Prospect of Emerging Technologies from Philosophical, Political, Geographical and Economic Perspectives

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Abstract

In recent years, emerging technologies have affected various aspects of human life that require a specific field of study to scientifically research and evaluate the influences. The convergence of these technologies, especially Artificial Intelligence, Augmented Reality, Nanotechnology, Biotechnology and Quantum Computing, has dramatically increased their impact on human life. The consequences of these emerging technologies in conjunction with ethical aspects of human life have created a new era for humanity in a brief period. Examining the philosophical and economic dimensions that have led to the creation of these technologies can show a vision of technology-based economic models, more comprehensive international policies, more social welfare, and a new international order of new infrastructure. This new order will include the change of relations between people, the change of the global governance system, the change of economies, and even the change in use of energy. Furthermore, this study seeks an answer to the question of whether such a major transition will be achieved solely by technological advances or political strategies, and how this may redefine global governance and interpersonal relations in the forthcoming decades, centuries, and millenniums.

Introduction

The rapid improvements of emerging technologies including Augmented Reality (AR), nanotechnology, biotechnology, quantum computing and Artificial Intelligence (AI) have a major impact on human's understanding of the universe around them. This evolving understanding reshapes our view of life, bringing philosophical, socio political, and ethical implications that necessitate in-depth academic study to examine these transformations or transitions.

This study is seeking to provide a scientific picture of this reality focused on sociopolitical and economic dimensions of emerging technologies. Therefore, this study is an investigation to determine how technology can modify the existing frameworks and direct novel solutions for global governance, social welfare, economic flexibility, environmental protection, energy

resource management, protection of personal and organizational data, and ultimately improving relationships between people.

This study employs an interdisciplinary methodological framework that attempts to combine qualitative analysis with theoretical insights from philosophy, ethics, economics, and political science. This paper also uses information from real-world examples and case studies to accurately and concretely demonstrate the actual outcomes of using these technologies, as well as their ability to disrupt or improve existing social systems.

Convergence of Emerging Technologies

The term "techno" originates from the Greek language. It means a new skill and new art. Philosophy was classified as technology for the Greeks hundreds of years before common era, when for Persians, poetry was technology. Today, technology is related to Information and Communication Technology (ICT), but the interesting fact is that technology has always had a major impact on human life in the way that we act, and we perform in our daily lives.

Currently, we are heavily researching and advancing Artificial Intelligence (AI), Extended Reality (XR). Quantum Computing, Biotechnology, Gene Technology, Nanotechnology, Computer Human Interface (HCI), Brain Computer Interface (BCI), Blockchain, Robotics, Natural Language Processing (NCL), Autonomous and Flying Vehicles to fully extract the competitive advantage for further progress and development of human lives.

The convergence of emerging technologies will increase human quality of life without consideration for other potential changes that might arise as consequences of this quality improvement. The changes might be positive and negative depending on how we evaluate and prepare for them.

The contemporary concern of emerging technologies is focused on Confidentiality, Integrity, and Availability of data known as CIA triad. These will have an impact on critical IT infrastructure, cyber security, cyber terrorism, autonomous weapons, and espionage.

Depending on our approach and better management, we can make better use of advancement rather than leading ourselves to social isolation and alienation. As an example, the concept of the Brain Computer Interaction (BCI) will potentially allow us to get all the answers about the universe in our own mind. The aim and objective of this study is to find the answer to the following questions by the aid of emerging technologies.

1. What are the main objectives for the advancement of technology? What are we trying to achieve?
2. Are we trying to explore space, other galaxies, our universe, and other universes (multiverse)?
3. What happened before the creation of the universe?
4. Where did we originate from?
5. Are the neurons in the human brain a representation of the universe? If yes, does this mean that we already know all the secrets of the universe?
6. Is the God introduced to us (in various philosophies and religions) been only based on our level of understanding of the reality? If yes, who is the real God? Does he only exist in a dimension that is not introduced to us yet?

