

ARTIFICIAL INTELLIGENCE WITHIN THE CONTEXT OF ECONOMY, EMPLOYMENT AND SOCIAL JUSTICE

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Abstract

Artificial Intelligence (AI) is becoming a watershed in the history of human civilization. It is changing our traditional pattern of being, thinking and doing as it functions smarter and swifter than the *homo sapiens*. Its gradual applications in economy, are making it capital-intensive and consequently has the potential of increasing the economic growth exponentially. Simultaneously it would either displace or disrupt the labour-market. Therefore, the workforce everywhere on the globe, and especially in countries where people are illiterate or backward in AI would become miserably vulnerable as they might become unemployed. In the Indian context, the most affected ones would be Dalits, Tribals, and women because they are already struggling due to Casteism, Hindutva ideology, and patriarchy. It is time to question our economic systems. Christian faith and ethics promote an economy that envisions and ensures reducing poverty and increasing equality. We approve and advocate AI as long as and as much as it serves the common good of the present and the next generations. The gospel-based principle of social justice and the reason-based principle of sustainable development have immense power to ethically regulate AI for the well-being of all.

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1. Introduction

The term “Artificial Intelligence” (AI) gives wonder, excitement, and confusion for the first-time hearers, whereas, AI is a familiar, frequent, yet ever-fascinating frontline subject for those who are in touch with the progress of science and technology. Although AI’s applications in various domains are increasingly a ubiquitous phenomenon, yet many are not so familiar with it, especially in the southern hemisphere of the world. Since AI technology is rapidly invading essential domains of our human life like healthcare, transportation, communication, education, etc., it is highly recommended that everyone is introduced to AI and takes sufficient interest to learn about it. The essence of AI is that “machines are programmed to act with intelligence,” or “mechanization of human intelligence.” Certainly, it is the fulfilment of a magnificent dream of the scientific world to make “intelligence” simulating human intelligence.

Surprisingly, the efficiency and productivity of AI are much greater than the human intelligence. As a result, it has drastically changed the lifestyle of human beings by questioning the already-constructed perceptions of life, realities, environment, beliefs, structures and institutions. Therefore, it is historically a “great leap” and “significant turning point” in the continuum of scientific inventions and technological innovations. It seems that the world is expecting many more awesome innovations in the near future from AI technology. Albeit, every technology has its pros and cons. Technology, while enriching some aspects of human life, simultaneously also diminishes some other more essential aspects of human life. In this article, we shall deal with AI within the context of economy, employment and social justice. We would approach this theme from an ethical perspective in light of the Christian faith.

2. Understanding Artificial Intelligence

Popularly, in the sci-fi movies, T.V. serials, and novels very often AI is depicted as dystopic. That means AI is projected as monsters or cyborg that would be causing great suffering and destruction to the human society. Obviously, it would create dread and aversion among viewers and readers of such contents. The fact is perhaps contrary to this popular presentation of AI. It is a fruit of creative and persistent work of human intelligence especially by doing research in the field

of neural networks, computer, and machine learning. It has the history of 70 years. Nilsson says, "Artificial Intelligence (AI), broadly (and somewhat circularly) defined, is concerned with intelligent behaviour in artefacts. Intelligent behaviour, in turn, involves perception, reasoning, learning, communicating, and acting in complex environments."¹ The idea of AI originated when digital computers were first developed in the 1940s and 1950s as several researchers wrote programs that could perform elementary reasoning tasks. The term Artificial Intelligence was first used by John McCarthy in the 1956 Dartmouth Conference. Some other names tried in the place of AI are: Complex Information Processing, Machine Intelligence, Heuristic Programming, and Cognology. However, Nilsson tells "the name artificial intelligence has persisted, no doubt because a progression of textbooks, college courses, conferences, and journals used that name."²

To understand the mechanism of AI one needs first of all learn that AI is an interdisciplinary field. Ertel holds, "More than nearly any other science, AI is interdisciplinary, for it draws upon interesting discoveries from such diverse fields as logic, operations research, statistics, control engineering, image processing, linguistics, philosophy, psychology, and neurobiology."³ AI mechanism tries to replicate the human brain. As the human brain and nervous system are made of many neurons to receive, process, and transmit signals (messages) so also AI is designed in such a way to process the data and symbols to solve the problems. AI works by combining a large amount of Data with fast, iterative and intelligent algorithms, allowing the software to learn automatically from patterns or features in the data.⁴ In other words, with the given data and processing of images, texts, voice, the machines (embedded with neuron-like perceptrons) learn the pattern of the issue in question and perform tasks that are complex and combined. The subsets of AI are Machine Learning (ML), Neural Network, Deep Learning, Cognitive Computing, Computer Vision, Natural Language Processing (NLP), etc. With all these subsets, AI as a technology learns knowledge through its own mechanism with the data processing and could outperform humans by many multiples. Indeed, it is a great leap in

