

ARTIFICIAL INTELLIGENCE: LEGAL, ETHICAL AND POLICY ISSUES IN INDIA AND NEPAL

—*Jivesh Jha** & *Alok Kumar Yadav***

***A**bstract—The dawn of a technology-driven economy and globalization has brought stimulation of intelligence in machines which ultimately helps the world to stand much closer virtually. Of the latest developments, Artificial Intelligence (AI) is one of the hotcakes for people. The world, we live in, is the era of modernity, AI, science and technology. This AI promotes research-driven science and technology. Technology is growing unexpectedly. The world we are looking at is the age of AI as the works that were performed by human hands are being performed easily by technology-based machines and applications in smoother and faster ways. In this context, India and Nepal deserve robust policy and legal frameworks for dealing with AI. The legal measures would help the state and people to protect privacy concerns and promote the developments. This paper argues that the regulatory mechanism is the need of the hour for India and Nepal to deal with the challenge and opportunities of technological advancements.*

Keywords: Artificial intelligence, AI, India, Nepal, Law, regulatory regime

* Judicial Officer, Dhanusha District Court, Janakpur, Nepal.

** PhD & Associate Professor (Law), Faculty of Law, University of Lucknow, Lucknow
<aloklmlnlu@gmail.com>.

I. INTRODUCTION

Artificial intelligence (AI) is one of the rapidly growing fields the world over. In India, there are a considerable number of companies and research institutions working with the aid of a wide range of applications. In this respect, the Indian government has recognized the potential of AI and has taken remarkable steps to promote its development and adoption. For instance, the government has launched the National Artificial Intelligence Portal, which serves as a one-stop platform for all AI-related information and resources in the country, and the National AI Strategy, which outlines the country's vision and objectives for AI development and highlights the key areas where AI can be leveraged to drive economic growth and social development.

In addition to this, there are scores of universities and research centres, in India, that are actively engaged in the field of AI research and development. However, India's journey on the path of AI is yet to be parallel with global leaders, like that of the United States (US) and the Communist Republic of China.

The private sector has also escalated AI research and development. There are a number of Indian companies, such as TATA Consultancy Services, Wipro, Infosys, and HCL Technologies, that have invested in AI and have developed solutions for various sectors of industries, that as healthcare, finance, and transportation. There are a number of start-ups in India that are working on cutting-edge AI technologies and applications, such as natural language processing, computer vision, and machine learning.

The Indian varsities and academia are also making significant contributions in AI research and development. The researches and contributions undertaken by different institutions, including that of different campuses of the Indian Institute of Technology (IIT), the Indian Institute of Science (IISc), and the Indian Institute of Science Education and Research (IISER) suggest that the Indian academia is serious in the development of AI. These institutions are producing a large number of AI researchers and professionals who are contributing to the growth of the AI ecosystem in the country.

Even the police force is seen taking benefits of AI. Kerala police have introduced a robot for carrying out police work. In Chennai, we can find a second robot-themed restaurant operating since 2019.

Much like India, Nepal's private and government sectors are also actively engaged in the development of AI. The use of Smartphones has become a new normal in, both, India and Nepal. The people from elite to vulnerable groups have access to mobile phones these days. Even differently able citizens in India and Nepal are in a position to get benefitted from different mobile applications.

They could get knowledge on a particular subject in their own language as Google has introduced live transcribe options for over 70 languages, including that of Nepali and Hindi. Neither Nepal nor India could afford to ignore the fever of AI. Nepal's Kathmandu University has introduced specialized courses on Artificial Intelligence. Along with this, other universities, like Tribhuvan University and Purbanchal University, have introduced different courses on AI, informatics, data mathematics and data sciences

Yet, India and Nepal lack a robust AI ecosystem, for there is a shortage of skilled AI professionals. The lack of access to data, lack of digital literacy and lack of research funding are some of the key challenges being faced by the AI community in India and Nepal. Nonetheless, the respective governments, private sectors and academia are working together to overcome these challenges. Over and above all this, the AI deserves to be regulated by law. After all, the technological advancements should not make inroads in the personal affairs and privacy of individuals.

II. TOWARD STATUS OF AI IN INDIA

The term AI was pioneered by John McCarthy, a Professor emeritus of computer science at Stanford University, in 1956.¹ In 1950's, the scientists' and researchers' prime concern was to develop high-quality machines to improve the quality of human lives by narrowing the human interventions for performing difficult tasks in easier ways. The roller coaster of success could be seen in period between 1957 and 1974 where AI flourished. The scientists started believing that computers could store more information and became faster, cheaper and more accessible.² People started applying machine learning algorithms to solve the problems. In 1980's, AI was reignited by two sources: an expansion of the toolkit and a boost of funds. "The Japanese government largely invested, around 400 million dollars to transform computer processing, implementing logic programming and improving AI."³ The AI researches were almost virgin and unexploited in 1990s. "An early milestone was the 1997 victory of IBM's chess-playing computer Deep Blue over the world champion Gary Kasparov."⁴

¹ ANDREW MYERS, STANFORD'S JOHN MCCARTHY, SEMINAL FIGURE OF ARTIFICIAL INTELLIGENCE, DIES AT 84 (STANFORD REPORT, October 25, 2011), <https://news.stanford.edu/news/2011/october/john-mccarthy-obit-102511.html#:~:text=John%20McCarthy%2C%20a%20professor%20emeritus,He%20was%2084> (last visited on January 29, 2022).

