

## **Opportunities of Artificial Intelligence in India**

**Dr. Barkha Agrawal**

*Associate Professor  
B.S.A. College, Mathura*

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**Abstract:** *In today's ever-evolving world, we often hear about new and emerging technologies. A widely used term in today's world is AI or artificial intelligence. I see articles talking about how AI will replace or destroy our jobs. I also occasionally see articles about how AI will destroy humanity. But we are not here to discuss it now, but rather to turn our attention to the economic impact of AI on our daily lives.*

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### **I. Introduction**

To understand the impact of AI on the economy, we must first understand what AI is. Simply put, AI is the ability of systems to learn and interpret external data via software/algorithms or machines/devices to solve problems by performing specific roles and tasks that humans currently perform. It can be explained as a broad branch of computer science concerned with building intelligent machines capable of performing tasks that normally require human intelligence.

#### **Possibilities and Applications**

The cost of AI is getting cheaper in terms of computing power and tools. Each new tool/library helps machine learning developers spend less time on prediction problems. Every day we see new AI applications such as Amazon Alexa, Google Home, Apple Siri, and Microsoft Cortana. We can also point to the increased use of GPU computing as an example of AI cost reduction.

AI's ability to overcome some of the computationally intensive, intellectual, and perhaps creative limitations of humans has implications for manufacturing, law, medicine, healthcare, education, government, agriculture, marketing, sales, finance, operations, and chain management, public service delivery and cyber security opening up new application areas in supply and supply. Predicting the next quarter's earnings for companies is an obvious forecasting problem, but the development of self-driving cars was not a forecasting problem a decade ago. The cost reduction of AI is changing the way we think. That is, we started looking at different problems as prediction problems.

We already have self-driving cars deployed in controlled environments such as factories where the vehicles can be programmed with if-else programming conditions. By changing the mindset and treating this as a prediction problem, engineers were able to create self-driving cars that could be used in the wild.

The education sector can use AI to improve teacher effectiveness and student engagement by providing features such as intelligent game-based learning environments, tutoring systems, and intelligent storytelling techniques. I can do it. Universities already use language assistants to answer common questions about campuses, schedules, and courses.

#### **Strategy**

I have an important question here. Will AI impact company strategies and business models? If you think of AI as a predictive tool that helps you make some decisions, it may not be clear how it affects pure strategy, as it is just one of the tools to help you make decisions. But once you start looking at AI as a predictive tool capable of making highly accurate predictions, your strategy may change.

In the Indian context, as AI continues to be deployed, it is important to highlight several key indicators from the health, education, and agriculture sectors. India's doctor-patient ratio is 0.8%. This low ratio means a heavy burden on Indian doctors. In India, it takes a doctor only 2 minutes per patient, compared to almost 20 minutes in the US. AI can be a valuable tool for doctors to reduce their workload and aid in diagnosis. AI-assisted diagnostics will enable people in remote areas to receive quality care.

Tamil Nadu's e-government agency has launched a Tamil smart assistant called 'Anil' in partnership with Anna University. This NLP-based smart assistant provides step-by-step guides to help people apply online for several key government services.

The government of Tamil Nadu is one of the pioneers in using AI to deliver public services.

The government of Tamil Nadu implements innovative use of AI with facial recognition to record attendance. The system saves him more than 45 minutes a day, allowing him more time for basic educational activities at school.

In financial economics, AI is widely used to make trading decisions based on price predictions for financial instruments such as stocks and bonds. Algorithmic interest rate trading, automated trading, etc., matching interest rates such as LIBOR (short-term) and 10-year government bond yields (long-term) are common lexicons in today's financial literature. AI's most spectacular contribution is showing the tail loss of value-at-risk. This was not available before the subprime crisis. In this way, AI can help prevent systemic crises.

### **Limitations and Challenges**

Although AI is useful and resourceful, there are many limitations and challenges to implementing and using AI in public and private sector organizations.

- Unemployment
  - Lack of trust and resistance to change
  - Human-level
  - Privacy and security
  - Lack of data
- **Unemployment:** Increased automation, especially at the operational level of repetitive tasks. This grave consequence of using AI will continue to affect all sectors and countries around the world, especially developing countries where job opportunities are already limited. This underscores the need to strategically manage the transition to AI, requiring organizations to carefully consider several key challenges. How to select tasks to automate. How to choose the automation level for each task. How to manage the impact of her AI-enabled automation on human performance and how to handle AI-enabled automation failures.
  - **Lack of trust and resistance to change:** Due to negative media coverage of the impact of AI and many other factors, people are generally concerned about AI implementations. This poses a major challenge of how to build trust between workers and stakeholders to manage resistance to change in the adoption of AI systems. Public policy faces unprecedented uncertainty, and the scale of AI's impact is interestingly borderless.
  - **Human Level:** This is one of the key challenges in AI, keeping researchers busy with AI services in companies and startups. These companies boast over 90% accuracy, but humans can do better in all these scenarios. For example, have the model predict whether an image is of a dog or a cat. Humans can predict the correct output almost every time, achieving a staggering accuracy of over 99%. For deep learning models to perform similarly, unprecedented fine-tuning, hyperparameter tuning, large data sets, well-defined and precise algorithms, robust computational power, non-stop training on training data, and testing data tests. Sounds like a lot of work, but it's a hundred times harder than he thought.
  - **Privacy and security:** A key factor underlying all deep learning and machine learning models is the availability of data and resources to train them. Yes, we have data, but since this data is generated by millions of users around the world, this data can be misused. For example, a healthcare provider serves a million people in a city. Suppose a cyberattack puts the personal information of all 1 million users in the hands of everyone on the dark web. This data includes data about illnesses, health problems, medical history, etc. To make matters worse, we are currently dealing with planet-sized data. With so much information pouring in from all directions, data breach cases are bound to happen.
  - **Data scarcity:** Large companies such as Google, Facebook, and Apple have been accused of unethically using the user data they generate, leading various countries such as India to enforce strict IT rules. is applied to limit the data flow. Therefore, these companies now face the problem of using local data to develop applications for the whole world, which can lead to bias. Data is a very important aspect of AI, The labeled data is used for machine training, learning, and prediction. Some companies are trying to develop new methods, focusing on creating AI models that can provide accurate results despite the lack of data. Information bias can lead to flaws in the entire system.

### **Transparency**

The point of transparent AI is to be able to adequately explain and communicate the results of AI models. Transparent AI is explainable AI. This ensures that the model is thoroughly tested, that it makes sense, and that you can understand why certain decisions are being made. In the future, many AI-based systems may interact with humans in fields such as finance, education, and healthcare. To prevent AI systems from remaining black boxes, technology providers should explain the decision-making process to users. AI systems must provide an audit trail of decisions made, not only to comply with legal requirements but also to be able to learn and improve on previous decisions.

## **II. Conclusion**

AI, a technology holds great potential for a country like India, which is rich in data and has the necessary technical skills to develop AI solutions to many problems. States like Tamil Nadu have already started deploying AI systems at scale to address some of the key challenges in healthcare, education, and agriculture. Issues of ethics, transparency, auditing, accountability, and anti-abuse must be addressed for the general adoption of AI systems. For this AI revolution to work toward equitable prosperity, we need effective public policy frameworks and actionable scorecards for AI.

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