¹ Nils J. Nilsson, *Artificial Intelligence: A New Synthesis*, Burlington: Morgan Kaufmann Publishers, 1998, 1.

² Nilsson, *Artificial Intelligence*, 8.

³ Nilsson, *Artificial Intelligence*, 11.

⁴ https://www.sas.com/en_in/insights/analytics/what-is-artificial-intelligence. Accessed 20 July 2020.

the progress of science and technology to create intelligence of high capacity in some fields than human intelligence.

Today, we have already begun to speak of much advanced level of AI, namely, Artificial General Intelligence (AGI) or strong AI. To make the difference quite clear AI is understood as one-note skillset by ML program, whereas AGI is capable of many complex tasks relatively as human beings are. Thus, the scope of AGI with its superintelligence would be more than AI, but it is presently existing in the world of dreams and fictions.

The advent of AGI could be viewed in three angles. *Uncertain*: Some are unsure of the time of AGI's dawn, for example, Michael Woolridge, head of the computer science department at the University of Oxford holds, "neither I nor anyone else would know how to measure progress towards AGI."⁵ *Certain*: Some are more enthusiastic about imminent AGI, for example, the most famous Ray Kurzweil, Google's director of engineering, who predicts an AGI capable of passing the Turing Test will exist by 2029. His supporters have hope in his words as almost 80% of the predictions he made in the 1990s had come true by the end of 2009.⁶ *Probable*: Some see that AGI should not be the subject of debate as it is currently just a fiction, and in the future likely may or may not dawn. For example, Chris Bishop, laboratory director at Microsoft Research Cambridge and Andrew Ng, a well-known figure in the field of Deep Learning, having worked on the "Google Brain" project and Chinese search giant Baidu have even said the discussions now about AGI are "utter nonsense." Both of them warn us to take more precautions now about the dangers posed by the AI technology instead of worrying about AGI.⁷

Today there are also considerable hot debates and discussions going on among the philosophers and theologians about the "nature of intelligence" in the machines and human beings, whether they are identical or different.⁸ As for me, although in some sense, they are

⁵<https://www.zdnet.com/article/free-pdf-download-managing-ai-and-ml-in-the-enterprise-2020/>. Accessed 20 July 2020.

⁶<https://www.zdnet.com/article/free-pdf-download-managing-ai-and-ml-in-the-enterprise-2020/>

⁷ <https://www.zdnet.com/article/what-is-artificial-general-intelligence/>. Accessed on 20 July 2020.

⁸Cf. Andrew P. Porter, "A Theologian Looks at AI," *The Nature of Humans and Machines – A Multidisciplinary Discourse: Papers from the 2014 AAAI Fall Symposium*, 29-33, <https://www.aaai.org/ocs/index.php/FSS/FSS14/paper/view/9136/9077>. Accessed on 5 Sept 2020.

identical, yet there is a vast difference between them. For, AI with all its smartness will always remain as a computational “tool” to serve humanity; whereas human intelligence is a creative “gift of generous God” for human beings to know, discern and choose all that is true, good and beautiful, especially God and his Commandments, to live a meaningful life (cf. Deut. 30:11-20; Ps. 8:5-8). While telling about the dignity of the human intellect, Vatican II says: “The intellectual nature of man finds at last its perfection, as it should, in wisdom, which gently draws the human mind to look for and to love what is true and good. Filled with wisdom man is led through visible realities to those which cannot be seen.”⁹ Admittedly, unlike AI, intelligence of human person is very much sophisticated and superior as it is connected with spiritual, moral, relational, emotional, and social realities. With this brief and basic understanding of AI we shall attempt to study its impact on economy, employment and social justice in the rest of the work.

