Role of machine learning in changing social and business eco-system – a qualitative study to explore the factors contributing to competitive advantage during COVID pandemic

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Abstract

Purpose – "Machine learning (ML)" in business aids in increasing company scalability and boosting company operations for businesses all over the world. "Artificial intelligence (AI)" technologies and several "ML" algorithms have grown in prominence in the business analytics sector. In the era of a huge quantum of data being generated by the virtue of the integration of the various software with the business operations, the relevance of "ML" is continuously increasing. As a result, companies may now profit from knowing how companies may use "ML" and incorporating it into their own operations. "ML" derives useful results from the data to address very dynamic and difficult social and business problems. ML helps in establishing a system that learns automatically and produces results in less time and effort, allowing machines to discover. ML is developing at a breakneck pace, fuelled mostly by new computer technology to competitive advantages during the COVID pandemic.

Design/methodology/approach – For firms all around the world, "ML" in business aids in expanding scalability and boosting operations. In the field of business analytics, artificial intelligence (AI) and machine learning (ML) algorithms have become increasingly popular. The importance of "ML" is growing in an era when a massive amount of data is generated as a result of the integration of various applications with company activities. As a result, businesses can now benefit from understanding how other businesses are using "ML" and adopting it into their own operations. In order to handle very dynamic and demanding societal and business challenges, machine learning (ML) extracts valuable results from data. Machine learning (ML) aids in the development of a system that learns automatically and generates outcomes with less time and effort, allowing machines to discover. ML is progressing at a dizzying pace, fueled primarily by new computer technology and used to gain competitive advantages during the COVID pandemic.

Findings – According to a new study published by the Accenture Institute for High Performance, "AI" might double yearly economic growth rates in several wealthy nations by 2035. With broad AI deployment, the yearly growth rate in the USA increased from 2.6% to 4.6%, resulting in an extra $8.3tn. In the UK, AI may contribute $814bn to the economy, raising the yearly growth rate from 2.5% to 3.9%. The authors are already in a business period when huge technological development is assisting us in addressing a variety of difficulties to achieve maximum development. AI technology has enormous developmental consequences. In addition, big data analytics is helping to make AI more enterprise

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World Journal of Engineering
19/2 (2022) 238–243
 [ISSN 1708-5284]
[DOI 10.1108/WJE-06-2021-0357]

Received 20 June 2021
Revised 13 August 2021
Accepted 24 August 2021

ready. Future developments in "ML" cannot be understated. Machines will very certainly eventually be smarter than humans in practically every way.

Originality/value – The introduction of AI into the market has enabled small businesses to use tried-and-true strategies for achieving greater business objectives. AI is continually offering a competitive advantage to start-ups, whilst large corporations provide a platform for building novel solutions. AI has become an integral component of reality, from functioning as a robot in a production unit to self-driving automobiles and voice activated resources in complex medical procedures. As a consequence, solving the difficulties highlighted below and finding out how to collaborate with robots will be a constant problem for the human species (Sujaya and Bhaskar, 2021).

Keywords Data, Artificial intelligence, Machine learning, COVID, Data-rich, ML algorithm

Paper type Research paper

Introduction

Obtaining value from data is key to every digital company transformation. It is critical to have a plan in place to leverage them to gain a competitive edge. To beat the competition, for example, use more complex analysis based on qualifying data. Building an effective and complete Data Literacy is the only way to be productive on a large scale and deliver insights to the company in a collaborative effort to make sense of all that data. Establishing methods and resources capable of linking, organising and evaluating this data is required. Companies recognise the advantages of investing in novel technology and procedures that can analyse data more effectively and rapidly, enabling them to enjoy the advantages of these investments. With the ability to integrate diverse systems and automate various everyday processes, artificial intelligence (AI) and machine learning (ML) have become the life blood for businesses (Scharmer and Kaufer, 2013).

