

AI Tools for Business Challenges - A Boon to Entrepreneurs

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Abstract - The rapid technological developments in recent decades provide most effective expertise business environment for the Entrepreneurs. In this digital era, the Entrepreneurs need to respond quickly to the increasing demands from the consumers. Artificial intelligence (AI) is a dominant technology with machine learning capabilities, which are currently used in all the business sectors. A recent trend in Artificial Intelligence highly concentrates on the development of machine learning based applications which change the landscape of business industry. The emerging AI tools handles massive amount of business data efficiently and facilitate almost every business operation which in turn increases productivity. Eventually, the advance in technology also brings several business risks and challenges. This paper briefly describes the impact of Artificial Intelligence in Business and explores latest Artificial Intelligence applications and tools available in business environment which lowers the operational expenses and become boon for Entrepreneurs. This paper also discusses some of the major challenges in business and supportive AI tools which offers operative solution to overcome these challenges particularly in the three major business fields namely Finance, Marketing and Human Resources, as well as to improve the business efficiency.

Keywords: Artificial Intelligence, Business Challenges, AI Tools, Finance, Marketing, Human Resources.

1) INTRODUCTION

Advancements in AI leads into development of AI based Information Systems which can be adopted in companies to improve quality of business operations and to offer better customer services. Artificial intelligence has various applications in business. In most our daily activities, Artificial Intelligence interacts with us in some way. The techniques used in the Artificial Intelligence field have the capability to enhance the business processes like finance, marketing and sales by producing output with greater quality, flexibility and adoptability. Moreover, the use of Robotic Process Automation (RPA) in business considerably reduces the operational costs and related expenses and increases the sales volume.

By using AI tools with embedded AI capabilities most of the businesses are maximizing their revenue to improve productivity and customer interaction. The main focus of this

paper is to analyse the Machine Learning and Natural Language Processing based AI tools used in the three business fields namely Finance, Marketing, and Human Resource and is organized as follows: In section 2, the impact of Artificial Intelligence in business along with its application areas are discussed. In section 3, the paper brings out the major challenges for companies in the present business scenario. Section 4 of this paper discusses the various Artificial Intelligence Tools used in business. AI Tools used mainly in three major business fields namely Finance, Marketing, and Human Resource are discussed in section 5. Summary is concluded in the last section.

2) IMPACT OF ARTIFICIAL INTELLIGENCE IN BUSINESS

In this competitive business world, when the business organization fails to upgrade with latest technologies then they may lose their profit. Eventually, the primary goal of any business is to maximize profit. In order to achieve this target, most of the business organization applies emerging technologies like Cloud Computing, Internet of Things, Artificial Intelligence and Deep Learning. Artificial Intelligence is a branch of science that defines the capability of machines to learn like humans and to react to specific behaviours. AI is one of the booming technologies which have made remarkable progress in various fields like Gaming, Health care, Robotics and Business which is depicted in Fig-1.

The impact of AI in business field is tough to neglect and it is the part of almost every business activity which in turn increases productivity. AI is capable of handling extensive amount of data using advanced technologies like Natural Language Processing and Machine Learning. Sourav Gupta et al. [9] discuss many business benefits from Artificial Intelligence Technologies like Machine Learning and Natural Language Processing. Machine Learning offers algorithms, interfaces and tools through which system can learn in the similar way that human learn from experience. ML can generate rules based on entered data and produce effective output [7]. Using AI technology, companies can improve their efficiency by lowering operational expenses and expanding the customer base. Nowadays, AI powered Robots are utilized for the business activities like predictive analysis, assembling and stacking to stay equipment operating efficiently.