² Rockwell Anyoha, *The History of Artificial Intelligence*, (August 28, 2017), <https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/> (last visited on January 29, 2022).

³ *Ibid.*

⁴ *Preparing for the Future of Artificial Intelligence*, (Executive Office of the President, National Science and Technology Council, Committee on Technology, October 2016), p. 5, https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf. "The current wave of progress and enthusiasm for AI began around 2010, driven by three factors that built upon each other: the availability of big data from sources including e-commerce, businesses, social media, science, and government;

“In general, artificial intelligence is the branch computer science dealing with the stimulation of intelligent behaviours in computers.”⁵ So, the advancement of computer and technologies pushed the idea of AI into reality. As a result, the world has been captivated by the technologies. The technological advancement, AI, including that of mobiles and computer applications, have become the characteristic features of the modernized and globalized world. AI is everywhere. Its omnipresent in our daily lives. Even when we don't see it working, it sees us, hears us and is repeatedly learning from our behaviour. In Gmail, WhatsApp or other social media, we can find the use of AI in predicting what we wanted to write out.

There appears no exhaustive definition of AI. In the words of Stuart Russell and Peter Norvig, “Artificial Intelligence is system that thinks like humans (for example, cognitive architectures and neural networks); systems that act like humans (for instance, pass the Turing test via neutral language processing; automated reasoning and learning); systems that think rationally (for example, logic solvers, inference and optimization) and systems that act rationally (for instance, intelligent software agents, robots, software that is engaged in planning, navigation, perception, natural language processing).”⁶

The technological advancements in the field of AI have the potential to make impacts on human rights, like the right to privacy and personal affairs, algorithm transparency, cyber security, unfairness, bias and discrimination, data protection, credibility issues, intellectual property rights (IPR) issues, liability for damage, or lack of accountability.

which provided raw material for dramatically improved machine learning approaches and algorithms; which in turn relied on the capabilities of more powerful computers. During this period, the pace of improvement surprised AI experts. For example, on a popular image recognition challenge that has a 5 percent human error rate according to one error measure, the best AI result improved from a 26 percent error rate in 2011 to 3.5 percent in 2015.” Simultaneously, industry has been increasing its investment in AI. In 2016, Google Chief Executive Officer (CEO) Sundar Pichai said, “Machine learning [a subfield of AI] is a core, transformative way by which we're rethinking how we're doing everything. We are thoughtfully applying it across all our products, be it search, ads, YouTube, or Play. And we're in early days, but you will see us—in a systematic way—apply machine learning in all these areas. This view of AI broadly impacting how software is created and delivered was widely shared by CEOs in the technology industry, including Ginni Rometty of IBM, who has said that her organization is betting the company on AI” (last visited on Feb. 1, 2022).

⁵ MERRIAM-WEBSTER defines Artificial Intelligence as a Branch of Computer Science Dealing with the Stimulation of Intelligent Behaviour in Computers, <https://www.merriam-webster.com/dictionary/artificial%20intelligence> (last visited on January 29, 2022).

⁶ STUART RUSSELL AND PETER NORVIG, ARTIFICIAL INTELLIGENCE: A MODERN APPROACH (3rd ed.) (Essex, England: Pearson, 2009), in *Preparing for the Future of Artificial Intelligence*, (Executive Office of the President, National Science and Technology Council, Committee on Technology, October 2016), p. 5, https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf (last visited on Jan. 29, 2023).

The OECD principles on AI aim to promote the use of AI in an innovative and trustworthy manner for respecting and protecting the democratic values and human rights of others. For instance, the OECD considers inclusive growth and sustainable development⁷; fairness⁸; transparency and explainability⁹; robustness, security and safety¹⁰; and accountability¹¹ as value-based principles.

Interestingly, India's prioritisation of emerging technologies could be evident from the country's use of a biometric identity project, Aadhar Card (Unique Identification). The Aadhar Card can also form part of AI applications and projects in the coming days. The government of India on July 1, 2015, launched the "Digital India" project with which the government aims to enable access to better services for education, healthcare and agriculture. The government's approach to cashless and paperless governance in private, public and business transactions would contribute to the Digital India movement. These initiatives are, certainly, part of AI.