In a world where 90% of all collected in past has just been collected in the recent two years. ML has the capability to use the benefit the real benefit of this data by producing results from it. The most important influence, without a question, is the learning that robots provided to humans, a far better understanding of the situation in which we find ourselves. "AI" and "ML" are two of the most powerful digital transformation protagonists and the foundation for the most efficient digital technologies produced today (Verhoef *et al.*, 2021). They allow more inventive and effective solutions, which have a direct influence on market acceleration and competitiveness, as well as customer experience and expectations. In addition, by developing detailed models, a company improves its chances of recognising valuable possibilities – or avoiding unexpected hazards (Scuotto *et al.*, 2017) (Figure 1).

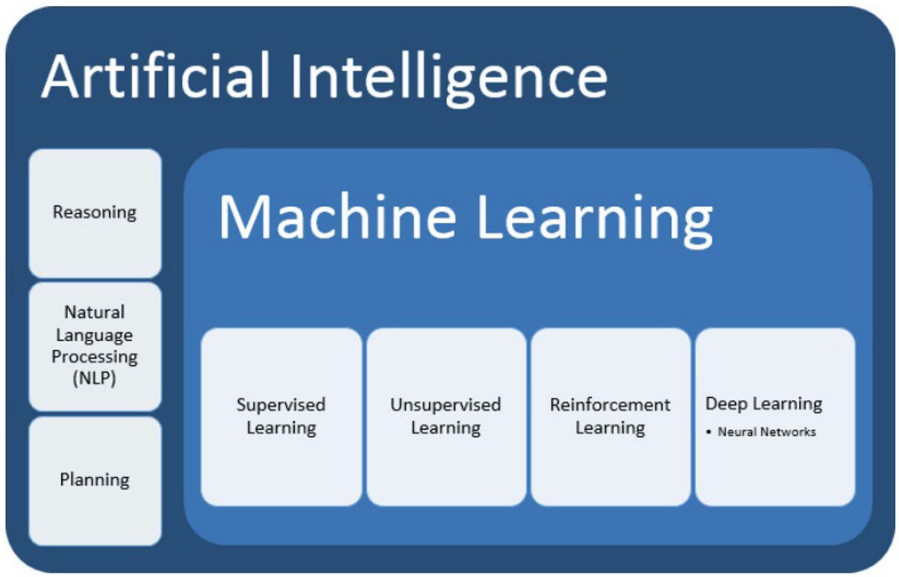
What it means to business and society

In today's volatility, uncertainty, complexity, and ambiguity environment, disruption from unexpected rivals is ubiquitous; industry developments occur in quicker and shorter cycles; rules, such as those governing data protestations, are just around the horizon; and time to market is always reducing. Virtual assistants are also totally altering the way customers purchase items, serving as gatekeepers by limiting options via precise suggestions – and enabling customers to purchase goods they have never seen before. Is this to say that product packaging is still important? Will we still be able to choose what we buy? As research shows that individuals appreciate these algorithmic suggestions and frequently follow them, the usage of such platforms is expected to rise and generate more and more problems of this kind. Consider Amazon, who knows because of predictive analytics and massive amounts of consumer data, what consumers are likely to purchase before they ever get close to the checkout. Data analytics and "AI" enable the linking of data to get consumer insights, develop the company and improve the speed and quality of logistics. You must be able to convert whatever data you acquire into usable information; otherwise, you risk wasting resources and adding even more complexity. The second step is most likely the most crucial and difficult. Researchers have a tough time understanding patterns of correlation in data, as practically everything in the actual world interacts with everything else (Vidgen *et al.*, 2017). Gary Kasparov once mentioned that he lost his job because of the AI application – Deep Blue. Deep Blue, on the other hand, was not a true AI. Rather, it was a supercomputer with the ability to calculate 200 million locations per second faster than a person (Mavuri *et al.*, 2019).

Machine learning's impact

Companies or industries that use AI applications will become more diversified, as they will be able to analyse data across numerous capabilities, identify fraud and provide excellent customer service. This will provide them a competitive edge. "AI" aids in the discovery of more human-like answers to complicated business challenges. This is analogous to taking traits from human intellect and applying them as algorithms in a computer-friendly manner. For most business executives, "AI", such as personal computers in the early 1980s or the internet in the early 1990s, is nothing more than a curiosity. Today, "AI" is the most used technology phrase in the commercial sector. AI and sophisticated "ML" are being used on intelligent implementations such as robots, smart vehicles, consumer electronics and other devices, as well as numerous applications and commercial solutions. AI can automate a wide range of challenging commercial procedures. Work hours may be drastically decreased and human minds may be put to better use in more creative elements of the company such as brainstorming, developing and researching. There are several AI-based applications and conversational bots that assist firms in reinforcing their workflow by enabling company executives to spend more time on company development and expansion and less time on mundane duties (Branco and Rodrigues, 2006).