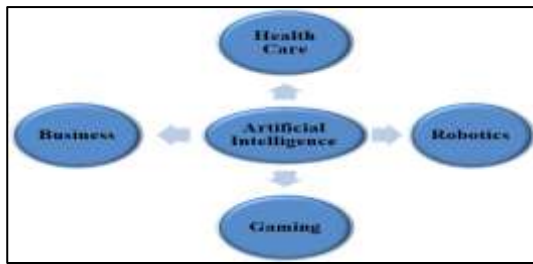


Fig-1: Application Areas of Artificial Intelligence

The Artificial Intelligence technology-based solutions are easily accessible and giving benefits not only to the large size organizations but also to the small and medium-sized companies [5]. In today's business scenario, Artificial intelligence offers benefits to various business fields like Marketing, Finance, Advertising, Human Resource and Inventory Management for solving customer queries, talent acquisition and automating repetitive job works and gives a competitive advantage to the business enterprises. This paper focuses on three major business fields namely Marketing, Finance and Human Resource and discusses various AI tools available and used in these three business fields.

Since massive amount of data are generated in these three business fields, effective tools are needed to analyse such enormous data. Through AI-based solutions, an organization can be able to analyse these voluminous data and extracts important information which is useful in better business decision making. Improved level of customer services can be achieved through AI based automated chat which engages customers more efficiently. AI technologies are helping the business enterprises to understand the needs and buying behaviour of customers and offers various kinds of rewards to them. Moreover, AI tools responded quickly for the customer inquiries and provide best solution by using the database of perceptions of customers which in turn improves the customer satisfaction. The challenging tasks of human resource management like talent acquisition, organizing various training sessions and handling performance of a talent can be effectively handled by the customized AI solutions which avoid human errors such as subjectivity, biases and discrimination.

3) MAJOR BUSINESS CHALLENGES FOR COMPANIES

There exist many business challenges for the enterprise to handle. In recent years, almost all the business organizations face many business challenges like non availability of parts and products and pushed prices up due to the impact of COVID. Many companies follow over-order to compensate for backlogs which would worsen the situation. To prevent similar shortages in the future, the company has to focus on long-term recovery and restructures the business needs. Kuldeep Bhalerao et al [4] analyses the barriers and benefits of AI adoption in small and medium enterprises. In the present Business environment, the following business challenges are faced by many business organizations which are listed in Fig-2.



Fig-2: Business Challenges

3.1) Inflation and economic downturn

Due to the impact of COVID, many business organization's economies went downturn in recent years and will stagnate or shrink. Companies can overcome this inflation, by adapting emerging technologies to the business process and business unit, as well as by reducing spending.

3.2) Increasing customer expectations

More and more innovations and advances in the technology eventually increase the customers' expectations also. Nowadays, customers are demanding for more refined business solutions which satisfies their needs with low cost.

3.3) Accelerated digital transformation

The emergence of technologies like the deep learning, the Internet of Things (IoT) and blockchain leads into the digital transformation of every business as a technology-based business. Due to this rapid technological development, every business organization has to re-design their business solution with advanced technology which satisfies their customer needs effectively. Eventually, companies have to ensure that their personnel have the sufficient technical skills needed to manage the technology-based business world and capable of collaborating with intelligent machines.

3.4) Data and device security

Digitalization of business activities accumulates more data in an organization which becomes more attractive to cybercriminals. Cyber-attacks by cybercriminals are now a common occurrence which affects both the business activities and the brand name of the firms. In order to protect the sensitive business data from cyber-attack, companies have to take proactive steps like estimating their data backup and recovery processes and vulnerability scanning. Artificial Intelligence technologies can be adopted to detect threats, to protect sensitive data and managing cyber-attack efficiently. Artificial Intelligence and Machine Learning based applications are enabling the organizations to spot security exposures immediately and provide solutions to recover the sensitive data.

3.5) Sustainability

The world's largest business challenge is climate change and consumers are demanding for more eco-friendly products and services. Companies can respond for this challenge by viewing the complete picture of their business practices and checking their full supply chains. They can move on to more sustainable packaging, to renewable energy and allow people to work remotely when suitable which greatly reduces emissions.