"The implementation of initiatives like Aadhar, UPI and Digi locker is ensuring faceless, cashless and paperless governance that has laid the foundations of a strong, robust and secure Digital India."¹²

Prior to the "Digital India" campaign, the government of India launched the "Make in India" campaign to transform India into a global design and manufacturing hub.

⁷ "The AI can be leveraged for social good and can substantially contribute to achieving the Sustainable Development Goals (SDGs) in the areas such as education, health, transport, agriculture, environment and sustainable cities, among others. This principle emphasises that AI systems could end existing biases and have a disparate impact on vulnerable and underrepresented populations, like ethnic minorities, women, children, low-skilled and less educated sections of society", <https://oecd.ai/en/dashboards/ai-principles/P5> (last visited on Jan. 30, 2022).

⁸ The AI developers or users should respect the rule of law, human rights and democratic norm, like freedom, dignity and privacy, non-discrimination, fairness, social justice and internationally revered labour rights.

⁹ "Transparency in AI would enable people to understand how an AI system is developed, trained, operates and deployed in the relevant application domain, so that consumer can make more informed choices. Transparency also provides the reasons as to how and why the information is provided there. It fosters general awareness. Explainability means enabling people affected by the outcomes of an AI system to understand how it was arrived at."

¹⁰ "The safety and security challenges are complex issues in regard to AI. This principle states that the AI systems should not pose unreasonable safety risks including to physical security, in conditions of normal or foreseeable use or misuse throughout their lifecycle. Traceability and subsequent analysis and inquiry and applying a risk management approach are the two ways to maintain robust, safe and secure AI", <https://oecd.ai/en/dashboards/ai-principles/P8> (last visited on Jan. 30, 2023).

¹¹ In general, accountability guides individuals' and organizations to explain reasons for which the decisions and actions were taken. Lack of accountability may lead to legal actions.

¹² *6 years of Digital India*, <https://transformingindia.mygov.in/digital-india/> (last visited on Jan. 30, 2022).

In 2018, the Union government allocated substantial funding for research, training and skilling in emerging technologies, like AI. In addition to this, the Union Ministry of Commerce and Industry established Artificial Intelligence Task Force in August 2017. In January 2018, the Task Force, in its report, recommended an Inter-Ministerial National Artificial Intelligence Mission to act as a nodal agency for AI-related developments and activities in India. “The Ministry focuses on embedding AI for the country’s holistic development in the fields of economy, polity, legal, industry, healthcare, agriculture, education, retail, human and robot interaction, Aadhar, environment, national security and public utility services.”¹³ The task force acknowledge the challenges associated with data sharing and third party intervention on information.

The Union government’s Ministry of Electronics and Information Technology formed four committees to prepare a roadmap for national AI programme. These committees are for citizen centric services; data platforms; skilling; re-skilling and R&D; legal regulatory and cyber security. “The government think tank NITI Aayog is assigned to establish national programmes to conduct research and development in these areas.”¹⁴ Report of Committee on Platforms and Data on Artificial Intelligence published in July, 2019 by Ministry of Electronics and Information Technology recommended the development of an enriched National Artificial Intelligence Resource Platform (NAIRP) of India which will “have scope for sharing and driving standards, policy guidelines, entrepreneurship and developing a creative economy.”¹⁵

¹³ MINISTRY OF COMMERCE AND INDUSTRY, *AI Task Force*, <https://indiaai.gov.in/government/ministry-of-commerce-and-industry> (last visited on Jan. 31, 2022).

¹⁴ Surabhi Agarwal, *IT Ministry has Formed Four Committees for Artificial Intelligence: Ravi Shankar Prasad*, *ECONOMIC TIMES* (Feb. 9, 2018), <https://economictimes.indiatimes.com/news/economy/policy/it-ministry-forms-four-committees-for-artificial-intelligence-ravi-shankar-prasad/articleshow/62853767.cms> (last visited on Jan. 31, 2022).

¹⁵ “This platform that will bring together all publicly shareable data, information, tools, literature, solutions, best-practices to enable a large number of people to individually and in collaboration take up AI tasks to fuel all aspects from capacity building to building solutions in different domains that will benefit the society, enrich national prosperity and enable international cooperation.” This National AI Platform (NAIRP) will be an Open Data and Knowledge-cum-Innovation Platform that will enable usage by all categories of users for a variety of purposes including but not limited to training, research, projects including educational, competitive, funded and mission projects, start-ups and commercial development for socio-economic good. It will encourage the highest quality talent and innovators from all over the country and world to participate in this programme and help solve national challenges.”- This platform will also catalyze the development of a partnership/collaboration/ contribution/ participation model for knowledge sharing, data sharing, meta-data structure, annotation, API framework, IP creation, innovation, value added AI services, government adoption and human interactions.” “The success of the National Digital Library of India (NDLI) Project (<https://ndl.iitkgp.ac.in/>) will be replicated for developing this AI repository and the potential of the data.gov.in resource can be the starting point to develop this National AI Resource Platform (NAIRP).”REPORT OF COMMITTEE-A ON PLATFORMS AND DATA ON ARTIFICIAL INTELLIGENCE p. 3 (2019) (New Delhi: Ministry of Electronics and Information Technology), https://www.meity.gov.in/writereaddata/files/Committee_A-Report_on_Platforms.pdf (last visited on Jan. 31, 2022).