3. Economy and Employment

The term “economy” comes etymologically from two Greek words *oikos* (house) and *nemein* (manage). Put together economy means “household management.” But from the 15th century onwards it came to be understood as “management of material resources.”¹⁰ Today economy widely entails everything related to the art and science of production, distribution and trade, consumption of goods and services, and supply of money. Obviously, economy is primarily to fulfil our basic needs, and secondarily to satiate our luxurious wants and material comforts. Today we are living in a consumeristic world largely produced by competitive economy. In this context, whether the model of economy the States follow fulfils the basic needs of humanity is the serious question of ethicists. Let us see AI’s impact on economy and employment in this section.

3.1. AI Promises Exponential Economic Growth

It is a well-observed phenomenon that more and more science and Information Technology (IT) progresses, the economy of that country predominantly becomes a “free economy” whatever its previous type of economy be. This is facilitated by the process of globalization. Prior to the Industrial Revolution¹¹ when human beings were mainly

⁹Vatican II, *Gaudium et spes*, 15.

¹⁰<https://www.etymonline.com/word/economy>, accessed on 5 Sept 2020.

¹¹Industrial Revolution 1.0 was mechanical (1784); Industrial Revolution 2.0 was electrical (1870); Industrial Revolution 3.0 was internet (1969); Industrial Revolution 4.0 is virtual.

involved in the agricultural sector, the rate of economic growth was less and slow. After the Industrial Revolution when machines were utilized in the productions, the rate of economic growth was more and rapid. Since 2013 with application of AI technology in the economy, the world is hopefully seeing exponential economic growth. Therefore, the world is choosing to move rapidly towards the digital economy.¹² It is obvious from many surveys: the AI adoption rate in the businesses is around 20-30%.

The general economic health of any country now-a-days is determined by the country's Gross Domestic Product (GDP). The magnitude of GDP exposes the economic performance of a country as it sums up the total value of goods and services produced in it. The increase of GDP usually tells that there is an increase of employment, which in turn augments the standard of the life of the people. Paradoxically, today with the gradual application of AI, the GDP of those countries show enormous increases, but the big and exacerbating problem is the "redundancy" of "human" employees.

The World Intellectual Property Organization (WIPO) report reveals that the largest number of AI-related patents is in areas such as telecommunications, transport, life and medical sciences, and personal devices that compute human-computer interaction. Smart cities, agriculture, e-government, banking and finance are the most dynamically growing areas of application.¹³

If so, the GDP will likely grow but many of the workforce in these fields may become obsolete.

3.2. Capital-Intensive Vs. Labour-Inimical

The above opinions give a positive response to the question whether AI contributes to the economic growth of the country in terms of GDP. But unfortunately, many economists and scholars opine that AI would bring disaster and disruption to the employment sector.¹⁴ AI will make economy capital intensive which refers to a

¹²Digital economy replaces factories with data centre/cloud computing; High street shops with internet website; newspaper ads with social media reviews; transportation with e-sales; bank & cash points with e-Banking; schools & textbooks with e-learning & e-books; commutes with working from home; physical assets with google ranking/brand image; construction with website development; real estate with domain ownership; cash and cheque payment with cashless society and e-payment; labour & capital with automation & AI.

¹³ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637967/EPRS_BRI\(2019\)637967_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637967/EPRS_BRI(2019)637967_EN.pdf). Accessed 22 July 2020.

¹⁴Prof. Stephen Hawking (1942-2018) had gone even to the extent of predicting that efforts to create thinking machines (AI) pose a threat not only to employment issues but also to our very existence.

productive process that requires a high percentage of investment in fixed assets (machines, plant, capital), and not on the labour. Capital intensive methods increase productivity with low ratio of labour which is technically termed as “labour productivity.” Naturally, it may appear that when the productions are more, they could be made affordable to many and sold for a low cost. Consequently, many people could live with higher living standards. But it is not happening smoothly because many are left with no jobs as the employers need relatively a smaller number of skilled employees. Repetitive and non-skilled works are done by AI supported robots. Then admittedly the employers will jettison the unwanted labourers. Like this, if the market decides on the destiny of the labourers, then for the sake of amassing huge profit, it would ruthlessly deny job security for the labourers and send them home without a prick of conscience. We have the history of labourers fighting against technologies that spawned their job-losses or replacements, like the Luddite movement in 1811. Although there is antagonism between capital and labour in the human history due to the error of materialism and human greed, the Christian social thought is seeking unity between them always. The church upholds the conviction of the intrinsic priority of the person over things, and of human labour over capital. For the Church: in the process of production, “labour is always a primary efficient cause, while capital, the whole collection of means of production, remains a mere instrument or instrumental cause.”¹⁵