Figure 1 Relationship of artificial intelligence and machine learning



Source: www.customisewindows.com

The ways in which machine learning is improving companies' work progress

"ML" enables businesses to increase top-line growth and streamline procedures, all whilst enhancing employee engagement and enhancing customer happiness. Here are some actual instances of how AI and "ML" are now adding value to businesses: providing personalised client service. One of the most intriguing areas of opportunity is the possibility to enhance customer service whilst cutting expenses. Customers may ask questions and get high-quality responses by integrating previous customer service data, natural language processing and algorithms that continually learn from encounters. Indeed, 44% of US customers prefer chatbots over people for customer service. Young people, for example, who are no longer covered by their parents' mobile phone contracts often switch to other providers. Before customers defect to rivals, telcos may use "ML" to predict their behaviour and create personalised offers based on their use habits. Recruiting the appropriate individuals. Corporate job opportunities get roughly 250 résumés each, and more than half of polled recruiters believe the most challenging aspect of their work is shortlisting competent applicants (Figure 2).

The software swiftly sifts through hundreds of job applications and shortlists people with the qualifications most likely to succeed at the organisation. It is critical to avoid reinforcing any human biases that may have been present in past hires. However, AI can overcome human prejudice by automatically detecting biased wording in job descriptions and identifying highly competent individuals who may have been ignored because they did not meet customary standards. Finance is becoming automated. Many financial procedures may benefit from AI-enhanced "exception management". AI dramatically improves the number of invoices that can be matched automatically by watching current procedures and learning to identify various circumstances.

This allows firms to minimise the amount of work outsourced to service centres whilst also allowing finance employees to concentrate on strategic responsibilities. Measuring brand awareness (Lokuge and Sedera, 2016). Products, people, logos and other objects may all be recognised by automated algorithms. Detecting deception. Every year, the average firm loses 5% of its income to fraud. "ML" algorithms can detect abnormalities, exceptions and outliers by developing models based on data. This aids in the detection and prevention of fraudulent transactions in real time, including previously undiscovered kinds of fraud. Banks, for example, may use past transaction data to develop algorithms that detect fraudulent conduct.