Similarly, Report of Committee on Leveraging AI for Identifying National Missions in Key Sectors published in July 2019 itself highlighted national mission indicators and the role of AI in the fields of agriculture, food, water, environment and pollution, education, culture, specially-abled, transportation, highways and waterways, railways, energy, habitat, public safety, disaster management, legal, and finance. This report acknowledges and equates data and knowledge with life and blood; AI/machine learning algorithms with organs and AI applications and systems as body systems.

The Report of Committee-C on Mapping Technological Capabilities, Key policy enablers required across sectors, skilling and re-skilled, R&D published in 2019 stressed on the need of embedding AI in scores of fields, including that of education, re-skilling, industry-academia collaboration, international linkages, AI policy, data privacy and security, model for AI policy. This Report recommends for a National Council on AI at the apex level which would be comprised of representatives from government, academia and industry and experts. The National Council would be set up by the Niti Aayog.

The Report of Committee-D on Cyber security, safety, legal and ethical issues, published by the Ministry of Electronics and IT emphasizes new cyber security AAA: Automation, analytics and AI.

The social media platforms, like Facebook, twitter, and WhatsApp have become real-world experiments for studying AI and cyber security and privacy issues. The five V's of social media—volume, velocity, variety, veracity and value—often make a big difference in the use of social media platforms by people. “This report suggests that AI needs to have ethical strongholds in the areas of the complex adaptive AI system, cyber-security”¹⁶, “cyber-resilience, veracity, privacy, consumer ethics, transparency, certification, fairness without bias, accountability promotion of educational opportunities and skilled labour. The Information Technology Act too contains provisions regarding cyber security.”¹⁷

¹⁶ THE REPORT OF COMMITTEE-D ON CYBER SECURITY, SAFETY, LEGAL AND ETHICAL ISSUES, published by MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY suggests that the “cyber-security: a. In the age of technology, there will be cyber wars; b. Any autonomous system will be used for malicious reasons if hacked; c. Such vulnerabilities of AI systems should be checked so that they stay safeguarded against such attacks; d. Mock attacking AI systems should be developed that would immunize the existing safeguarding AI system; e. There should also be systems that would predict the new type of attacks that can arise” p.26, https://www.meity.gov.in/writereaddata/files/Committee_D-Cyber-n-Legal-and-Ethical.pdf (last visited on Jan. 31, 2022).

¹⁷ “According to Information Technology Act, 2000, s. 70, ‘Critical Information Infrastructure’ (CII) as those facilities, systems or functions whose incapacity or destruction would cause a debilitating impact on national security, governance, economy and social well-being of a nation.” Once notified as a “protected system” “the CII is immediately placed under the ambit of s.66(F) of the IT Act (Amended) 2008, which defines any cyberattack as an act of Cyberterrorism.” Security should be a top priority whether it be in data sharing, video surveillance or even across our country’s borders.” *Id.* at p. 22.

The National Institution for Transforming India (often called, NITI Aayog) is a government-owned think tank which is shouldered with the responsibility of producing a national artificial intelligence policy to direct the government's AI initiatives. In June 2018, NITI Aayog stressed the need for a national AI strategy for leveraging AI for economic, social and inclusive growth. Beyond this, the NITI is not only engaged in forwarding policy landscapes but also involved in implementation and deployment too.

“The NITI Aayog considers it imperative to use AI in health, agriculture, education, smart cities and infrastructure, and smart mobility and transportation. The lack of broad-based expertise in research and application in AI; absence of enabling data ecosystem; high resource cost and low awareness for adoption of AI; privacy and security and absence of collaborative approach to adoption and application of AI are the barriers that need to be addressed for ensuring the development of AI.”¹⁸ Even in G-20 Summit held in Japan sought to “standardize rules in the global movement of data flows with better protection in personal information, intellectual property and cyber security”¹⁹. However, India refused to give the stamp of approval to the Osaka Declaration on digital economy that was signed by 24 countries and groupings to push for the free flow of data across borders.

Over and above all this, India is yet to adopt specific laws for protecting algorithm decisions. The issues of AI deserve to be dealt with by specific legislation. The National Strategy on AI (NSAI) released by NITI Aayog in 2018 unveils the potential of AI to solve social challenges faced by its citizens in the areas of agriculture, health and education and economy.