3.3. Some Applications of AI Technology

In this section we shall see some of the applications of AI in the field of health care, education, communication and transportation. In the *healthcare* domain, AI is used for diagnostics, drug development, treatment and gene editing. It is an arduous job to correctly diagnose diseases because it usually requires more human training and time. To do that, for example, Infervision is AI technology designed to help radiologists to diagnose cancer more accurately in China. Dr Kuan says, “In China there are just 80,000 radiologists who have to work through 1.4 billion radiology scans every year. By using AI and deep learning, we can augment the work of those doctors.”¹⁶ AI helps in bettering prosthetics. In *education* industry, especially during Covid-19 lockdown it has helped students to attend classes online from home; smart contents (e.g. Cram101) are available; personalized

¹⁵John Paul II, *Laborem Exercens*, 12.

¹⁶<https://www.bernardmarr.com/default.asp?contentID=1269>. Accessed 17 July 2020.

learning (e.g. Carnegie Learning); automatic grading; global learning, etc. In the *communication* domain, AI is used in Google e-mail to separate spams; Search Engines use AI to create ranking algorithms (e.g. RankBrain); in social media to curb hate speech and harmful content (e.g. ACMS); also, online shopping (e.g. Siri, Google Now, Alexa, LoweBot, Amazon Go Stores). In the *transportation* domain, AI has produced self-driving cars; assures safety and reliability; real-time traffic updates through services such as Google Maps; traffic management solutions (Siemens Mobility in India); helps law enforcement body to detect and identify those who drink and/or text while driving (Motorola Solution). Surprisingly, even in the religious domain, we have “blessU-2” which is a humanoid robot designed to deliver blessings.¹⁷

3.4. Need for Universal Basic Income (UBI)

As more and more AI is deployed in the various sectors of economy, many people are becoming jobless. A two-year study from McKinsey reckons that, depending upon various adoption scenarios, automation will displace between 400 and 800 million jobs by 2030, requiring as many as 375 million people to switch job categories entirely.¹⁸ In this situation, for one to be employed, she or he needs further education and training to be skilled, re-skilled and up-skilled. Otherwise AI would create many as vulnerable who are all not capable of updating their skills. They would suffer from the feeling of having been thrown-out as useless as well with the fear of their survival. In this critical moment, the world is compelled to think of rendering some aid like Universal Basic Income (UBI) with the alleged two-fold aims of eradicating poverty and bringing equality. It is said that UBI would be deposited directly into everyone’s bank account by the respective governments. If governments do not initiate projects like UBI, the society would very likely see more unrest and violence due to poverty and hunger. However, UBI could never be seen as a wise solution neither to eradicate poverty nor to bring equality among the people. At the most it could only be thought of as a temporary solution, otherwise it will violate the genuine meaning of human life. Therefore, scholars opine thoughtfully that instead of directly giving money to people, it is always good to make people skilled with AI technology and be employed. Catholic Church too exhorts the governments to fulfil the

¹⁷Beth Singer, “An Introduction to Artificial Intelligence and Religion for the Religious Studies Scholar,” *Implicit Religion* 3 (2017) 222.

¹⁸<https://www.iotforall.com/impact-of-artificial-intelligence-job-losses/>. Accessed 13 July 2020.

persons' right to work because it holds, "work is the 'essential key' to the whole social question and is the condition not only for economic development but also for the cultural and moral development of persons, the family, society and the entire human race."¹⁹

4. AI within the Context of Social Justice

Justice calls human beings to deal with others fairly. Fairness is willingly giving to others what they deserve by virtue of their age/gender, relationship, agreement/contract/covenant, work/merit, etc. At the *prima facie* level, justice promotes impartiality, universality, equality, which are all adequately realized through commutative, distributive and legal justice. But social analysis reveals that in every society due to various complex reasons, some are pushed to the periphery deviously as rejected and abandoned by the mainstream forces of the society. They often live a miserable, sub-standard, malnourished, undignified, and pathetic life. The governments or general public pay no adequate heed to their cry for justice. In this context, identifying such poor people, embracing them as one's own equals, educating and conscientizing them of their human rights, empowering them with necessary trainings and skills, and asserting their inviolable dignity, transforming the sinful social structure, etc., are all regarded as various dimensions of social justice. The Bible affirms that realization of the Reign of God depends on our love and concern for the poor and marginalized in terms of social justice (cf. Mt 20: 1-16; 25:31-30). Catholic social teachings give important place for social justice.²⁰

It is time to ask whether social justice would make any sense to AI underpinned economy. As we have seen, with AI into all the four sectors of economy (Primary: extraction of raw materials, Secondary: manufacturing finished goods, Tertiary: service, and Quaternary: knowledge), the growth would be potentially exponential. Even with globalization, we have produced a huge quantity of wealth but unfortunately the benefits are concentrated in the hands of a few while the vast majority of people are battling for decent survival.

