Data Analytics and Artificial Intelligence – A Boon for Start-Ups

Apurva Gupta & Pratik Nihal
M.Com.– (Business Administration)
Symbiosis College of Arts and Commerce

Abstract

With the improvements and advancements of technology, society is witnessing a shift and moving towards the digital transformation. The process of big data generation and their analytics are making a big difference in many sectors of the society. Alternatively, Artificial Intelligence (AI) and deep learning is also creating its own space in the business world. This paper focuses on understanding the risk and opportunities that are associated with any business/ enterprise that uses AI and Data Analytics and to understand the tools that they can use to sustain in the market. This paper discusses how data analytics and artificial intelligenceare useful for any business or start-ups especially in this difficult time of the COVID-19 pandemic when the businesses need to innovate or think differently to attract customers andto maintain their profitability. In early 2020, many start-ups who adopted AI and DA werenot successful but eventually, they have covered a major share of the market and, technology- driven companies have become a new normal. The use of data analytics is critical however ifintegrated for revenue generation it can help the companies to prioritize actions that will havemaximum economic impact has been observed in the current study.

Keywords: *Artificial Intelligence, Start-Ups, Innovation, Data Analytics, Digitalization, Economic Impact.*

1. Introduction

"When digital transformation is done right, it's like a caterpillar turning into a butterfly, but when done wrong, all you have is a really fast caterpillar."

– George Westerman.

Entrepreneurship and innovation are the main aspects for economic and societal progress ***(Bharat,2020).*** The entrepreneurial drive is associated with risk and therefore, it requires a sustainable and scalable ecosystem. The success of the business enterprise depends upon the ability to come up with a new idea, whether it's a start-up or an established organization.

Emerge: Managing Innovation and Entrepreneurship in the new normal, Vol. 1, February 2021, pp. 35-43

India's growth is mostly because of the increasing growth of Information Technology sector. It contributes a major share. Technology-based entrepreneurship gained popularity in India because of the rising IT sector. The rise in the contribution to start-ups is immense because of the expansion of entrepreneurial education which is also fostering the growth of private companies. Earlier, the number of start-ups was less in number but when the focus shifted to problem-solving, then Artificial Intelligence, Data Analytics, Internet of Things became the key areas. Major of the start-ups are located in tire-I cities – Kolkata, Bengaluru, Mumbai, Chennai and, Hyderabad. The Government of India, to promote the start-ups in India has taken several initiatives namely- Start-ups India Hub, Start-ups India Learning Program, Global Entrepreneurship Summit, etc. Start-ups in India is a kind initiative initiated taken by Prime Minister Narendra Modi. The objective of this initiative was to nurture innovation and start-ups to bring a sustainable ecosystem (***Chitra, 2018).***

In today's digital era where information and technology are available readily to everyone, a large amount of data is generated every moment from different sources leading to the creation of big data and business analytics ecosystem. Now, many start-ups and enterprises are trying to adopt the concept of big data analytics and create software and hardware to add value and improve human life. Digitalization and data analytics are an essential tool which can be used to reduce failure rates of already established companies.

When we compare our past and present days, it's quite apparent that technology has become an essential part of our lives. Many innovations happened over the years, for example, advancements in mobile phones, cars, route guidance by google maps, estimation of price by Ola, etc. ***(Sarath, 2018).*** Today each industry, healthcare, automobile, etc. Are looking towards adopting AI so that they and grow and expand their business area. All newcomers or start-up are also looking ways for adopting artificial intelligence. Like everything evolves, AIis also evolving day by day and it can be said that, that day is not far, where we can see AIhas become a huge part of our lives ***(Iain M. Cockburn, March 2018).***

According to Neo-Schumpeterian Economics, innovation, knowledge and entrepreneurship are the three driving forces of the economy. Based on these three forces, a three-dimension research model is prepared to know the overall impact of AI in the business. The first dimension, focuses on exploring the success rates of AI algorithms. The second dimension focuses on automation and application of AI strategies in the start-ups. The third dimension focuses on knowing how AI transformed the business activities ***(Neha Soni).***