“The New Education Policy (NEP, 2020) underscores the need of incorporating AI in the curriculum. The Ministry of Tribal Affairs has reached a MoU with Microsoft to support the digital transformation of schools such as Model Residential Schools (EMRS) and Ashram Schools, among others under the Ministry.”²⁰

US-India Artificial Intelligence (USIAI) initiative has been brought into effect to enhance collaborations between the US and India in the field of science and technology. In 2020, India joined the Global Partnership on AI

¹⁸ NATIONAL STRATEGY FOR ARTIFICIAL INTELLIGENCE, INDIA AI, (June 13, 2019), <https://indiaai.gov.in/research-reports/national-strategy-for-artificial-intelligence> (last visited on Feb. 1, 2022).

¹⁹ “Japan PM Abe underscored the importance of his Data Free Flow with Trust concept — a move spearheaded by Japan that calls for the creation of international rules enabling free movement of data across borders. Shubhajit Roy, *G-20 Osaka Summit: India Refuses to Sign Declaration on Free Flow of Data Across Borders*, (June 29, 2019). THE INDIAN EXPRESS, <https://indianexpress.com/article/india/g-20-osaka-summit-narendra-mod-india-declaration-on-free-flow-of-data-across-borders-shinzo-abe-5805846/> (last visited on Feb. 1, 2022).

²⁰ National AI Portal, *Drishti IAS*, <https://www.drishtiias.com/daily-updates/daily-news-analysis/national-ai-portal> (last visited on Feb. 1, 2022).

(GPAI) as a founding member to support the responsible growth and use of AI. Responsible AI for Social Empowerment, 2020 (RAISE 2020), a mega virtual summit, was held and it was jointly organized by NITI Aayog and MeitY. The main aim of Responsible AI for Youths is to provide equal access to AI to every citizen and to create AI solutions to solve economic and social issues in India.

Of late, an AI-enabled Chatbot was launched by MyGov for ensuring communications as a part of the Covid-19 response. Similarly, in the judiciary, an AI-based portal, called SUPACE assists judges with legal research and ICRISAT has “developed an AI-power sowing app which utilises weather models and data on local crop yield and rainfall to more accurately predict and advise local farmers on when they should plant their seeds.”²¹ “An AI-based flood forecasting model has been implemented which gives warnings 48 hours earlier about impending floods. Moreover, banks have adopted AI-based algorithms to increase digitisation and to avoid fraud and risks.”²²

III. AI IN NEPAL

Unlike India, Nepal lacks policy-level homework on Artificial Intelligence. A study shows that approx 96% of households in Nepal have at least one mobile phone and more than half of those were smartphones²³. The use of AI-based technologies in bank and health sectors shows that Nepal is not too far from the reach of recent technological advancements. The *Naulo* Restaurant in Kathmandu has five robot waiters under the slogan “where the food meets technology”. The robots are designed and manufactured by *Paaila* Technology, which is a Nepali company established by young engineers specialising in robotics and AI. Interestingly, *Naulo* is the first digitalised robotic restaurant in South Asia.²⁴

Machine Learning (ML), a subfield of AI, is widely adopted by banks across the globe. The scope of AI is widening day by day with the advent of digital platforms and smartphones. Nepal’s “banking industries have digitisation, fin-tech, mobile banking, SMS banking, internet banking, payment gateways and e-wallets”²⁵ which are also, in one or another way, the use of AI. Previously, the use of AI could be seen in Nepal SBI Bank’s robotics

²¹ *Ibid.*

²² *Ibid.*

²³ *Nepal’s Changing Media Landscape*, (April 13, 2018) NEPALI TIMES, <https://www.nepalitimes.com/banner/how-nepals-media-landscape-is-being-transformed/> (last visited on Feb. 2, 2022).

²⁴ *Made in Nepal Robots are Serving Food at this Kathmandu Restaurant*, INDIA TODAY, (Aug. 25, 2018), <https://www.indiatoday.in/fyi/story/nepal-kathmandu-restaurant-robot-waiters-naulo-paaila-technology-1322926-2018-08-25> (last visited on Feb. 2, 2022).

²⁵ Anil Niroula, *Banking in Nepal: Greater Use of AI* (Feb. 19, 2021), THE HIMALAYAN TIMES, <https://thehimalayantimes.com/opinion/banking-in-nepal-greater-use-of-ai> (last visited on Feb. 2, 2022).

introduced in 2017 and Macchapuchhre Bank's MAYA, a chat assistant on its website, and Facebook messenger in 2018. The use of AI in Banking and Financial Institutions and other sectors has turned into a boon, for the software helps banks to link transactions, detect fraud/disasters and thereby ensure regulatory compliance.

The government of Nepal has endorsed a program of "Digital Nepal Framework, 2019" which is to be implemented in five years, with the vision of 'digital Nepal for good governance, development and prosperity'. With this policy-level intervention, the Himalayan Republic aims to ensure digital development in agriculture, education, health, energy, finance, tourism and urban infrastructure. The Framework is like a lamppost showing the vivid path of the country in its journey toward becoming a digital state.