¹⁹Pontifical Council for Justice and Peace, *Compendium of the Social Doctrine of the Church*, no. 269; John Paul II, *Laborem Exercens*, 3.

²⁰The term 'social justice' became popular since Pius XI's encyclical "*Quadragesimo anno*" (1931). It aims at establishing the right social order without a big chasm between people. It takes care of the poor and weak individuals, communities, nations, etc. Those nations favoured by nature are obliged to come to the aid of the poorer ones. Such aids are not to be regarded as mere 'alms' but demands of social justice. Pope John XXIII in his encyclical *Mater et Magistra* (1961) says: "we are all equally responsible for the undernourished peoples." This underscores the import of social justice in Catholic social teachings.

Therefore, we need to seriously think of redistributing the wealth equitably which demands more effective international co-operation.²¹

4.1. Sustainable Development: Justice to the Future Generations

It is predicted that with the application of AI into various sectors of economy, world's economic growth is going to be doubled from the present age by 2030. It is good news. AI has increased labour productivity and thus so much of finished products are available in the market for sale. For this to occur certainly we have extracted so much of the natural resources. Today we are acutely conscious that resources of the world, especially the non-renewable resources, are limited. Too much exploitation of the natural resources might give exponential economic growth now. But Catholic social teachings say it would cause pollution, ecological imbalance, climate change, global warming and leave no clean environment and adequate natural resources for the next generation to live happily in the world.²² Here, sustainable development calls us to be concerned about the future global citizens. They too deserve a prosperous life, not just debris, desolation and filth. This kind of concern emerges from the idea called "intergenerational solidarity." Pope Francis says:

We can no longer speak of sustainable development apart from intergenerational solidarity. Once we start to think about the kind of world we are leaving to future generation, we look at things differently; we realize that the world is a gift which we have freely received and must share with others. Since the world has been given to us, we can no longer view reality in a purely utilitarian way, in which efficiency and productivity are entirely geared to our individual benefit. Intergenerational solidarity is not optional, but rather a basic question of justice, since the world we have received also belongs to those who will follow us.²³

To meaningfully exercise "Intergenerational solidarity" we have to take serious account of what we do with unconsumed food and textile unsold products, as well as with industrial waste. It is very sad that the rich countries choose wasting the unconsumed food. According to a research done by the University of Potsdam in Germany on consumer level food waste, it was found that in the year 2010, we produced 20% more food than required on a global scale. It was also estimated that this surplus of food could have been used to feed an extra 1.4 billion people. But in the same year approximately

²¹"International Solidarity in the Distribution of the World's Goods," *Relations Industrielles / Industrial Relations* 20, 4 (1965) 711-15, www.jstor.org/stable/23068844. Accessed July 29, 2020.

²²Charles Irudayam "Sustainable Development in Catholic Social Thought," in *Church and Sustainable Development*, Bangalore: ATC, Publications, 2014, 25-39.

²³Pope Francis, *Laudato Si'*, 159.

800 million people were undernourished. Similarly, cloth manufacturing companies, especially the luxury brand fashion companies, to maintain the status of their brand prefer to burn or bury their unsold items than reduce their prices. Wasting food and burning of clothes bring too much greenhouse gas and increases the atmospheric pollution and concomitantly the global warming. With pressure given by the environmentalists, the governments have banned such incineration. Another serious issue is polluting the sea by dumping the industrial waste into it. Shamseer Mamra says, “billions of tons of litter end up in the ocean each year and 250 million tons of trash into the sea every year. It makes the aquatic life in the oceans and seas worse in these days.”²⁴ Huge production of goods due to AI, and supplying to market more than demanded, burning the unsold items to retain the brand name, and finally dumping the seas and oceans with waste tell candidly that we are less concerned about the future global citizens. The latest AI technologies, at times like crafty serpent in Gen 3:1, feed us sumptuously with “greed for mammon and power,” blinding us to think critically about the suffering of present-day poor as well to think creatively about giving a better world to the future children as their legitimate “gift.”

