infodemics
- AI lifestyle assistant for personalizing customer needs

amazon
- Launched AI 'Distance Assistant' for monitoring the social-distancing laws of the employees.
- BlueDot, an Amazon Web Services Startup used for sifting through massive amounts of online data
- Implementation of 'fever screening technologies'

Microsoft
- Promoted Teams videoconferencing service
- Snapped up Affirmed Networks, Metaswitch Networks and Sofomotive
- Incorporated 'Intelligent Cloud' into its cloud computing service
- Incorporated MS Azure into Microsoft 365

Others
- Virus slaying robots
- Edge AI software solutions
- Building of transparent models
- Tailor made analytics- education program

Source: Authors' own

AI in the healthcare sector

AI has significantly become a useful instrument for monitoring and responding to this Covid-19 outbreak as opposed to the limited value it offered during the previous outbreaks due to the shortage of data and equipment. However, digital advancements are now supporting algorithms to contribute close to real-time information to track its spread. Diagnosis and treatment of illness have been a focal point of AI since 1970, when MYCIN was evolved at Stanford for diagnosing blood-borne bacterial infections (Bush, 2018) . As of now, AI is having a significant influence in virus research and the advancement of medications and vaccines, in the administration of

amenities and resources at medicinal centers, and in the scrutiny of data to assist public policy decisions aimed at dealing with the crisis, for example, the confinement measures (Marr, 2020) . The AI model built by Alibaba has a precision rate of 96% and can detect Covid-19 in just 20 seconds (Balaji, 2020). Drones to deliver medical supplies and robots to sterilize and deliver the food supplies have expedited the process. For pattern acknowledgment, elucidation, and prophecy, scientists and researchers are using AI technologies such as NLP, ML, and computer vision to instruct computers about big data models. These advancements will help in tracing, diagnosing, foreseeing, and potentially treating COVID-19 patients (Vaishya, Javaid, Khan, & Haleem, 2020).

The Government of India has also brought up the "Aarogya Setu" application, which utilizes the telephone's location and Bluetooth to detect if you have been close to any individual contaminated by COVID-19 by glancing through a database of known cases. It also notifies the latest information from the Health ministry and helpline numbers for every state(Jhunjhunwala, 2020). Another interesting innovation in this sector that grabbed public attention was the AI-enabled coronavirus mobile testing labs in the NCT of Delhi. It is powered by an artificial intelligence-enabled thermal testing facility, separate airtight cabins for doctors and nurses, with facilities for contactless testing of patients. In India, analysts are expecting that the $190 billion tech services and BPO sector will decrease discretionary spending, which can be a challenge to the industry for a couple of quarters (Narayan, 2020) . It is evident that AI has been breaking into new domains, yet the intensity to which it was now employed in 2020 might be astonishing to some. In the present situation, the utilization of AI-fueled business knowledge instruments canchange independent ventures and new companies into mechanized and productive ones by lessening the operational costs, gaining more insights from data, etc.

Picture 5- Biggest Challenges faced by organizations during COVID-19 and various tools to conquer those challenges

Source: Authors' own

Post-COVID: New era of 'future of works'

AI has played a momentous role in providing promising solutions and mitigating the problems because of the Covid-19 outbreak, but the question lies in whether they will be able to provide economic resilience and address social issues post Covid-19 phase. It takes extensive planning and collaboration among the AI engineers and data scientists to make an AI solution scale and become the core and integral in an organization requiring a collective discussion regarding the rights and responsibilities implied by data capture and advanced analytics. Managers have been using AI to cut costs and attract new clients, but they are skeptical about the Return on Investment (ROI) and are also unable to find the right talent and expertise and eventually must rely on tailored-made third-party solutions. Since the major chunk of data will be stored on the cloud, there can be a risk of larger data breaches, which will give rise, making top-notch security one of the key areas of focus for the organizations. They also need to be attentive in protecting algorithms from discriminating, starting with supervening their present technology, and compiling more accurate datasets.

Conclusion

During this pandemic, the tech industry has shown its capability at a massive scale and pivots its attention to adjust to the changing times. Data science experts have seen crunching petabytes of data while developing excellent business models on secured data for decision-makers to swiftly formulate contingency plans using various technological subsets such as Artificial Intelligence, Internet of Things, Blockchain, etc. Never have digital tools been so responsive to us, nor have we to them. AI algorithms analyze incredibly large quantities of data to assimilate the underlying patterns, empowering computer systems to make complex decisions, predicting human behavior, and among many other things, recognizing images and the human voice. In addition to a wide range of functions and offerings underlying this all-encompassing technology, AI is capable of attuning to learning and discovering new categories of information. While AI is radically altering how work gets done, the larger technology impact is in complementing and augmenting human capabilities, not replacing them.

Following the development of a vaccine for Covid-19 and the recession of this pandemic, it will be difficult to envision life returning to the way it was at the beginning of 2020. With AI already playing a bigger role in multinationals, we think it is imperative for the smaller players to realize the significance of its incorporation in a company's offerings, especially if they are determined to

make a bloom out of this gloomy scenario. As organizations face the realities of this global crisis and forecast its repercussions, such competencies will hold the utmost importance. Most of the organizations will have to redirect their focus on the following four strategic areas: revenue recovery, infrastructural restructuring, organizational rethinking, and digital technology acceleration. The five R's- resolve, resilience, return, re-imagination, and reform-will now be indispensable for business leaders to discover their way to the new normal. It is now on the corporate leaders to determine who they are, how to work, and how to grow.

Implication for managers

The fatal coronavirus spread has left the global market clutching strands, organizations impacted, and most people unemployed. While the physical world has come to a halt, the digital world is burgeoning. This paper emphasizes how the potential employment of artificial intelligence excites forward-thinking managers, who discover the opportunities AI will provide to propel professions and careers. Artificial intelligence in business is a quantum leap that can empower good managers to be great. This article ought to be of great benefit to most managers as it focuses on how high-tech organizations have spotted opportunities even in the darkest time and have emerged with the new AI software in the global economy during this pandemic. This will help managers and startup companies to get an idea of how they can endure and add value to their organization by improvising during these crises. According to a research report, the requirement for data engineers has risen by 50%, and for data scientists, 32% in 2019 compared to the previous year (Krishnan, 2020) . Due to the rise in the demand for data analytics and data science working professionals, many universities are providing students with free courses of AI and ML as AI is also being discovered as a vital tool in building the global economy post-COVID. As per a report by Accenture, AI is expected to add $957 billion, or 15 percent of India's current gross value, by 2035 (Chaudhary, 2020) . Business heads and managers need to understand AI to constructively manage software engineers and data managers within their organizations. By reading this paper, managers and entrepreneurs can become acquaint that by the implementation of AI software, how they can combat the problems which are arising due to COVID 19, and how they can have the edge over others post-COVID. Startups and MNC's can use this time as a golden opportunity to thrive in the economy.

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