Philosophical and Ethical Considerations

Plato's allegory of the cave has exceptionally compelling remarkably relevance to the contemporary consequences of Information and Communication Technology today. Written around 380 before common era (Book VII of the Republic), it illustrates how human perception is formed in relation to the facts, truth and reality presented by our surrounding environments.

Plato presents a virtual environment where people chained by their neck and ankles spend their entire life in front of a stone wall inside of a cave. They can only observe shadows on the wall in front of them while the hidden create silhouettes by lacing objects in front of fire and making noises.

Shadows become reality for those who are chained, and they believe that the actual sound is coming from these shadows. If one of these people is released, the free person would look around seeing the reality of sun, fire, water, and nature. The author further explains that the pain of reality (e.g.: the heat of the fire) would not allow this person to create another version of reality causing him to run back to the cave.

If this person is dragged outside, he gradually learns to survive and eventually, he can create another understanding. This understanding might not be an accurate interpretation of the reality, but he will explain this understanding to other people locked up in the cave.

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Source: https://www.thoughtco.com/the-allegory-of-the-cave-120330

The use of technology in the 21st century has created another version of this allegory for those countries that are controlled and hidden from reality due to political, religious and other similar factors. People living in those countries observe a reality presented to them on the Internet like those shadows presented to those prisoners in the cave. They are presented with a picture of reality which they come to accept, but it may be far from truth. If these people travel to another part of the world, initially they experience disbelief if exposed to truth, and it would take a long time for them to create a true reality that would have an impact on their philosophical beliefs like those prisoners in the cave.

This allegory would also be applicable to people living in a free society that could be easily manipulated by media and their surrounding environments, especially the new generation which frequently use by various gadgets. Considering the implications of AI and extended reality, it would be difficult to distinguish reality from virtual imagination of others or machines.

In society, when information is controlled via technology, people will heavily rely on technology for survival. The allegory of the cave is relevant in this innovative age of surveillance and cybersecurity. Technology plays a key role in multiple aspects of our lives such as business, education, employment, banking and shopping.

In general, the human mind is a linguistic, pictorial or a symbolic representation of our memory, our will, our personality, our emotions, and our imagination. In a way, a computer mind would follow the same pattern because humans design these machines.

Computers follow a set of syntax and instructions based on sequential, selection and iterations. Computers make faster calculations and have efficient storage. They can retrieve the required information if they are given logical instructions. However, humans have emotions and

imagination that are not logically patterned. Human's will power is not based on logical instructions but based on unique characteristics and psychology. Ethics and morals are inherently human concepts and cannot be embedded in machines.

According to the anthropologist Daniela Cerqui, three main ethical positions emerged from the robotics community:

> 1: Not interested in ethics: This is the attitude of those who consider that their actions are strictly technical, and do not think they have a social or a moral responsibility in their work.
>
> 2: Interested in short-term ethics: This is the attitude of those who express their ethical concern in terms of "good" or "bad," and who refer to some cultural values and social conventions. This attitude includes respecting and helping humans in diverse areas, such as implementing laws or helping elderly people.
>
> 3: Interested in long-term ethics: This is the attitude of those who express their ethical concern in terms of global, long-term questions: for instance, the "Digital divide" between South and North; or the young and the elderly. They are aware of the gap between industrialized and poor countries and wonder whether the former should not change their way of developing robotics to be more useful to the latter.

We should consider that technology is always accessible to people with different intentions. And, based on the allegory of the cave, we can conclude that technological effects have an impact on political, social, cultural, and environmental factors. Machines follow their instruction that at times might not be compatible with human logic. e.g.: in an accident, a robot might save an old person with a higher chance of survival, but a human would save their child first.

According to Turing (1950) if a person cannot tell the difference between the conversation with the other person or conversation with another machine, then we can say that the machine is thinking. This would mean that machine mistakes are related to the programming errors. Therefore, currently humanity is in no position to make the final decision about the ethical aspects of machine ethics, but we need to initially protect our privacy, safety, and security.