In addition to this, the government has introduced National Information and Communication Technology Policy, 2015²⁶, National Information Technology²⁷, Electronic Transaction Act, 2008²⁸, National Penal Code, 2017²⁹, Electronic Transaction Rules, 2007 and Information Technology Bill, 2019. Prior to this, the Information Technology Policy, of 2000 aimed to make IT accessible to the general public and increase employment through the means of Information,

²⁶ The IT Policy, 2015 aims to address the policy related to the challenges created by the continuous growth of the IT sector.

²⁷ "National Information Technology was established in 2001 AD with the objective of developing and promoting the information technology sector of the Government of Nepal. The National Information Technology Center acts as a data bank of information and assist in computerization of records at governmental offices and in developing and expanding the contents", <http://www.nitc.gov.np/aboutus/introduction> (last visited on Feb. 2, 2022).

²⁸ "The Electronic Transaction Act, 2008 aims to regulate the freedom of speech and expression in the digital world in Nepal." "Though the main aim of this Act is to create legal provisions to authenticate and regularize digital transactions, it also contains one art.(47) that deals with online speech under, "Publication of illegal materials in electronic form." "This article has been used to regulate freedom of expression as illustrated by the legal cases discussed in the next section. The article puts many aspects of expression under illegal materials and prohibits the publication and display of such materials. These expressions can be divided into three categories: 1) public morality or decent behavior, 2) spread of hate or jealousy towards individuals, and 3) jeopardy of harmonious relations among communities. These categorizations are vague and can be interpreted differently. This law has made a provision to punish citizens who violate this article, with a fine not exceeding NRs. 1,00,000 or imprisonment not exceeding one year or both. Furthermore, the law also contains the provision of increasing the punishment by one and half times each time the same crime is repeated. The Electronic Transactions Rules, 2007 was prepared based on the ETA. Due to its vagueness and the stringent punishment provisions, many practicing communities such as journalists, lawyers and activists have suggested that this law should be amended," Research Brief, *Freedom of Expression in Nepal in the Digital World: A Policy Review*, Martin Chautari, (Number 31, August, 2021), p. 6, http://www.martinchautari.org.np/files/Research-Brief-31_Freedom-of-Expression-in-Nepal-in-the-Digital-World_A-Policy-Review.pdf (last visited on Feb. 2, 2022). Martin Chautari is a not-for-profit research agency and think-tank based in Kathmandu.

²⁹ National Penal Code is a substantive criminal law, like that of India's Indian Penal Code, 1860. It hosts penal provisions for offences committed by the use or non-use of electronic means.

communication and technology. The National Communication Policy, of 1992 paved the way for the liberalization of the telecommunication sectors in Nepal. Then, Telecommunication Act, 1997 marked a milestone in providing an institutional framework for regulating the telecommunications sector. IT Policy beginning in 2002, followed by policies of 2004, 2010 and 2015 provided a robust ecosystem for the development of information and technology.

The *Nagarik*³⁰ (citizen) App, released by the government in 2019 but implemented in January 2021, is an online service for various government and public bodies. This App provides information about government and public offices. It would have been better had the government launched an App like India's *Aarogya Setu* which is integrated with the vaccine registration and it has the potential to trace COVID-19-infected persons relatively easily. In the budget for the fiscal year 2020-21, the government has allotted a budget for increasing the quality and reliability of broadband internet service within two years.³¹

The AI has been making progress in Nepal and possibly changes will be seen at a time when the government and non-government sectors digitise their official business and set aside paperwork. Like other democracies, Nepal has a wealth of software talents in AI and IT sectors. The AI has been introduced as a discipline in university curricula. Kathmandu University has launched B.Tech and M.Tech programmes in Artificial Intelligence. The University has introduced programmes on AI from the academic session of 2021. "The AI is a hot-cake and it's not only the future for Nepal but for all humankind. The students with a degree of AI would be placed in the public sector, judiciary, journalism, human rights, health, agriculture and among other industrial establishments. It has no boundaries. Still, the necessity of law and robust policy on AI is being felt and discussed in Nepal."³²

³⁰ "Nagarik Mobile App is a software system that runs services on mobile and tablets. The Nagarik Mobile App is the beginning of a new era of digital Nepal. If the government continues to make this app more effective in the coming days, the era of paper documentation in Nepal will come to an end. The government has announced plans to build Digital Nepal for good governance, development, and prosperity. The citizen app envisioned by the government policy and program of 2075/76 is believed to be an important cornerstone for Digital Nepal. The online services of various government and public bodies can be easily accessed from the same app through this app, and this app will also act as a service delivery gateway so that the electronic systems of government and public bodies do not have to be interconnected separately to establish contact," <https://nagarikapp.gov.np/> (last visited on Feb. 2, 2022).