2. Literature Review

In today's world where everyone is moving towards the technology artificial intelligence is going to play a huge role in changing the concept of technology. (***Tyagi,2013***) "Artificial intelligence is capable of changing the concept of everything which we are seeing around us either it is humans' resource or anything else, but in the long term it needs some improvements**."**Artificial intelligence is evolving day by day, therefore, there is a possibility to see a better future with the artificial intelligence. The evolution of AI is speeding up in every part of the world in each sector. NIPS (Neural Information Processing network), Face book's Chief Executive Officer, Mark Zuckerberg announced that he is going to form an AI laboratory and a start-up called DeepMind a version of AI which can easily help people play games with computers and in this scenario the researchers, came to know that AI is not new to us but was first coined in theyear 1955 by John McCarthy. AI has been with us since a decade and now it is going to became a part of our life. After introduction of DeepMind, Google's growth in the year 2013 and 2014 was exponential. Many other companies also came up with their start-up so that they can also bring their own kind of AI version in the market. IBM developed Watson whichdefeated world's best player in the jeopardy game. AI research is progressing day by day and a lot of companies are looking toward AI to utilize its power, for example, Walmart is trying to develop a robotic shopping cart, Amazon is developing robots of delivery purpose, automobile industry is also investing a lot in AI.

During this pandemic where every industry was suffering, brought a new era to the Artificial intelligence in the society for the start-ups (***Sharma,2020***). It created a great opportunity for many businesses to survive during this pandemic by switching their strategy and adopting the AI and digitalizing their business so that they can grow instead of drowning. In the business world, start-ups that were leveraging data, analytics, and artificial intelligence were better equipped to innovate and manage their vast business environment where digital transformation and digital adoption is growing day by day. As the COVID-19 pandemic disrupted day-to-day economic activities and supply chain networks, it became interesting to look for indigenous, advanced solutions to sail through the crisis.

Suman Kumar Singh, Founder of Cyborgintell says that biggest thing to do in this pandemic is the adoption of technology systems and that resulted in deeper and broader conversations on embedding AI. Cyborgintell an alumnus part of NetApp accelerator changed their way of targeting and positioning post pandemic including the way they used to accelerate their

roadmap in the area they had earlier got de-prioritized. This happened due to increase in the stakeholder mandates and due to more interest in the new technologies driven by AI and data analytics which resulted in impact more participation of everyone in the business by using these technologies. The start-up saw the customer prospect who were looking for the area of new technologies which included AI. It also helped in growing their revenue and understanding the customer behaviour. The market conditions faced by the businesses in the COVID- 19 crisis saw that every organizations faced a number of data privacy and security challenges. As, data exists in silos across the web, and by using solutions built with cutting edge technologies, organizations are able to gather this scattered data and compile it into useful, meaningful information which helps in efficient decision-making. Securely Share, another NetApp Accelerator alumnus, built and patented are award-winning solutions which help companies access and process this data securely.

Chat bots are the essential part of today's technology and most of the companies are using this technology to grow. ALICE Chabot system a unique variation of AI founded in the year 2007. Alice's is kind of AI that provides knowledge about English conversation patterns which is stored in AIML files (AIML, or Artificial Intelligence Mark-up Language, is a derivative of Extensible Mark-up Language (XML). ALICE Chatbot system is based on 4 different phases in which 1st phase consist of Read the dialogue text from the corpus and afterthat inserting it in the vector.2nd phase consists of reprocessing the module and filtering allthe linguistic annotations. 3rd phase consists of convert module.4th and last phase all thing get copied in the AIML file. AI based Chabot can change the functioning of one company and this can make the work easier ***(Bayan Abu Shawar, January 2007).***

According to Gartner, organizations with a higher adoption rate of contemporary technologies, including AI and Robotic Process Automation (RPA), will have a competitive edge in these crucial times., In Gartner's list of nine definitive technology trends for 2021, Internet of Behaviours or leveraging data to change and influence behaviours through feedback loops, tops the list. Other emerging trends for the year include AI engineering,hyper automation, and anywhere operations, all of which make use of aspects of thesecontemporary technologies. For start-ups in the space, the scope to innovate and build on these trends is endless.

