

Unlocking India's Potential: Exploring the Necessary for Expanding AI Based Application in the Era of Technological Advancement

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Abstract:

The article explores the potential of AI tools like ChatGPT in the sector of education, business and agriculture in India. Present article focused mainly on productivity, efficiency improvement by applying AI based tools in the three main sectors of India. Article emphasized the drastically differences in technological adaptation between rural India and urban India and how this effecting their education, business as well as agriculture. Adopting AI driven smart technology could drastically change these sectors by providing personalized education, business optimization as well as supply chain management. Furthermore, this article concluded that adopting AI based tools like ChatGPT could play important role for India's economic growth social equality.

Keywords: AI tools, ChatGPT, Business, Education, Agriculture, India

1. Introduction

In recent years Artificial Intelligence (AI) has grown rapidly, with AI based systems or devices becoming more and more common in our everyday life. Looking into the rapid progress in AI based research in several countries like USA, UK, Japan, Korea, China and many other. India view AI as a crucial component of its future development and national security strategy [livemint.com]. India with a unity in diversity bring lots of advantages along the way bring several unique challenges like diverse language barriers. India has more than 200 spoken languages across different states with an official language of 22. It is indeed challenging for many businesspeople to communicate with other business partners of different states with their local language. There are several technologies which are in English which is a barrier for people who do not speak the language. Hence, AI driven technology like Google Translator, Siri, Alexa and the most recently developed ChatGPT could be good solution to such problem.

Looking into the information technology perspective, ChatGPT is one of advancement in a long line of human attempt to provide smooth and easy way of sharing and gathering information. Users have quickly adopted this new technology and media have given enough coverage to explain how ChatGPT was being embraced and used in

different industries like education, banking, healthcare, Agriculture and many more. The population of India is rapidly growing and touched to 1.4 billion people. With this growing population, Indian faces unique opportunities as well as challenges of making sure everyone get access to resources, services or opportunities. A big chunk of Indian population relies on Agriculture and education is considered to be the backbone of all growing economy. In this context, agriculture, business and education are the three foundational sectors that play an important role in shaping the future of India. Hence, the objective of this paper is to explore the use of AI tools like ChatGPT in the field of Agriculture, education and business in India and how they can facilitate India's growth.

2. Literature Review

Drastic improvement of Artificial Intelligence technology like ChatGPT has shifted how hugely populated countries like India, China can address their most challenging issue. AI based tools like chatbots can generate human-like text and solve a wider range of problems like personal tutoring, automating business operation or optimizing agricultural process. Following Table 1. has list down some important AI tools and their use in different domains in India.

Table 1. Most widely used AI tool in India in the field of Education, Business, Agriculture, medicine and social science.

AI tools	Application	Category
Zoho CRM	Sales and marketing automation	Business
Salesforce Einstein	Customer relationship management (CRM)	
TCS Ignio	IT operations and infrastructure management TCS Ignio	
IBM Watson	Business analytics, chatbots, and customer service	
BYJU's	Personalized learning, education technology platform	Education
Embibe	AI-based learning and exam preparation	
Leverage Edu	AI-driven platform for higher education guidance and career planning	
DronStudy	AI-powered e-learning platform for K-12 education	
SigTuple	Medical diagnostics through AI-powered analysis of pathology images	Medicine
Qure.ai	Radiology diagnostics using AI	
Niramai	Early detection of breast cancer through thermal imaging	
PathAI	Pathology diagnostics with AI	
RMLagTech	Precision agriculture, farm advisory services, and weather forecasting.	Agriculture
CropIn	Precision farming, crop monitoring, and supply chain traceability.	
Taranis	Crop monitoring, pest, and disease detection.	
AgNext	Quality assessment and grading of agriculture products.	

3.ChatGPT and transformation of education sector in India

Indian public education system is primarily run by the state government, which falls under the command of central, state and local government. Due to divers' socioeconomic landscape, low awareness about education and poor quality of infrastructure in many rural school and government colleges, education system historically faced several challenges in delivering quality education. There is a huge disparity in access of resources (like technology, no to poor internet access, less to no access to computer or other smart device) well-trained teachers and technological infrastructure between urban and rural in India (Bajpai & Goyal, 2021; Raj et al., 2022). Due to this technological divide and educational inequalities create huge skill gaps between students in rural and urban India this leads to limit the job opportunities to millions of young Indians. Smart technology powered by AI can be the solution to many of these stated problems. AI powered tools like ChatGPT can bridge these

gaps by equalizing access to high quality education. ChatGPT can provide personalized learning experience to individuals who may not have access to one-to-one skilled tutors. Moreover, ChatGPT can solve complex problems and explain them step wise which could be great help to those who cannot effort to join private coaching center or other paid educational institutions. Students in remote areas can enhance their learning skill by using AI based tools without spending money on transportation (Aggarwal, 2023; Mishra et al., 2022; Das et al., 2022). With the functionality of offering personalized learning speed by AI power tool dramatically improve and guide students to learn things as per their pace. Mishra (2023) has asserted that integrating ChatGPT into the curriculum can help students build skills and can help in future jobs. Whereas traditional classroom teaching methods with a big number in each class does not provide enough time or opportunity to understand each and every student's pace of learning (Patel, 2023; Sharma, 2021; Rao & Shukla, 2023; Gupta et al.,

2023). Advance Ai based tool can also critically analyze students' data and can identify their progress and performance that can suggest several useful insights about the students learning and understanding about the content (Khan et al., 2022).