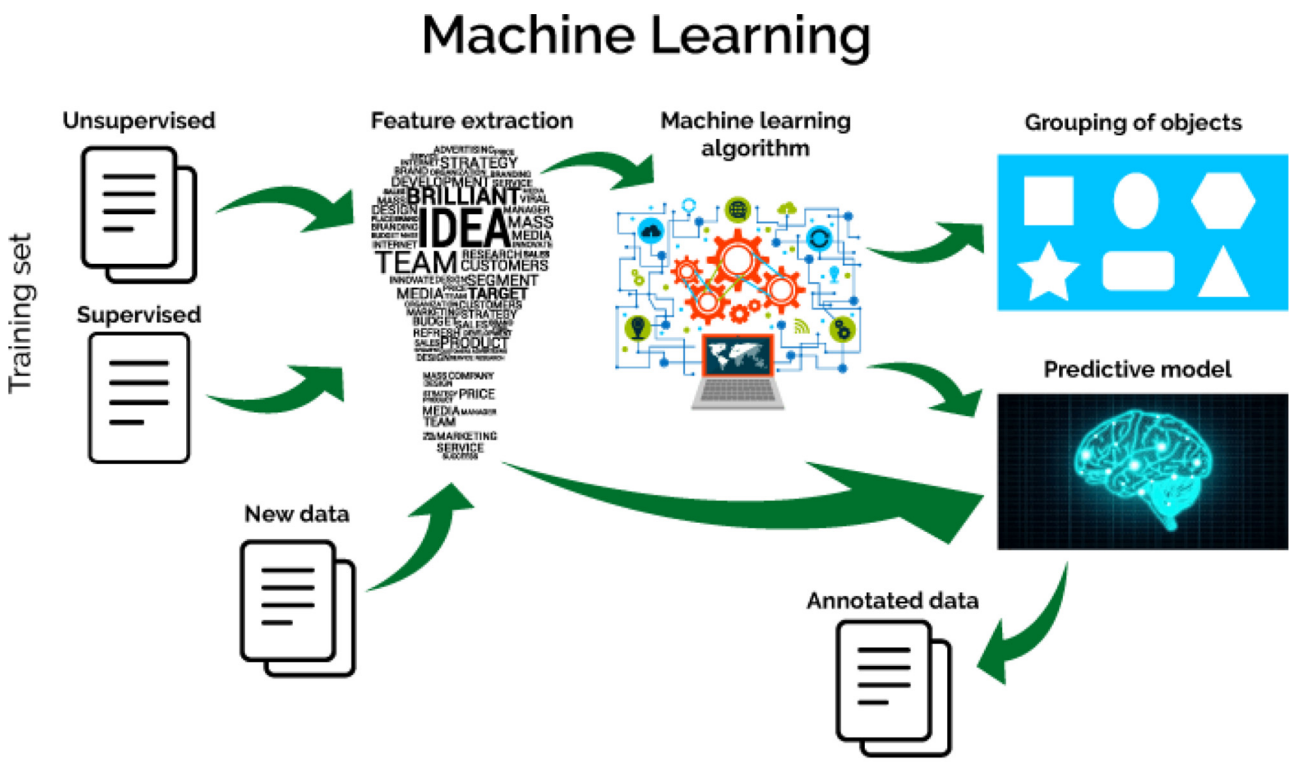
They may also identify the suspect payment and transfer trends amongst networks of people with overlapping business links. This form of "algorithmic security" is useful in a variety of scenarios, including cybersecurity and tax evasion. Predictive maintenance is a kind of maintenance. "ML" allows for the detection of abnormalities in the temperature of a railway axle that signal it may freeze up within the next few hours. Algorithms can scan through public social data and news feeds in many languages to notice a fire at a faraway business that provides essential ball bearings used in a vehicle gearbox, for example. Other areas where machine intelligence might be used in the near future include career planning (Manavalan and Jayakrishna, 2019).

The recommendations may assist workers in selecting career options that lead to good performance, happiness and retention. What further education and job experience should a person with an engineering degree pursue and in what order? Asset management with drones and satellites. Drones outfitted with cameras may undertake routine exterior inspections of commercial facilities such as bridges or aircraft, with the photos automatically evaluated to identify any new fractures or surface changes. Analysis of retail shelf space. The opportunity is immense. As a result, software providers are spending extensively in incorporating AI into their current applications and developing whole new solutions. However, there are obstacles to overcome (Lytras *et al.*, 2020) (Figure 3).

In many businesses, data is neither centralised nor in a usable format nor it includes biases that contribute to poor judgements. Another issue is a priority; with so many options, it might be difficult to know where to begin (Al-Htaybat *et al.*, 2019).

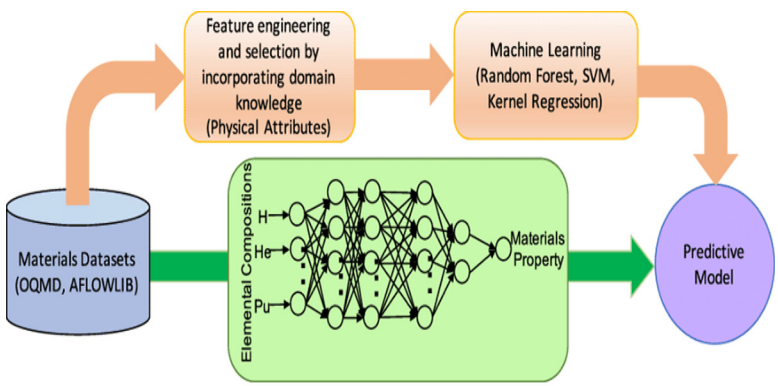
To alleviate this load, software suppliers are beginning to provide preset solutions that come equipped with cutting-edge "ML" right out of the box. Finally, do not overlook the cultural differences. Many workers are concerned about the impact of all of this