4.2. Sovereignty of Country: Justice to Developing Countries

Among the 193 countries in the world, the UN says, 47 among them are Least-Developed Countries (LDC). Although there are economic differences among the countries, yet their sovereignty had to be respected.²⁵ Nevertheless, from the time of globalization, we see the countries that are experiencing economic rapid growth voluntarily invest money in the developing and the LDC, and insidiously weaken the poor countries’ sovereignty and aggrandize theirs. The superpowers’ motivations are often found to be less humanitarian and more monopolizing. Peter Singer brought to light this strategic mindset of the affluent countries even much before AI’s implementation is introduced in the economic sector. He listed North America, Japan, Australia, New Zealand and the oil-rich Middle Eastern states as all absolutely affluent. But all of them were not keen and generous to collaborate with UNO’s mission to help the poor countries. He explains:

²⁴ <https://www.marineinsight.com/environment/causes-and-effects-of-ocean-dumping/>. Accessed 24 July 2020.

²⁵Raghuram G. Rajan deals with responsible sovereignty in his work *The Third Pillar: How Markets and the State Leave the Community Behind*, Noida: HarperCollins Publishers, 2019, 349-372.

In 1970, UN General Assembly set a modest target for the amount of foreign aid that the rich nations should give: 0.7 percent of Gross National Income, or 70 cents for every hundred dollars a nation earns. Forty years later, only Denmark, Luxembourg, the Netherlands, Norway and Sweden have reached that level. In 2008, the United States and Japan, the two largest economies among the affluent nations, gave only 0.19 percent, or 19 cents in every \$100 they earned. Australia and Canada did only slightly better, at 0.32 percent, whereas France, Germany and Britain were around the average for affluent nations, giving between 0.38 and 0.43 percent.²⁶

As Singer has noted, some of the economically affluent countries are not interested in helping the poor countries even today. All the more, with AI some of them have become very rich. Indermit Gill says that there are three things needed to become superpower today: 1. Big digital investment, 2. Rapid business process innovation, and 3. Efficient tax and transfer system. China has already announced in 2015 that it is going to invest \$1.3 trillion in AI through *Made in China 2025 plan*. This huge investment shows that China will likely become superpower soon, for Gill has predicted: “whoever leads in AI in 2030 will rule the world until 2100.”²⁷ Next to China, USA and European Union are in the race. Unfortunately, these countries especially USA and China are more interested in retaining their monopoly than expressing solidarity with the developing or LDC.

Although there are ample examples to demonstrate that these two countries, USA and China, accuse each other’s economic strategy and simultaneously weaken the sovereignty of the developing/ LDC, we shall just see two recent issues reported in the newspaper *Indian Express* on 20 July 2020. First, it is about a huge China-Iran deal worth \$400 billion going to be confirmed. It involves China’s massive investments to modernise the entire expanse of Iran’s economy – from roads and railways to ports, and from telecommunication and digital infrastructure to the oil industry. It includes construction of a strategic port at the mouth of the strategic Hormuz Strait, through which the Gulf countries export their oil to the world. The experts say that China’s goal is to establish its monopoly in Iran against the USA and pursue its vested interest.²⁸ Second, it is about Large-scale Chinese investment projects in Myanmar. The US warns that to be debt-traps. This is how modern sovereignty is often lost – not

²⁶Peter Singer, *Practical Ethics*, 3rd edition, New York: Cambridge University Press, 2011, 193-194.

²⁷ <https://www.brookings.edu/blog/future-development/2020/01/17/whoever-leads-in-artificial-intelligence-in-2030-will-rule-the-world-until-2100/>. Accessed 25 July 2020.

²⁸*The Indian Express*, 20 July, 2020, Pune edition.

through dramatic, overt action, but through a cascade of smaller ones that lead to slow erosion over time.²⁹ The developed countries' investments in the developing and LDC at the cost of the latter's sovereignty is diametrically an act against social justice.