The Essence of Life and Human Existence

The integration of innovative technologies in human life has challenged the traditional philosophy of human existence. The space exploration and potential to harness natural resources combined with advancements in technology have raised fundamental questions about the essence of human life. These questions are mainly:

1. Are we alone in the universe?
2. Are human perspectives on life accurate? Or like the allegory of the cave are we in a matrix?

The extensive efforts made in recent years to find answers to these questions have led researchers and experts to deeply consider the ethical and existential implications of humanity's role in the universe, as well as the responsibilities that humans bear as the only sentient beings on the planet.

Another critical issue that has attracted the attention of scientists today is the discussion of human presence in space, due to the future advances of innovative technologies in extracting energy from space. Better access to the source of the required energy for long-term exploration from space itself would be a big step for human presence for further exploration. This especially important development does not mean that there are no other obstacles on this path. The logistical and technological limitations of human presence and life in space, such as exposure to radiation, food production and mental well-being, are still the main obstacles to realizing the human dream of living on other planets.

The settlement and establishment of humans in space has tremendous potential, but we are unable to fully understand and evaluate many aspects of this exploration. Human presence and habitation in space can speed up the reduction of pressure on the environment and resources on our planet by providing human access to new habitats. However, due to the nature of human existence and behavioral, this may lead to ethical controversies, such as improper exploitation of space and planets, the non-protection of extraterrestrial ecosystems, and possible political and social ramifications in space. These concerns have caused researchers and experts to seek the creation and development of international treaties and ethical guidelines, while at the same time trying to realize human habitation in space to ensure that space exploration is performed in a sustainable manner.

The advances in innovative technologies, especially artificial intelligence and neuroscience, may enable new forms of human consciousness that go beyond the traditional limitations of time and space. In fact, ideas such as the "Multiverse" theory can challenge the human understanding of reality and raise a new philosophical discourse about the nature of existence.

The search for habitable planets, energy sources and extraterrestrial life is one of the most captivating and significant scientific investigations. Technologies such as space telescopes, advanced spacecraft, the possibility of time travel, advanced artificial intelligence and robotics are revolutionizing the human ability to detect signs of life in other planets and space. Man's understanding of life and his place in the world can be significantly changed by discovering other habitable environments. Based on the available literature, we have never scientifically proved that extraterrestrial life forms exist, but still we have never been disheartened on this journey and persist in our search. The moral and philosophical consequences of such discoveries require further research, but it is interesting to note that some scientists, including Prof. Steven Hawking warn us against attempting to contact aliens or extraterrestrial life forms.

Energy, Environment, and Technological Sustainability

Nikolay Semenovich Kardashev, one of the leading Russian astrophysicists was head of the Astro Space Centre pf the Ledec Physical Institute, and a full member of the Russian academy of science. The Kardashev scale ranked civilizations based on their consumed energy in three categories:

- Type I: civilisations capable of using energy resources of a single planet.
- Type II: civilisations that use the full energy of a star.
- Type III: civilisations that have access to the energy of a galaxy.

  Source: NASA/ADS. https://articles.adsabs.harvard.edu/pdf/2019A%26AT...31..399B

Kardashev believed a Type IV civilization was too advanced—that no species could ever reach that level—so he didn't go beyond Type III on his scale. Beyond type III, other scientists such as Zoltan Galantai and Michio Kaku have expanded these scales. Some have even suggested Type VII, entering beyond the universe, drawing energy from the multiverse, evolving into a

multidimensional civilization, and ultimately becoming both a creator civilization and the very fabric if existence.

The type VII is creator of all matter, energy, natural laws, space, time and dimensions. It is very hard for us to fully grasp the concept of this type when according to Kardashev's evaluation, we are only type 0.72 and it will take us around 3000 years to move to a type 2 civilisation. Due to the current constraints of our technological reality and capabilities, such accomplishments seem distant, but they are ultimately attainable.