Figure 2 Machine learning process



Source: www.softwaretestinghelp.com

Figure 3 Predictive modelling through machine learning



Source: www.researchgate.com

technology on their jobs. Most people will see it as a chance to eliminate tiresome jobs and perform more, but it is critical that staff be rewarded to guarantee the success of new "ML" programmes. You will also need to consider your consumers carefully. AI can increase the ability to derive insights from client data – may be to a degree beyond which consumers are comfortable. Organisations must take privacy seriously and relying on machines to make critical choices requires cautious oversight.

Market and customer insights

AI-based systems may help improve marketing tactics and reduce marketing costs by delivering the most effective marketing tool for your company and removing improbable clients from the list of possible buyers. Many of your consumers are on social media and most of your business is conducted online. "AI" may be used to decipher key metrics from social networks on the internet. Different sorts of social media traffic are analysed using data mining methods. Influencers who are most effective may be recognised and social marketing tactics may be categorised. The ability of "AI" software to learn, as opposed to simply statistical techniques, is what makes it so strong. This enables businesses to adjust as market behaviour changes and to continuously enhance performance as new data becomes available (Mergaliyeva, 2020).

Social role of machine learning in social media context

ML is the core subarea of AI. Huge amounts of data is generated everyday by the social area network platforms such as Facebook, Twitter and Instagram. As a result, companies need to incorporate the use of ML in their own operations. ML automatically gather, maintain and manipulate this data without using human help (Grimmer, 2015). The first role of ML in social media services include enhancing the media quality. For example, Twitter purchased Magic Pony Technology, a firm that uses ML techniques to enhance the visual experience of the users. A brand can reach its target audience through advertisements in social media platforms by using ML. Facebook uses this method to get an idea of client preferences and shows adverts accordingly. Friend recommendations on Facebook is also generated in the same way. ML helps to detect spam content and bad backlinks that threaten the security of an online platform. Pinterest has been using this technology to reduce its vulnerability to data spam. ML has been used in semi-autonomous Google cars. The most important role is obviously handling and maintaining this enormous volume of information (Gasevic *et al.*, 2014).

ML has changed the way data was extracted and interpreted traditionally by generic statistic techniques. Work hours have been drastically reduced and company executives can now spend more time on meaningful research and development because ML produces accurate analysis by the development of efficient and fast algorithms and data-driven models. Even though ML is becoming a necessity in today's world, it can be expensive. Data scientists with high salaries usually conduct the ML projects. The software infrastructure required can also be quite expensive for a small firm. Algorithms trained on data sets can contain errors that might lead to inaccurate models. Thus, when a company bases core business processes on such a model the company runs into regulatory and reputational harm. Another thing to keep in mind is that the vast use of ML can lead to technological unemployment (Moosavi *et al.*, 2020).

Conclusion

The introduction of AI into the market has enabled small businesses to use tried-and-true strategies for achieving greater business objectives. AI is continually offering a competitive advantage to start-ups, whilst large corporations provide a platform for building novel solutions. AI has become an integral component of reality, from functioning as a robot in a production unit to self-driving automobiles and voice-activated resources in complex medical procedures. According to a new study published by the Accenture Institute for High Performance, "AI" might double yearly economic growth rates in several wealthy nations by 2035. With broad AI deployment, the yearly growth rate in the US increased from 2.6% to 4.6%, resulting in an extra $8.3tn. In the UK, AI may contribute $814bn to the economy, raising the yearly growth rate from 2.5% to 3.9%. We are already in a business period when huge technological development is assisting us in addressing a variety of difficulties to achieve maximum development. AI technology has enormous developmental consequences. In addition, big data analytics is helping to make AI more enterprise ready.

Future developments in "ML" cannot be understated. Machines will very certainly eventually be smarter than humans in practically every way. As a consequence, solving the difficulties highlighted below and finding out how to collaborate with robots will be a constant problem for the human species (Sujaya and Bhaskar, 2021).

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