4) CLASSIFICATION OF AI TOOLS FOR BUSINESS

A main focus of Artificial Intelligence is the development of computer functions related with human intelligence. Various tasks that do not involve human intelligence have already been substituted by machines in many industries. Machine Learning, Natural Language Processing, Expert systems and Image Recognition system are some of the AI –related fields used in business industries to improve their product’s quality and revenue. Seyi-Lande, O. and Onaolapo[8] integrates Artificial intelligence into business analyst’s analytical workflows with practical strategies. AI tools used in business are categorized based on these AI- related fields. Pawan Whig [6] discusses few application areas of Artificial Intelligence and in particular the role of Artificial Intelligence in Business. The study made by Wamba-Taguimdje, S.L. et al. [12] explores the impact of Artificial Intelligence on firm performance, with a particular focus on the business value derived from AI-driven transformation projects. AdCreative.ai, BotNation.ai and ChatGPT are some of the AI tools which automate most of the manual, repetitive business tasks such as customer service, advertising and marketing.

4.1) Machine Learning Tools

Machine Learning is a field in Artificial Intelligence in which system can learn continuously from the existing data and improving itself without the intervention of a programmer. Machine Learning based technologies creates better interaction with the users and addresses all the customer’s queries effectively. Bharadiya, J.P [1] examines how machine learning is reshaping business intelligence and influencing decision-making processes. Machine Learning algorithms are capable of discovering better concepts from the massive amount of data and provide dynamic information which will be useful in taking improved business decision [13]. Using algorithms, these tools analyse the business data effectively and make accurate market predictions. Customer segmentation, fraud detection and Sentiment analysis are some of the business tasks which apply Machine Learning Tools efficiently.

4.2) Natural Language Processing (NLP) Tools

Natural Language Processing (NLP) is an Artificial Intelligence based method used for interacting with humans. With the help of NLP, computers can understand text and spoken words in a similar manner that of human beings can. Natural Language Processing is the field of AI which has the potential to integrate large volume of business information and to predict the stock market rates based on this deduced information for operational analysis on the wider market [2]. A computer can perform many useful tasks by using speech as input and written text as output with the help of NLP. The business tasks like customer service and marketing can be automated using NLP tools which understand human language.

4.3) Computer Vision Tools

Image Recognition System is a visualization technology that can identify objects, locations and people in images. Image recognition is applied in a range of machine-based visual tasks such as self-driving cars, controlling autonomous robots, targeted advertising and image content search [3]. The tasks such as image recognition, object detection, and facial recognition which involves huge number of images and videos related data can be efficiently carried out with the help of Computer Vision tools. These tools comparatively explore and understand images and videos in superior way than other tools.

5) AI TOOLS FOR THREE MAJOR BUSINESS FIELDS (FINANCE, MARKETING AND HUMAN RESOURCE)

5.1) AI Tools for Finance

One of the major business fields where artificial intelligence applications are applied effectively is the finance sector. The financial processes like transfer of funds and payments, e-commerce activities are streamlined using the applications of Machine Learning. Predicting the future stock market which is the challenging task in the field of business can be effectively carried out using artificial intelligence algorithms. Nowadays, machines with AI technology have become capable of reading stock market performance in the past, studying the profits and losses of the related stocks in the present, and predicting the stock market performance of future.

Machine learning in finance is the deployment a variety of techniques to cleverly handle large volumes of information. Sujith et al [10] made a comparative analysis of Machine Learning in business to take effective financial decisions using a model called Structural Equation Model. Since huge volume of historical financial data is generated in the business industry, both Machine Learning and Natural Language Processing have found many useful applications in finance. Machine Learning based AI tool called Robo-advisors is used in Portfolio Management that provides financial guidance and service which is inexpensive than consulting a human financial advisor. AI tools along with its features which are used in the business areas like Portfolio Management, Risk Assessment and Management, Customer Service Management, Accounting and Auditing and Financial Analysis. DataMinr and AlphaSense are Machine Learning based AI tools which is applied in Risk Management to predict risks and helps the client to respond quickly to real-time challenges. Customer Service Management can be effectively handled with the help of user-friendly AI tools like KAI and Erica by resolving customer queries quickly.

