Artificial Intelligence in India : A New Era of Digital Economy

Dr. Neha Jaiswal

Assistant professor, Department of Commerce, Rajiv Gandhi South Campus, Banaras Hindu University, Varanasi, Uttar Pradesh, India

ABSTRACT- Artificial Intelligence (AI) is emerging as a central policy issue in several countries. The central issues for policy makers are applications of AI for public good, regulation, economic impact, global security and fairness issues etc. Advanced and rapid developments in the field of technology in recent times have been led by the AI, which has profoundly changed development and life status around the world. This paper discusses about the worldwide initiatives on AI policies and India's current AI policy landscape, challenges in formulating AI policies, sector of relevance and challenges. This paper explains the framework and demand of Artificial Intelligence in India. This paper also critically anaysed the venture capital investement in AI in India.

Keywords - Artificial, Intelligence, India, New Era, Digital, Economy.

INTRODUCTION

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and emulate human cognitive capabilities. The term AI may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem solving. AI, an approach to copy the cognitive functioning of the human mind for solving some problem or for simply learning, has potential to disrupt almost all aspects of human existence. This intelligence aspect is also very well termed as machine intelligence in which the machine is made to demonstrate contrasting natural intelligence of humans.

FRAMEWORK OF ARTIFICIAL INTELLIGENCE STRATEGY IN INDIA: The development, adoption and promotion of AI have been visibly high on the list of priorities of the Indian Government, an approach that rests on the premise that AI has the potential to make lives easier and to make inclusive society.

NITI AAYOG'S NATIONAL STRATEGY FOR AI: #AIFORALL- India has taken a unique approach to its national AI strategy by focusing on how India can leverage AI not only for economic growth, but also for social inclusion. NITI Aayog, the government think tank that conceptualised and articulated the strategy, calls this approach #AIforAll. The strategy, as a result, aims to

i)   Enhance and empower Indians with the skills to find quality jobs;
ii)   Invest in research and sectors that can maximize economic growth and social impact;
iii)   Scale Indian-made AI solutions to the rest of the developing world.

NITI Aayog published India's strategy document on Artificial Intelligence on June 4, 2018. For formulation of ibid strategy, NITI Aayog has devised processes such as collaborating with experts and stakeholders, AI projects in various fields with fully explanatory proofs and designing a strategy for developing a vibrant AI ecosystem in India. NITI Aayog has identified AI as a truly transforming technology and it has coined a brand name #AIforAll for proliferation of AI in India. This brand is introduced in India to satisfy its needs and aspirations of attaining a leadership role in AI development. The strategy is derived to use AI mainly for inclusive socio- economic growth of India and it aims to place India at forefront of AI technology development arena. The strategy strives to leverage AI for economic growth, social development and inclusive growth, and finally as a "Garage" for emerging and developing economies. NITI AYOG mainly focused on 5 major areas: Healthcare, Agriculture, Education, Smart Cities and Infrastructure and Smart Mobility and Transportation. The strategy paper systematically discusses about present eco-system of AI development in India, prospective sectors for AI proliferation, research and development capabilities and way forward.

NITI Aayog provides over 30 policy recommendations to invest in scientific research, encourage reskilling and training, accelerate the adoption of AI across the value chain, and promote ethics, privacy, and security in AI. Its flagship initiative is a two-tiered integrated strategy to boost research in AI. First, new Centres of Research Excellence in AI (COREs) will focus on fundamental research. Second, the COREs will act as technology feeders for the International Centres for Transformational AI (ICTAIs), which will focus on creating AI-based applications in domains of societal importance. In the said report, NITI Aayog identifies healthcare, agriculture, education, smart cities, and smart mobility as the priority sectors. The report also recommends setting up a consortium of Ethics Councils at each CORE and ICTAI, developing sector specific guidelines on privacy, security, and ethics, creating a National AI Marketplace to increase market discovery and reduce time and cost of collecting data, and a number of initiatives to help the overall workforce acquire skills.