The technology and indeed, emerging technologies will result in further advancement and exploration. Furthermore, these changes will create further opportunities and challenges that changes various aspects of human life. These changes might be actually very positive and improve human life for the better, in areas such as governments, political views, the environment, global economy, transportation, human interaction, human and machine interaction, safety, privacy, security, law, geographical boundaries and generally understanding the nature of life.

Historical texts from Egypt, Roman, Indian and Persian literature provide information from various aspects of the discoveries and engineering in our planet. The further studies also reveal facts about many technological aspects of life that we are still unable to answer. This includes mystified structural engineering around the world (the Pyramids, Stonehenge, Machu Picchu), ancient technologies such as the position of planet Earth in the sky, rust proofing, emerald tabloid (creating gold from any metal), the Baghdad battery used 2000 years ago, the knowledge of old inventors such as Davinci, and many more.

The only question is: Are these ideas really generated by the human mind? Or were they really given to us by Unidentified Aerial Phenomena (UAP) - Aliens.

The Influence of Technologies on Global Governance and Space Exploration

The possibility of human exploration and settlement in space demand new governance frameworks. The activities of private companies such as SpaceX and Blue Origin in removing restrictions on space exploration and travel, as well as the ability of humans to live in space, lead to questions about the ownership and management of extraterrestrial resources.

This governance system can regulate international treaties and regulations to monitor the exploitation of space to use energy resources for the benefit of humanity. These points clearly

show that a just, up-to-date and coordinated global governance system with innovative technologies will undoubtedly have profound effects on global geopolitics, resource distribution and international relations. This establishes the need for a new order to control the technologies for better political strategies, international cooperation, and policy decisions to set appropriates regulations in the integrated global community.

Examining the points raised in this section shows that the intersection of political strategies and technological advances will be the main issue in the future development of the world. While technological progress often unfolds quickly and unpredictably, changes and developments in systems, strategies, and political decision-making are usually slower, more limited, and more predictable. Therefore, the most important challenge for governments in the field of political systems and global governance is the adaptation to rapid developments and the use of innovations.

The Interrelationship Between Technology, Society, and Economy

The concept of the economy (as a manufactured concept) started when people started to trade their own personal commodities. We are not sure how the money was introduced but some literature suggests the Lydians may have used it as early as five thousand years ago. This money could be used as payment for the goods and services provided.

Monetary powers are based on a country's natural resources that define the purchase power of that currency at the international level. This creates a very volatile and unsustainable value for the monetary system impacting the global economy.

The world central banks are now exploring different technologies to replace the current monetary system with digital currencies. The advancement of technology has led to the creation of cryptocurrency and digital tokens. Cryptocurrency is not reliant on any central authority stored in a ledger or blockchain. Blockchain is a computerized database that secures transactions records and changes of ownership of the cryptocurrency in the form of transactional records. Unlike ordinary currencies, cryptocurrency can have a cap on production and currently it is difficult to be seized by law enforcement agencies around the world.

There is no doubt that technology is preparing us for a better and newer economy with no volatility and fluctuations. The new economy is no longer based on planet Earth's natural

resources and energy because technology is also leading towards more sustainable energy that is not just based on our planet but our technology, galaxy, universe, and potentially other universes. This will be the beginning of a new international order without any political and geographical borders supported by the advancement of economy or new globalized technologies. According to the United Nations's report in Transferring our World: Agenda for Sustainable Development (https://sdgs.un.org/2030agenda), by the Year 2030, we will end poverty and hunger, protect our planet from degradation, enjoy prosperity and harmony with nature energy, freedom from fear and violence and create a global partnership for sustainable development based on a spirit of strengthened global solidarity.

This study believes that technology will bring a bright future for humanity by 2030 classifying this change as the New World Order.

The Evolving Landscape of Global Society

The rapid development and convergence of emerging technologies are creating changes in most fields including economies, politics, legal systems, the environment, transportation and even communication and interactions among people.