4.3. Affordability of AI: Justice to Poor

AI technology embedded commodities are very expensive. The innovative products like AI when come to market, will be sold with a premium price. Although AI is accessible, its affordability to the Middle, Poor and Below Poverty Line (BPL) people now would be only a mirage. Thereby the chasm between rich and poor is beginning to be more entrenched. The rich are getting richer and the poor are getting poorer. To use AI one should have digital knowledge for which English language-skill and high-tech gadgets, at least smartphones, are prerequisites. Otherwise, the poor would be easily controlled, supervised and manipulated.³⁰ Even among the poor, women, old, rural and marginalized people have less opportunity to access and afford modern technology. Thereby, we see that a kind of social discrimination is being produced by AI as it has placed a wedge of great magnitude between the rich and poor. Pope Francis laments this condition,

The asymmetry, by which a select few know everything about us while we know nothing about them, dulls critical thought and the conscious exercise of freedom... the inequalities that are expanding enormously with knowledge and wealth accumulate in a few hands with grave risks for democratic societies.³¹

4.4. Job Security, Reservation and Dignity of the Marginalized

In the Indian context, the sense of social justice has to be understood mainly from the backdrop of casteism, religious fundamentalism and male domination. It is widely felt that they are destroying Indian society's sense of justice, especially the sense of social justice. Vast majority of Indian society still blindly follows caste system and religious superstitions, and some of them even religious fanaticism. Hindutva ideology, with its religio-cultural nationalism,

²⁹*The Indian Express*, 20 July, 2020.

³⁰Cf. Antonio Spadaro and Paul Twomey, "Artificial Intelligence and Social Justice: A Challenge for the Church," *La Civiltà Cattolica* 171 (2020) 121-131.

³¹Pope Francis sent a message to participants in a workshop titled, "The 'Good' Algorithm? Artificial Intelligence: Ethics, Law, Health," organized by the Pontifical Academy for Life, Vatican, February, 26-28. <https://www.vaticannews.va/en/pope/news/2020-02/pope-francis-artificial-intelligence-algor-ethics.html>. Accessed on 27 July 2020. In this workshop, Catholic church signed a document that underlines six principles for algor-ethics: 1. Transparency, 2. Inclusiveness, 3. Responsibility, 4. Impartiality, 5. Reliability, and 6. Security and privacy.

has contributed for the formation of “compromised mind-set” to tolerate/condone social injustice done to Dalits and Tribals in stripping them of inherent human dignity, to women in terms of gender inequality, to illiterate poor in terms of lack of political will to implement social welfare schemes. Added to religious backward pulling factor, pervasive corruption and bribery in the politics and bureaucracy have made life of the marginalized people very miserable. In our age of globalization and digitalization (AI), the poor people are made to feel poignantly that they are “unwanted” in this new economic and cultural system. Since AI and robotics are increasingly employed in low-skilled jobs, the socio-economically poor who are employed in this sector are thrown out abrasively. Tania de Jong holds:

AI will provide great profit to companies, leaving high levels of wealth in the hands of a few and many people without employment. Low-skilled, entry-level, repetitious jobs are generally those held by the lower socio-economic sector of our community. Once these jobs disappear, what will become of that group of people?³²

Therefore, job security is under threat for the poor and less literate group of the society.

The Indian society where age-old social discrimination and economic disparity are still not dismantled, the State had introduced “Reservation Policy.” This policy allots a certain percentage of seats in the education, employment and political fields to the backward and oppressed castes (Scheduled castes). This is the way India tries to rectify the errors and atrocities the society did to the 17% of SCs and 8% of STs (Scheduled Tribes) through its Constitution, which is drafted under the chairmanship of Dr B. Ambedkar, the stalwart of social justice.³³ With the recent entry of AI technology into economy, which is already elite-centric through LGP (Liberalization, Globalization, Privatization), the government is keen and quick in handing over the public sectors to the private entrepreneurs.³⁴ Steps

³² <https://medium.com/motivational-speaker-tania-de-jong-am/artificial-intelligence-will-widen-the-gap-between-rich-and-poor>. Accessed on 23 July 2020.

³³Ambedkar in his resignation speech as Law minister said: “To leave inequality between class and class, between sex and sex, which is the soul of Hindu society, and to go on passing legislation relating to economic problems is to make a farce of our Constitution and to build a palace on a dung heap.” Quoted in Arundhati Roy, *The Doctor and the Saint: The Ambedkar-Gandhi Debate Caste, Race and Annihilation of Caste*, Gurgaon: Penguin Random House India, 2019, 30.