NATIONAL ARTIFICIAL INTELLIGENCE PORTAL- The Indian Government launched National Artificial Intelligence Portal called www.ai.gov.in on 30 May 2020. The portal will work as a one-stop digital platform for AIrelated developments in India, sharing of resources such as articles, start-ups, investment funds in AI, resources, companies and educational institutions related to AI in India. The portal will also share documents, case studies, research reports etc. It also has a section about learning and new job roles related to AI.

The government has also launched a national programme for youth named 'Responsible AI for Youth'. It aims at empowering the young students of the country with an appropriate new-age tech mindset, access to required AI toolset and relevant AI skill sets to make the youth digitally ready for the future

AI ACADEMIA/ INSTITUTES AND CENTERS IN INDIA:

- Centre for Artificial Intelligence IIT Kharagpur
- Center for Artificial Intelligence & Robotics (CAIR), DRDO
- Robert Bosch Centre for Data Science and Artificial Intelligence, IITM
- The Artificial Intelligence Group (AI@IISc)
- Department of AI @ IITH
- Academia-industry Collaboration on Artificial Intelligence

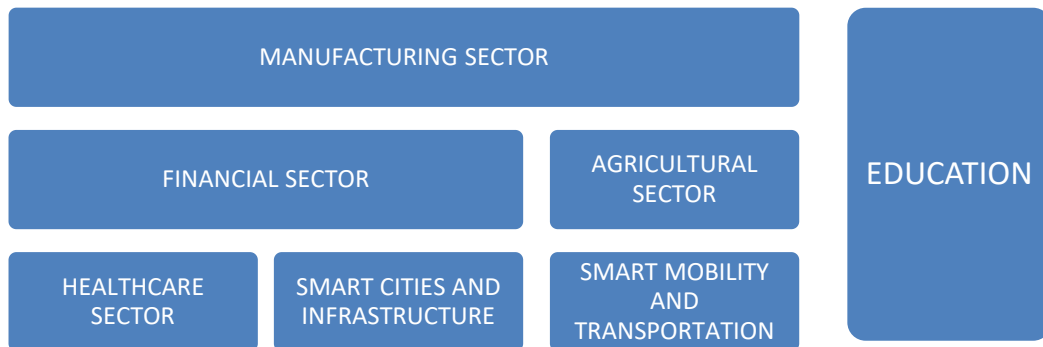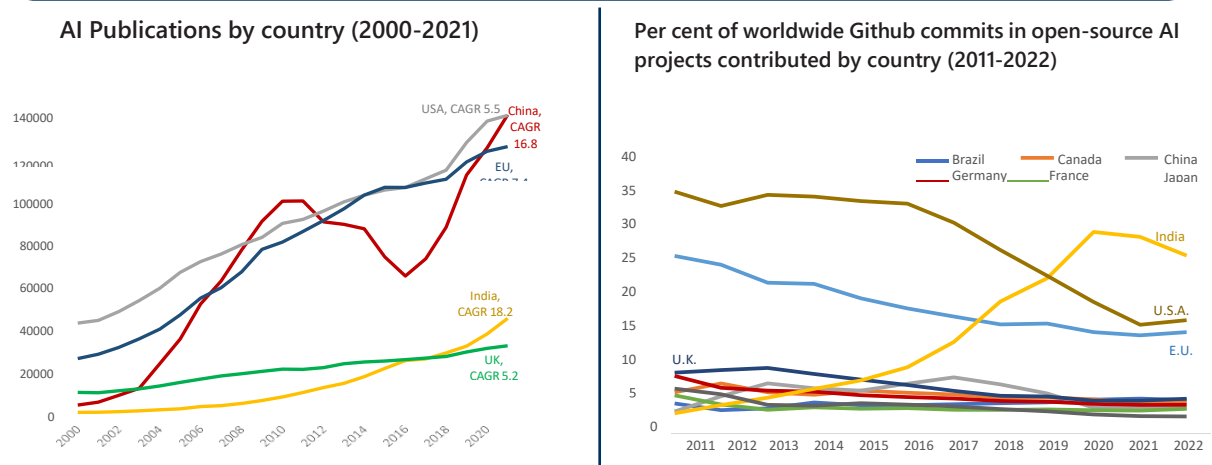- Laboratory of Statistical AI and Machine Learning (LSAIML), IITR

Figure 1: Use cases of artificial intillegence in india.