³¹ Roshee Lamichhane, "Digital divide mars quality of care," *The Kathmandu Post*, (Aug. 23, 2021), <https://kathmandupost.com/columns/2021/08/22/digital-divide-mars-quality-of-care> (last visited on Feb. 2, 2022).

³² "Kathmandu University, School of Engineering has launched courses on AI from 2021. The university has made a timely intervention," says Prof Dr Bal Krishna Bal, Head of Department, Department of Computer Engineering, in a personal conversation with Jivesh Jha, author of this paper, on February 2, 2022.

IV. CONSTITUTIONAL PERSPECTIVE

The Constitution of India is an organic document which favours development and technological advancements. The tiers of government are in no way restricted from adopting policies required for the growth and development of AI. However, the constitutional protection available to citizens cannot be sidelined by technological advancements. Rather, the developments should be in conformity with the constitutional provisions.

The Constitution of India envisages equal and non-discriminatory practices, and policies in every public and private action.³³ The AI-based healthcare or any other development should neither abridge the right to health, and right to life, nor infringe one's right to privacy.³⁴ Article 38, which is a part of Directive Principles, directs the state to ensure the economic welfare of the people and minimise inequalities in income, status, facilities and opportunities. The constitutional position remains the same in the case of Nepal.

The Constitution of Nepal, which entered into force on September 20, 2015, confers power on federal, provincial and local governments to jointly (or, independently) act on the AI. This way, the issue and development of AI remain as the collective responsibility of every wing of the government. Science and technology appear as the subject matter of concurrent lists where the state and central government, both, are entitled to play a creative as well as constructive role in technological advancements.

So, our AI developments should be in line with the constitutional ethos. India and Nepal, both, deserve to scale their development to frustrate the digital divide and ensure equal access to every person in every development—be it AI.

V. INTERNATIONAL SCENARIO

The State Council of China has unveiled a program in which it aimed to be at par with the best in the world by 2025. The Communist Republic plans to have major breakthroughs in AI and for AI to become the primary driver of China's industry and by 2030 it aims to become the world's premier innovation

³³ Article 14 guarantees equality of law and equal protection of law to every person. Similarly, Article 15 prohibits discrimination on any ground. Article 16 prohibits discrimination in public sector jobs.

³⁴ *Paschim Bengal Khet Mazdoor Samity case*(1996), the apex court held that "government is under an obligation to provide adequate medical facilities to the people." In *Parmanand Katara v Union of India* (1989), the apex court held that "every doctor, whether at a government hospital or otherwise, has the professional obligation to extend his services with due expertise for protecting life. Article 25 of the Universal Declaration of Human Rights, 1948 guarantees right to health to every person. In India, right to health and right to privacy are fundamental rights implicitly guaranteed under Article 21 of the constitution."

and research centre. Also, the government is planning multibillion-dollar investments in enhancing research and innovation in AI. “National Academy of Engineering, US has announced a list of grand challenges for engineering in the 21st century, which includes things like securing cyberspace, advanced health informatics, personalized instruction and so on. In China, AI is a Mission Mode Project with clear targets and PPP partnership.”³⁵ China is eyeing to become the world leader in AI, by 2030, with the aim of making the industry worth one trillion Yuan.

“In Canada, the government has announced enhancing funding for Canadian Institute for Advanced Research (CIFAR). The government has declared that the CIFAR will invest a \$125 million Pan-Canadian AI Strategy for research and talent, toward securing Canada’s position in the world in the field of AI.”³⁶

In Singapore, the government in 2019 released Model AI Governance Framework which is tasked with the responsibility of “providing detailed and readily implementable guidance to private sector organizations to address key ethical and governance issues when deploying AI solutions.”³⁷

“In the United States, the Algorithm Accountability Act of 2019, a proposed bill, envisages that commercial enterprises would conduct assessments of high-risk systems that involve personal information or make automated decisions with the use of AI or machine learning. The US has HIPAA”³⁸ Privacy Rules, 2000 and the Garaham Bliley Act, 1999 for the governance of data in the health and finance sector, respectively.

In India, SEBI issued a circular in early 2019 to stockbrokers, stock exchanges, Mutual Funds, and Trustee companies on reporting requirements for AI and Machine Learning (ML). The reporting is for creating an inventory of AI systems in the market and guiding future policies. The strategy for National Digital Health Mission emphasizes the embedding of AI in the health

³⁵ GOVERNMENT OF INDIA, MINISTRY OF ELECTRONICS & INFORMATION TECHNOLOGY, REPORT OF COMMITTEE-C ON MAPPING TECHNOLOGICAL CAPABILITIES, KEY POLICY ENABLERS REQUIRED ACROSS SECTORS, SKILLING AND RE-SKILLING, R&D, p. 10, (July 2019), https://www.meity.gov.in/writereaddata/files/Committee_C-Report-on_RnD.pdf (last visited on Jan. 31, 2022).