3. Research Gap

Many researchers have conducted the study to evaluate the overall impact, need, characteristics, opportunities, challenges, and benefits of Artificial Intelligence and Data

Analytics for start-ups. However, there is no direct linkage between Artificial Intelligence and Data Analytics together in any previous research papers. Since they are not analysed together hence, it's difficult to draw true contributions that are made by both DA and AI in sustaining and establishing any start-ups. Also, no data is readily available regarding how companies are benefitted in way of increased profit by following DA and AI.

4. Objectives of the Study

1. To understand how Data Analytics (DA) and Artificial Intelligence (AI)have changed the way of doing business.
2. To explore how DA and AI have helped businesses in solving problems that were faced earlier.
3. To analyse how Data Analytics and Artificial intelligence would help start-ups.
4. To know how Data Analytics and Artificial intelligence evolved in start-ups during the pandemic.

5. Hypothesis:

Data Analytics and Artificial Intelligence has helped start-ups to sustain during the lockdown phase.

6. Research Data and Methodology

In the present study, data has been collected from secondary sources namely, published surveys and results of experiments, papers, newspaper articles, etc.

The data available from authorized and reliable sites have been considered while conducting the research work. We present evidence that how Data Analytics and Artificial Intelligence immensely contributed to the rise and expansion of start-ups.

7. Data Analysis and Interpretation

In today's business world where start-ups are using data analytics and artificial intelligence for leveraging purpose are doing better in terms of innovation and they are managing their business environment very well with the help of digital transformation and by adopting technology rapidly. As COVID-19 pandemic heavily disrupted the day-to-day economicactivities and the supply of the businesses, it became essential for every start-up to look for an advance solution to come out from this crisis. Almost a year into this pandemic, businessis struggling still and responding to the uncertainties of this pandemic, data analytics and artificial intelligence are the key tools which are helping businesses to respond to this virus

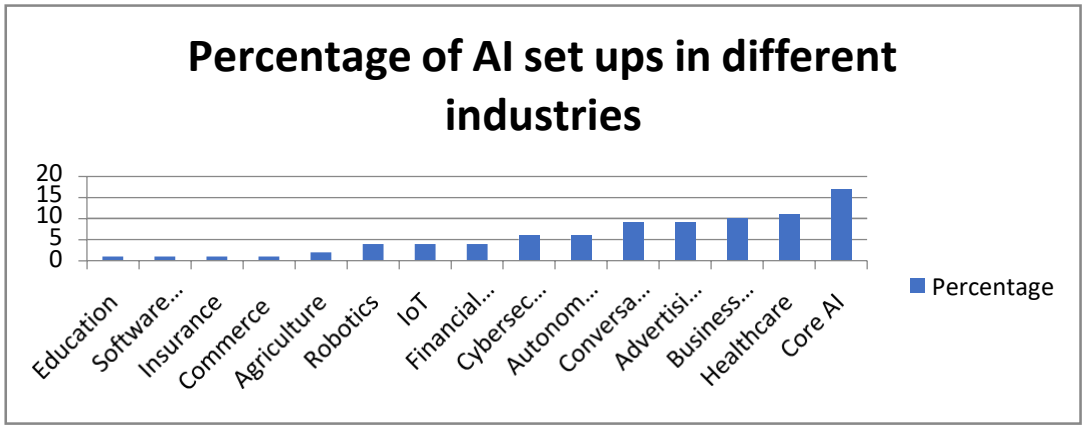
and its effects ***(Bennett, November 12, 2020).*** When artificial algorithms are applied to the data, meaningful pieces of information are generated.

a. Data analytics and AI is the key to find new ways to recover business:

As we know that corona virus is an invisible enemy and has affected the business heavily. However, amidst this the efforts of every kind of business to aid recovery was to find best solutions in the upcoming future. The biggest example is of Rolls-Royce which realised this and their data experts to work together on a project for economic recovery by analysing information ***(Matthews, 19 May 2020).*** The idea behind this was to identify the top indicators of economic recovery cycles and to determine what industries and individual business and government can do to lower the economic recession. In April 2020, a survey conducted by NASSCOM says that around 250 start-ups in India got affected during the pandemic. According to the survey, 90% start-ups faced the problem of fall in revenue and 30-40% were forced to close their operations temporarily ***(Agarwal, 2021).*** Later, some of the start-ups realized the use of technology and they moved towards the use of data analytics and artificial intelligence to gain new opportunities which helped them to transform their business model and bringing new ideas to the market in the form of their product and services.

b. Few firms still hesitate to adopt AI:

Many firms have already adopted AI, and is in the digital frontier nut there are still many companies who hesitates to adopt it. Investors are keen to invest in the AI based companies and because of this, few companies have incorporated using the core of AI. As of fact, out of 3073, 20% has adopted one or more AI based technology and 10% adopted more than two technologies whereas 9% adopted machine learning. If we see sector by sector, we can say that AI adopted by every sector is not even (Mckinsey&Company, June 2017).



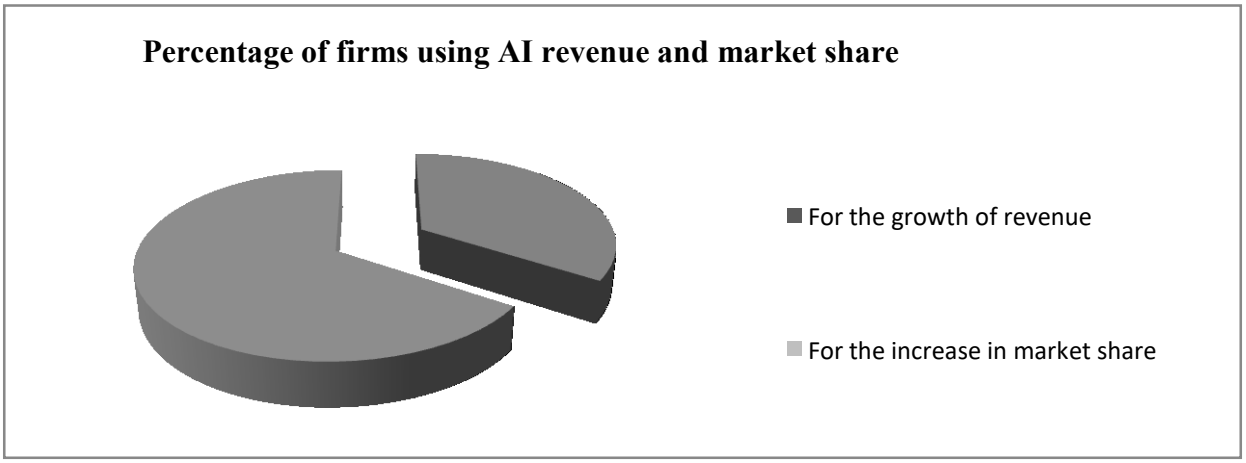
Source: *Percentage of AI start-ups in different industries (2017)(Neha Soni).*

c. Early AI adopters tend to become serial adopters:

As per a survey(***Mckinsey & Company,June 2017***) early adopters of AI tools are looking for a variety of AI tools to focus on the technology rather than the manual work.As a result, the technological industries or the telecom industries are more focused on the AI whereas educational and the health sector are not ready to adopt AI faster. As of now all the new start-ups are focusing on the technology rather than manual work, for example, apart from customer service, sale and marketing, technology is also used for production and development which indicates that Users are keeping artificial intelligence close to their core.

d. Early adopters see AI increasing revenue while companies experimenting with AI expect lower costs:

As AI is growing day by day companies and newcomers are more focused on the Artificial intelligence for their benefit purpose, so they have made AI as a source for their revenue growth and market share. 27% of the firms using AI are mainly focused on this technology togrow their revenue and 52% of the firms are using AI to increase their market share.Therefore, it can be said that, 23% of the firms are using AI for labour cost reduction and remaining are using it for non-labour cost reduction.