RECENT STATUS OF ARTIFICIAL INTELLIGENCE IN INDIA

The government's big push towards Artificial Intelligence (AI) has been visible since the launch of the Digital India Initiative in 2015. AI and machine learning are being adopted in the implementation of several government programmes, including the recent announcement of 75 AI-powered defence products. The national programme on AI is being spearheaded by NITI Aayog. With private sector support, the government has organised a series of start-up contests and set up accelerator programmes to nurture the technology and its applications in India. The Ministry of Medium and Small Enterprises also announced a scheme to provide special support to MSMEs for the use of AI tools. The policy momentum has kept up with the announcement of AI for All and the Responsible AI for Social Environment (RAISE) programmes. India has also joined other leading economies such as the US, the UK, the EU, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, the Republic of Korea and Singapore as a founding member of the Global Partnership on Artificial Intelligence (GPAI), a multi-stakeholder initiative to guide the responsible development and use of AI.
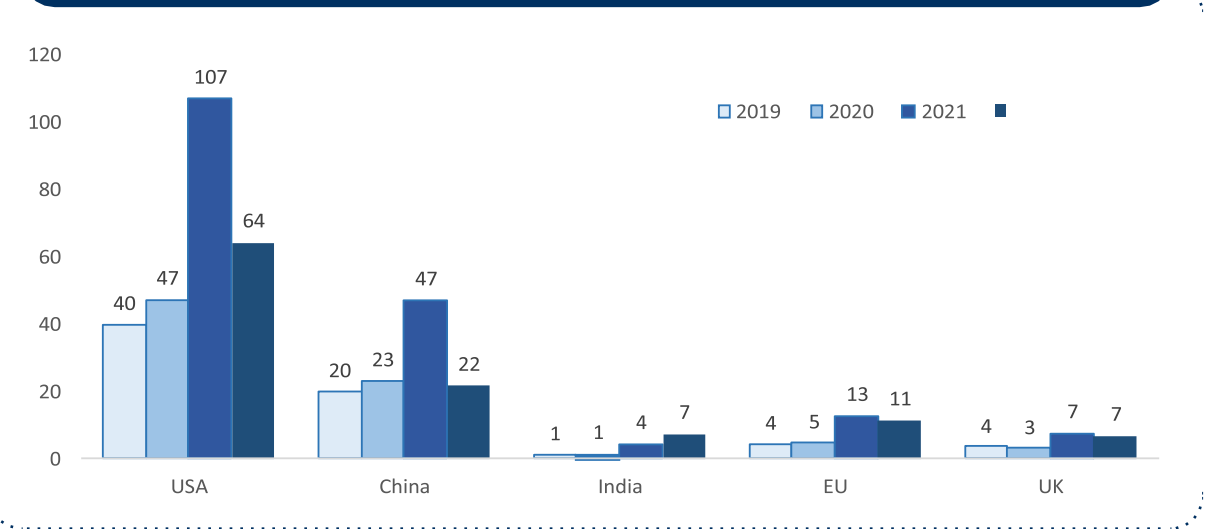
In the latest Indian budget (2023), the government has announced its intention to set up three centres of excellence for AI in an attempt to 'make AI in India and make AI work for India. These centres will strive to create a stronger AI ecosystem by developing cutting-edge AI use cases in key areas such as agriculture, health and sustainable cities. The successful implementation of these policies is visible in India gaining global recognition in AI. AI publications in India have been increasing by 18 per cent in the last two decades from 2000 to 2020; it currently ranks the highest in contribution to open-source AI projects, ahead of developed nations like the US (see Figure 2).