³⁴For example, The Indian Railways has confirmed that the first set of 12 private trains will be introduced in 2023, followed by 45 more in the next fiscal, according to an initial timeline drawn by the railways which plans to roll out all 151 such train

like this would weaken the reservation policy. The private entrepreneurs very rarely would have a social vision of the well-being of the poor, instead they would devise economic strategy of multiplying their profits. With the loss of economic security due to impoverished reservation policy, many of the SCs and STs are going to be either jobless or become part of informal economy (unorganized sector). Speaking on the dangers of informal economy, Noopar Raval observes,

As per a 2018 International Labour Organization (ILO) report, more than 60% of the world's employment happens in the informal economy. While the estimates vary, the informal economy in India still accounts for more than 80% of non-agricultural employment. Widespread informality in labour also makes it hard to enforce minimum wage or decent work standards.³⁵

India is the third largest economy in terms of its Purchasing Power Parity (PPP) next to China and the USA. Albeit it is a national shame for India that there is manual scavenging in spite of the Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013. Manual scavenging means "the removal of human excrement from public streets and latrines, cleaning septic tanks, gutters and sewers with hands." Sadly, the number of people killed while doing this has increased over the last few years. In 2019 alone 110 workers were killed while cleaning septic tanks and sewers. According to a national survey conducted in 18 states, a total of 48,345 manual scavengers have been identified till January 31, 2020. Most of them are from Uttar Pradesh.³⁶ It is the Dalits who are forced to do this hazardous job because of their social constraint and economic helplessness. It is not only a national shame but a global one. Is it not

services by 2027. The project would entail a private sector investment of about Rs 30,000 crore.

³⁵Noopar Raval, "Automating Informality: On AI and Labour in The Global South," <https://www.giswatch.org/node/6202> on 18th July 2020.

³⁶"India's Manual Scavenging Problem," <http://www.thehindu.com>, 16 feb 2020. Uttar Pradesh is one of the leading states for doing atrocities on Dalits. Arundhati Dhuru and Sandeep Pandey noted that in the wake of migrant workers returning following the Covid-19 lockdown, Uttar Pradesh CM Yogi Adityanath announced on May 24 that his government would set up of a commission to create employment opportunities in the state. He said that the commission will conduct skill mapping of migrant workers and provide them jobs and social security. Around 70% of them are SCs among the migrants. But the ground level study was contradicting the CM's words. Still worse is rule that these migrant workers to get re-employed in the respective states they have to get UP government's permission. "Despite Government Claims, Migrants Continue to be Vulnerable and Abandoned," *Indian Express*, Monday, 20 July 2020.

ridiculous to think of AI industry and the exponential economic growth it hopes to bring, while our own fellow human beings are forced to be “manual scavengers.” If AI could be implemented in the hazardous tasks related to sanitation, nuclear plants, etc., then AI could be celebrated by whole humanity. If not, the dignity and interest we give to AI machines made into humanoids (robots, like Sophia) would be more, while real human beings are in the process of commodification and thingification.

5. Conclusion

AI is becoming part and parcel of our life. We wonder at the smartness and efficiency of AI because it has the potential: to give exponential economic growth, prolong our lifespan, increase the quantum/quality of our connectivity, possess better prediction of future, etc. Although the GDP of the countries naturally may soar up because of the application of AI, the pertinent challenge before each government and civil society is to proportionately do well in Human Development Index (HDI). The HDI was created by the UN to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living.³⁷ To improve HDI, today we have to use AI with the principles of social justice. As disciples of Jesus, we need to build solidarity with the poor as well as have the wisdom to see the intimate connection between the “cry of the earth and cry of the poor.”³⁸ AI can replace a human being as a ‘tool’, never as a ‘person’; AI can be a help, not a helper. So, we need to stand by the poor (caused by AI), because “it is in the company and the call of marginalized people that the prophetic voice of the church becomes vital, radical, and relevant.”³⁹ Admittedly the church wants every government to regulate the development and deployment of AI according to the algor-ethics, so that the dignity of every human person, especially the poor is well secured.

³⁷“Human Development Index (HDI),” <http://hdr.undp.org/en/content/human-development-index-hdi>. Accessed 27 July 2020.

³⁸Pope Francis, *Laudato Si'*, 49.

³⁹Julio E. Murry, “Agape Economy: The Church’s Call to Action,” *Anglican Theological Review* 18 (2016) 129.