³⁶ *Ibid.*

³⁷ *Singapore’s Approach to AI Governance*, available at: <https://www.pdpc.gov.sg/help-and-resources/2020/01/model-ai-governance-framework> (last visited on Jan. 31, 2022).

³⁸ “A major goal of the Privacy Rule is to assure that individuals’ health information is properly protected while allowing the flow of health information needed to provide and promote high quality health care and to protect the public’s health and well-being. The Rule strikes a balance that permits important uses of information, while protecting the privacy of people who seek care and healing. Given that the health care marketplace is diverse, the Rule is designed to be flexible and comprehensive to cover the variety of uses and disclosures that need to be addressed.” <https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html> (last visited on Jan. 31, 2022).

sector. Currently, an overarching law on AI is due in India. The Personal Data Protection Bill, 2019 is a comprehensive law outlining various facets of privacy protections that AI players need to comply with it.

“In the US, the National Institutes of Health (NIH) has an R&D budget of more than \$30 billion, the Department of Labour’s R&D has a budget of \$14 million.”³⁹ “The automated cars are regulated by the National Highway Traffic Safety Administration within the Department of Transport and aircraft are regulated by the Federal Aviation Administration.”⁴⁰

Developed countries, like the UK, Canada, UAE, Singapore, Japan, South Korea, and China have introduced their national AI strategy.

The studies show that AI could have economic impacts. The United States believes that the “commercial drone industry could generate more than \$82 billion for the US economy and create more than 100,000 new jobs over the next 10 years.”⁴¹

The Model AI Governance Framework⁴² (of Singapore) and Principles for the Stewardship of AI Application⁴³ (of the US) prescribe the ethics and minimum compliance mechanisms for AI. These principles suggest that AI should be trustworthy, fair, cost-effective and free from bias and insecurities.

VI. CONCLUSION

AI raises a number of legal, ethical, and policy issues in India and Nepal. Some of the key issues include Data protection and privacy; bias and discrimination and job displacement. As AI relies heavily on data, there are concerns

³⁹ *Preparing for the Future of Artificial Intelligence*, (Executive Office of the President, National Science and Technology Council, Committee on Technology, October 2016), p. 15, https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf (last visited on Jan. 21, 2023).

⁴⁰ *Id.* at p.18.

⁴¹ “One estimate of the economic impact of integrating of UAS into the airspace predicted more than \$13.6 billion of economic value created by UAS in the first three years of integration, with sustainable growth predicted to follow. A 2013 study from the Association for Unmanned Vehicle Systems International predicted that the commercial drone industry could generate more than \$82 billion for the U.S. economy and create more than 100,000 new jobs over the next 10 years. Tax revenue to the states was predicted to increase by more than \$482 million in the first decade after integration.” *Id.* at p. 19.

⁴² The Model AI governance framework rests on the bedrock of guiding principles that include: “decisions made by AI should be explainable, transparent and fair; and AI systems should be human-centric”.

⁴³ Principles for Stewardship of AI include: “Public trust in AI, Public participation, Scientific integrity and information quality, Risk assessment and management, Benefits and costs, Flexibility, Fairness and non-discrimination, Disclosure and transparency, Safety and security, Inter agency coordination”, <https://pubsonline.informs.org/doi/10.1287/LYTX.2020.01.18n/full/> (last visited on Feb. 1, 2022).

about how personal data is collected, stored, and used. Both India and Nepal have enacted data protection laws, but their effectiveness in protecting citizens' rights has been a subject matter of discussion.

AI systems can perpetuate and even amplify societal biases, leading to discrimination against certain groups of people. This is a particularly important issue in India and Nepal, where there are significant disparities in access to education, healthcare, and other resources. The increasing use of AI in various industries could lead to job displacement, particularly for low-skilled workers. This could have a significant impact on social and economic consequences in India and Nepal, where unemployment rates are higher.

There are concerns about the lack of transparency and accountability in the development and deployment of AI systems. This could lead to a lack of trust in the technology and its potential benefits. The use of AI in military and intelligence operations raises concerns about the potential misuse of the technology and its impact on national security.

As AI systems are only as unbiased as the data they are trained on, if the data is biased, the AI system will also be biased. This can have a significant impact on marginalized communities in India and Nepal and perpetuate existing social inequalities. In addition, there are also ethical issues surrounding the use of AI in decision-making, particularly in areas such as criminal justice, healthcare and finance. The use of AI in these areas raises questions about accountability and transparency, as well as the potential for AI to make decisions that are unfair or unjust.

Finally, there is a pressing need for policies and regulations that promote the responsible development and use of AI in India and Nepal. This includes the need for collaboration and cooperation among governments, the private sector, and civil society organizations to ensure that the benefits of AI are shared equitably and that its potential risks are mitigated.