Figure 2: India is a leading contributor to AI publications and projects

AI Publications by country (2000-2021)

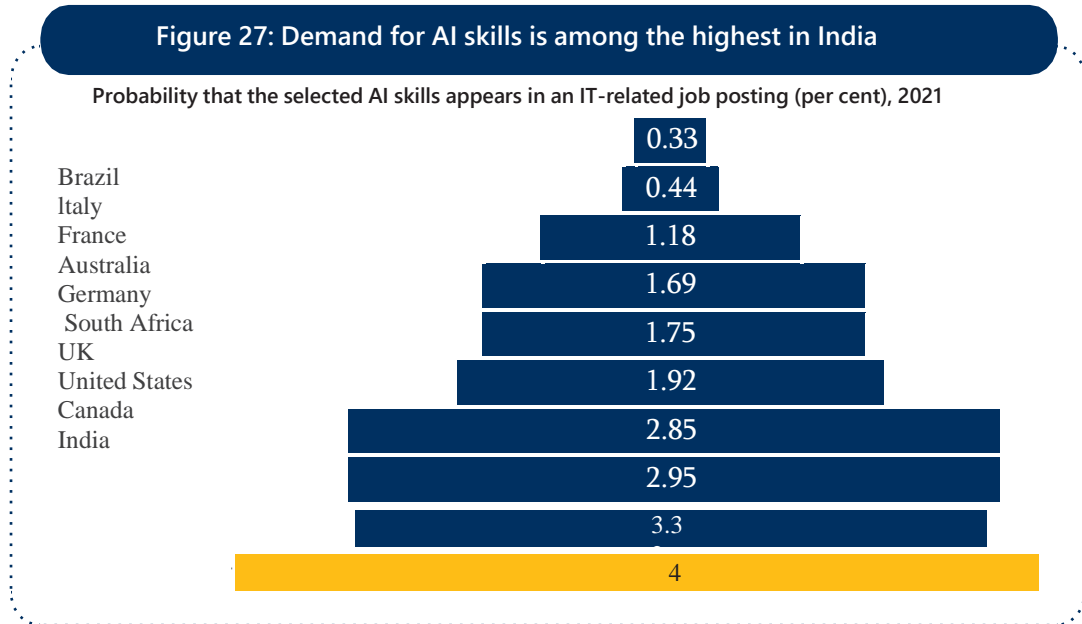**Per cent of worldwide Github commits in open-source AI projects contributed by country (2011-2022)**

VENTURE CAPITAL INVESTMENT IN AI START-UPS- Venture capital investments in AI start-ups have also steadily increased (see Figure 3). This includes start-ups in the health sector such as those building intelligent screening solutions through AI-powered analysis of medical visuals, providing business intelligence using computer vision and natural language processing (NLP), building digital capabilities of users (skilling) through AI, creating virtual assistance, insightful customer engagement through machine learning and NLP, etc. Some of the promising start-ups providing conversational AI platforms and chatbots in India are Haptik, Gupshup, Uniphore, and Verloop. Similarly, AgNext Technologies deploys AI-based solutions across the global agricultural value chain, Artivatic simplifies risk assessment for insurance products and Beatoven.ai solves the problem of music acquisition and licensing issues for content creators. The start-ups are spread across many industries for a variety of applications.

Figure 3: Venture capital investments in AI in million USD (2018-2022)

Source: OECD.AI Policy Observatory

DEMAND FOR AI SKILL HIGHEST IN INDIA- With investments pouring into AI, there is a rising demand for AI skilled workers. The demand for AI has been consistently rising among employers – an IT job posting in India has a 4.2 per cent chance of seeking candidates with AI skills, the highest among all G20 countries (see Figure 4)

Figure 27: Demand for AI skills is among the highest in India

Probability that the selected AI skills appears in an IT-related job posting (per cent), 2021

Brazil
ltaly
France
Australia
Germany
 South Africa
UK
United States
Canada
India

0.33
0.44
1.18
1.69
1.75
1.92
2.85
2.95
3.3
4

CONCLUSION- Artificial intelligence (AI) is an emerging focus area of policy development in India. In AI India has a unique opportunity to apply the technology to solve some of its biggest problems such as shortage of healthcare facility, low quality of education, financial system etc. The paper has reviewed international as well as national status of adoption of artificial intelligence technology. India is amongst the top 3 largest start up hubs of the world. A national program on AI shall catalyse these innovative minds to co-create solutions and contribute to the building of new India governed by technology. Accenture, in its recent AI research reports provides a framework for evaluating the economic impact of AI for select G20 countries and estimates AI to boost India's annual growth rate by 1.3 percentage points by 2035

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