4. Focus on Business Sector

India's business sector is presently growing and predicted to be grow in the near future. As per the ministry of finance (India)Indians estimated growth rate is 7.3% in the year 2023-2024 and up from 9.1% in 2022 and 7.2%in 2023 but there are still several challenges doing business in India, especially in the financial sectors as well as infrastructure section. Early 1990s, India liberalized its economy by deregulating industries, privatization of state-owned enterprises and eliminating several rules for foreign direct investment. These regulatory changes have accelerated the country's economic growth for quite some time. However, during Covid-19, business around the world struggled to survive and India was not out of it. Over the past couple of years Indian business sector has been negatively affected by the declining demand on the world market. Hence small to mid-size companies are looking to adopt technology that can help to improve their service as well as in their business process. It is believed that small start-up companies have unique benefit of adopting ChatGPT. These companies in general have low capital which pushes them to optimize operational costs. AI tools like ChatGPT or other similar tools can assist in automating regular administrative work, ie. Data entry, scheduling and in many cases customer support by using chatbots. This helps companies to reduce their human resource costs drastically. Moreover, chatbots can serve customer 365 days 24 hours. Apart from this it can also improve waiting time and eliminate the need of large call center and also improve customer satisfaction (Gupta & Singh, 2022).

Apart from these, AI tools like ChatGPT can be utilized to analyze vast amounts of customer data from social media platforms or sales data. These data can provide valuable insight like customer attitude, behavior or purchase intention, decision making process as well market trends (Chakraborty & Bose, 2022). With the traditional methods we may fail to understand the pattern can lead to poor

sales. As per Rao & Patel (2023) AI tools can predict customer preferences and purchasing behavior, that allows marketing managers to build better or tailor marketing strategies. In manufacturing sectors, AI tools can be used to reduce waste, improve supply chain and optimize business processes (Singh et al. 2022). Furthermore, AI based tools can be used to create innovative ideas which can enable companies to create quick prototypes (Sinha & Roy, 2023). Finally, with the access of huge data, AI based tools can assist in better decision making by looking through the historic data and pattern (Bansal & Gupta, 2023).

5. Focus on Agriculture

India is considered to be the world's largest producer of pulses, jute and milk and ranked as the second largest producer of wheat, rice, sugarcane, vegetables fruits, wheat, cotton. However, as per world bank, 2021 India's agriculture sector contributes only approximately 15% of its GDP, though it employed approximately 50% of the country's labor force. This shows that there is huge scope for improvement and a clear indication that systematic and utilization of technology can bring better productivity. AI based technology like ChatGPT can provide real-time information to farmers regarding seed selection, weather forecasts and pest management (Sharma & Singh, 2023). There is a gap between modern days farming and farming done by traditional farmers. Majority of Indian farmers do not have access to present days technology (Sharma et al., 2023). Introducing voice commend ChatGPT to local famer in local language can help farmers to make informed decisions on their seed selection to find proper market price (Patil et al., 2022). Agriculture's supply chain could be another area where ChatGPT can make considerable impact. AI based technology can help to predict customer demand pattern time to time and also optimize storage as well as reduce waste by optimizing supply chain management (Rao & Patel, 2023). Apart from this supply chain software which connect farmers directly with their customers could eliminate middlemen, that will make sure farmers get healthy prices for their products (Verma & Gupta, 2023).

7. Discussion & Conclusion

India faces unique problems and opportunities due to its huge population, however, AI based smart technologies like ChatGPT could be solution to those problems in the field of education, business and agriculture. ChatGPT can bring significant opportunities in economic growth, long term solutions to many of those stated challenges as well as social equity. ChatGPT can bridge the gap of quality education and skill development between urban and rural India. It can also provide personalized education as well as set a pace of education based on each individual learning capacity. This is an exception advantage of AI based technology which can monitor individual learning and absorbing capacity of any given information. Based on that system itself make adjustment and move ahead with the learning process. When it's come to business, tailor made marketing campaigns is possible as AI based tool has the capability to process big data and find purchasing pattern or consumer behavior. Furthermore, AI has the ability to automate repetitive work and optimize business processes as well as enhance productivity and efficiency. Chatbots are widely used these days to solve customers' queries more quickly and efficiently. This helps to improve customer satisfaction and at the same time save lots of money for the firm. In the agriculture sectors AI can help in improving crop management, optimizing resources and at the same time guide farmers' information driven decisions. With the help of modern technology and smart farming India could solve some of the critical challenges like food scarcity, improve living standards of farmers and boost the economy.

Even though AI brings huge benefits, it is also necessary to address that implementing AI based tools like ChatGPT or other advanced tool are difficult and many cases costly and need continuous technical support. There is infrastructure issue which needs to be addressed, many part of Indian still have poor internet connection or limited internet. Inconsistent electricity, shortage of technical or skilled employees could be some of the other limitation of implying AI based tools. Another limitation of this paper is that we have just focused on three main sectors i.e. education, business and agriculture. Picking a few other sectors like medical

and health, travel and tourism could give us much more comprehensive understanding. Future studies could explore those sector as well as can look into the ethical issue of AI implication in India.

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