Natural Language Processing based AI tools provides excellent facilities in the Business areas like Risk Assessments, Financial Analysis, Accounting and Auditing. NER which is used to assess entrepreneurial mentality and attitude in company financing is a powerful AI tool. Actionable yearly audit of a company’s performance is

provided by NLP based AI tools like Deloitte, Ernst & Young and PwC. Substantial potential hazards and probable fraud like money laundering can also be identified with the help of these AI tools.

5.2) AI Tools for Marketing

Nowadays, using internet and advanced technologies in Artificial Intelligence most of the businesses wants to seek more and more popularity. Efficient and beneficial ML and NLP based AI Tools are available for marketing which attracts the customer to buy a product and thus increase the profit for the business.

Machine Learning based AI tool called MarketMuse uses an AI-driven assistant to show how-in-depth the topic is covered in building content strategies which in turns helps marketers. AI tools like Albert and Yotpo generates marketing campaigns automatically for the product and analyses vast amounts of data and customer feedback which helps to improve the product's quality.

NLP based AI Tools like MonkeyLearn, Gensim and Spacy offers pre-trained models that can perform effective topic classification, sentiment analysis and huge datasets. MonkeyLearn provides customized machine learning models which can be modified to meet different business needs. In order to handle huge data volumes, Gensim provides a high-speed Python Library which primarily focuses on topic modelling tasks. The open-source NLP processing libraries provides pre-trained NLP models to the user in AI tools called Spacy.

In Targeted Advertising, online advertisement grabs the attention of customers easily with the help of Machine Learning and Natural Language Processing tools which shows advertisements to only particular audiences. The AI-based applications allow functional marketing areas to find the customer and their buying activities [11]. The audience is firm by their online activities and when they have searched for any similar product through online in recent times, and then they have started seeing the advertisements. Tracking of online customer activities is done with the help of keyword matching.

5.3) AI Tools for Human Resources

There is a heavy competition among the candidates for employment and thousands of candidates are applying daily for a single position in an Enterprise. This makes recruitment procedure as a tedious task for the Human Resources team who needs to go through each single resume in order to select the appropriate candidate.

In order to make recruitment procedure simple, Machine Learning and Natural Language Processing (NLP) based AI tools are used to screen through the resumes and select the candidates who fulfil their requirements closely. Selection of candidates is done by examining different attributes like skills, location, education etc. Using AI tools candidates are selected quickly and at the same time in unbiased way, thus saves time and manual work of the Human Resource Department.

Machine Learning based AI tools namely Skillate, TurboHire and HireVue are having salient features though which human resource management related activities can be carried out effectively. An enhanced recruiting services supported by AI tool namely Skillate provides a job description assistant, data supported analytics into the recruiting process and an auto-interview scheduler. Companies like BYJU's, OLA, Big Basket, Grofers, Trell, Mahindra, Sony and Rapido uses the Skillate and this AI tools provides additionally the option to the companies to screen the candidate personal data in order to make unbiased recruiting judgments.

Intelligent hiring tool called TurboHire is an AI tool which leverages the power of both AI and human to produce data-centric insights for candidate sourcing, screening and evaluation. TurboHire is utilized by recruiters like Cure.fit, Wakefit, ICICI Bank, Accel Partners and ClearTax. HireVue is an AI tool which provides guidelines for structured interview to replace manual interview procedures and reduces recruiter's work which in turns helps them to concentrate more on job-relevant criteria. Hence, the recruitment process is highly speed up by the organizations by using HireVue.

In the field of Human Resource Management, Natural Language Processing based AI tools namely Censia, Mya and Honelt offers numerous benefits to the business organizations. An AI recruiting assistant called Mya facilitates talent professionals to capture real time candidate's data and saves 75% of team's time by simplifying tasks such as sourcing, answering questions, screening and scheduling. AI tools called Honelt offers higher quality hires by sharing a few audio highlights from a phone screen. Hiring teams can co-operatively review, assess candidates and hire the best candidates.