Source:*Percentage of firms using AI revenue and market share (Mckinsey&Company, June 2017).*

8.Limitations of the Study

1.Lack of complete and explained data.

(The exact details regarding the ways in which the companies trying to adopt DA and AI are not explained properly.)

2.Lack of facts and figures regarding how many companies adopted AI and DA.

(The surveys by other researchers are done at a small- level, therefore, at macro-level, no judgement can be passed regarding the number of companies who adopted DA and AI.)

3.Lack of quantifiable data regarding DA and AI.

(The exact data regarding how DA and AI is helping companies to generate profits is not mentioned in any previous paper.)

9.Contribution and Conclusion

The literature studied shows that data analysis and artificial intelligence has helped the start-ups sustain during the lockdown as most of the operations became digital. Therefore, the hypothesis H1 stands proved after analysis of the data.

Data analytics and AI empowered organizations are going to be the new market players of the future, as they are more into exploring opportunities and redefining their business with new strategies. It can be predicted that by 2030 AI can add to global economic value.

The present era is of exploration, deployment, and data collection. Today, every industry is attempting to align itself with artificial intelligence and data analytics-related aspects. Currently, billions of dollars are being spent on AI and Data analytics science around the world. AI and data analytics are almost everywhere, from encryption to personal security, healthcare to financial trading, e-commerce to chatbots. However, if these methods are usedin the right place at the right time, they can lead to success, but if they are used in illicit areas,they can lead to turmoil. It can be concluded from the above study that different sectors from health care to financial services to agriculture are using AI and DA. It has been observed that companies that were early adapters of these are realizing increase in revenue and reduction in cost during and post pandemic. Thus, suitable adoption of AI as DA should be suggested to companies as early as possible.

References

1. Agarwal, M., (11 February, 2021), "How startups powered by data, AI, and analytics took centrestage amid COVID-19.", Your Story.
2. Bennett, S., (November 12, 2020), "Preparing for the unexpected: Using data analytics to fight Covid.", Financial Express .
3. Chillakuri, B., Mogili, R., & Vanka, S., (January, 2020), "Linking sustainable development to startup ecosystem in India - a conceptual framework.", International Journalof Business and Globalisation.
4. Chitral P. Patel, P. K., (February 08, 2018), "Digital Inbound Marketing to Drive the Success of Startups.", International Journal of Family Business and Management.

5. Cockburn, I. M., Henderson, R., & Stern, S., (March 2018), "The Impact ofArtificial Intelligence On Innovation.", National Bureau of Economic Research.
6. Ghosh, S., Rao, A., Bhushan, R., Mitra, I., Datta, S., Das, R., et al., (December 2020), "PwC AI: An opportunity amidst a crisis."
7. Matthews, K., (19 May, 2020), "How data analytics are being applied to COVID-19 recovery strategies.", Information Age .
8. Mckinsey&Company., (June 2017), "Artificial Intelligence: The next digital frontier?."
9. Sharma, D. R., (July,2020), "The impact of COVID-19 on AI adoption.", People Matters.
10. Shawar, B. A., & Atwell, E., (January, 2007), "Chatbots: Are they Really Useful?.", ResearchGate.
11. Soni, N., Sharma, E., Singh, N., & Kapoor, A., (May, 2019), "Impact of Artificial Intelligence on Businesses: from Research, Innovation, Market Deployment to Future Shiftsin Business Models.", ResearchGate.
12. Tomy, S., & Pardede, E., (February, 2018), "From Uncertainties to Successful Start Ups: A Data Analytic Approach to Predict Success in Technological Entrepreneurship.", ResearchGate.
13. Tyagi, A., (August 2016.), "Artificial Intelligence: Boon or Bane?.", SSRN.