6) CONCLUSION

Artificial Intelligence is one of the most powerful emerging technologies with excellent potential which is persistently growing and changing in the business world. In the competitive business industry, an organization faces many business challenges also. This paper discusses the impact of Artificial Intelligence in business and the major business challenges. Artificial Intelligence tools which are supported by Machine Learning and Natural Language Processing handles enormous growth of business data efficiently and also provides effective security mechanism to protect these massive business data. This paper also focuses Machine Learning and Natural Language Processing based AI tools in three major business fields namely Finance, Marketing and Human Resources. AI tools discussed in this paper are having improved quality, compatibility and usability in the business fields. In this rapidly increasing technology-based business world, AI tools play a key role in business enterprises to achieve their business goals.

REFERENCES

- [1] Bharadiya, J.P., "The Role of Machine Learning in Transforming Business Intelligence", International Journal of Computing and Artificial Intelligence (2023), 4(1), 16-24.
- [2] Hussain A. J., Al-Jumeily D., Al-Askar H., and Radi N., "Regularized dynamic self-organized neural network inspired by the immune algorithm for financial time series prediction," Neurocomputing(2016), Vol. 188, 23–30.
- [3] Iulian-Florentin Popa and Angela Ionit, "Identity and Dialogue in the era of Globalization", The research institute for artificial intelligence (2019), 173.
- [4] Kuldeep Bhalerao, Anuj Kumar, Arya Kumar and Purvi Pujari, "A Study of Barriers and Benefits of Artificial Intelligence Adoption in Small and Medium Enterprise", Academy of Marketing Studies Journal (2022), Vol- 26, Special Issue 1, 1-6.
- [5] Nascimento Alexandre and Meirelles Fernando, "An Artificial Intelligence Adoption Model for Large and Small Businesses"(2021), SSRN: <http://dx.doi.org/10.2139/ssrn.4194043>.
- [6] Pawan Whig, "Artificial Intelligence and Machine Learning in Business", International Journal on Integrated Education (2019), Vol- 2, Issue II,64-68.
- [7] Salman Ghazwani, "The Impact of AI-Enabled Checkouts on Shoppers' Attitudes and Purchase Intent in Saudi Arabia", PhD thesis, Auckland University of Technology (2021).
- [8] Seyi-Lande, O. and Onaolapo, C. P., "Elevating Business Analysis with AI: Strategies for Analysts", International Journal of Management Research and Economics (2024), 4(2), 1-17. doi: 10.51483/IJMRE.4.2.2024.1-17.
- [9] Sourav Gupta, Akash Bhardwaj, Abhishek Mahawar, Sohan Gupta, "A Case Study of Artificial Intelligence is being used to Reshape Business", International Journal of Electrical, Electronics and Computers (2021), Vol-6, Issue-3.
- [10] Sujith A. V. L.N., Naila Iqbal Qureshi, Venkata Harshavardhan Reddy D., Abinash Rath, Kolla Bhanu P., and Sitesh Kumar S., "A Comparative Analysis of Business Machine Learning in Making Effective Financial Decisions Using Structural Equation Model (SEM)", Journal of Food Quality, Wiley Hindawi (2022).
- [11] Sureka A., "7 Practical Benefits of AI for SMEs You Need to Know", <https://www.clariontech.com/platform-blog/7-practical-benefits-of-ai-for-smes-you-need-to-know> (2020).
- [12] Wamba-Taguimdje, S.L., Fosso Wamba, S., Kala Kamdjoug, J.R. & Tchatchouang Wanko, C.E. "Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects" (2020), Business Process Management Journal, 26(7), 893-1924.
- [13] Worasuchee C., "Forecasting currency exchange rates with an Artificial Bee Colony-optimized neural network," in Proceedings of the 2015 IEEE Congress on Evolutionary Computation (CEC), IEEE, Sendai, Japan (2015), 3319–3326.