Currently, emerging technologies have changed the structures of the global economy. Countries are transitioning to knowledge-based economies, where intellectual capital and technological innovation are becoming the main drivers of wealth. This evolution shows the growing importance of the digital economy, which is characterized by automation based on artificial intelligence, smart production and biotechnology. The evolution is making existing industries and markets obsolete by creating new markets. This transformation can lead to more economic inequalities at the global level because access to advanced technologies varies in different regions of the world and even among different socio-economic groups.

In the field of politics, emerging technologies are ready to change the shape of political structures, which will certainly have local and global consequences. The emergence of digital platforms and artificial intelligence has transformed communication, information dissemination and governance models in unimaginable ways. For example, Blockchain technology can improve transparency and reduce corruption in many processes and activities by enabling decentralized systems. Record keeping, which is a very important and valuable development in all fields, especially in political activities, is a feature of blockchain technology. Moreover, the increased use of AI in policy-making processes leading to more data-driven and efficient governance is

highly commendable, although it raises concerns about accountability and transparency that should not be ignored. Political reforms resulting from these innovations may also include the development of global regulatory frameworks that can even address the ethical and geopolitical challenges posed by emerging technologies.

Emerging technologies challenge existing legal frameworks in matters such as intellectual property, data ownership, and jurisdictional boundaries. The law is always behind technology as technology does not need regulations to advance, therefore, existing laws do not have an answer to these challenges. The widespread development of digital technologies complicates the distinction between national and international law, as traditional geographic boundaries no longer align with the flow of digital information and services. Therefore, jurisdictions and legal fields must deal with issues such as data governance and the regulation of rules and regulations required for cross-border and international digital interactions, which may require the development of new structures both in the legal field and in its governance field at the global level.

In the transportation sector, the changes and improvements are very impressive. Transportation networks are changing dramatically due to the integration of artificial intelligence, smart infrastructure, and autonomous vehicles. Technologies such as self-driving drones, flying cars, electric vehicles, and high-speed trains have been able to create benefits such as reducing travel time, reducing greenhouse gas emissions, and increasing efficiency, which are very valuable and significant. In fact, these emerging technologies and consequently these innovations have been able to take a big step towards reducing traffic, improving transportation and creating sustainable urbanization conditions. For this reason, it can be said that the development of new transportation systems can have profound effects on global trade, labor markets, and social structures. However, the implementation of these technologies also creates challenges related to infrastructure investment, regulatory frameworks, and public acceptance, which must be managed in a proper and precise manner so as not to diminish the positive effects of these technologies.

Environmental sustainability and technological innovation are increasingly intertwined, and it is not possible to separate these two parts from each other. Technologies such as biotechnology and nanotechnology have made significant advances in sustainable agriculture, waste management and recycling, and energy efficiency, such that each of them can play a very important role in the

sustainability of the environment and preventing its destruction. Another valuable impact of these emerging technologies in the protection and optimal management of the environment is the optimization of the use of natural resources on the planet and the prediction of weather patterns by Artificial Intelligence tools and Machine Learning Algorithms, which is a big step to solve many problems in this field. However, the adoption and management of these emerging technologies must be done with great care because, along with the positive results they create, they also have the potential to intensify environmental destruction, which must be managed very carefully. For this reason, the balance between managing the use of these technologies and checking and controlling the extent and manner of their impact on the environment will probably become one of the main challenges in the coming decades.

Another area that has been greatly affected by the rapid developments of emerging technologies is the privacy of people and the security of their information and data. As digital technologies advance, concerns about privacy, data security, and protection of personal information intensify. The integration of artificial intelligence and the expansion of the Internet Things (IoT) devices create new vulnerabilities for humans and increase the risk of cyber-attacks and unauthorized access to individual and even organizational data. Furthermore, biotechnological advances raise questions about the biosecurity and ethical use of genetic engineering, further complicating the landscape of personal security. For this reason, legal systems around the world are on the one hand trying to update the current laws and regulations along with the rapid development of these technologies, and on the other hand, they have emphasized the need for new international agreements and stricter regulations on data protection and are trying to take practical measures in this direction.

The emergence of technologies and other digital platforms have significantly affected the interaction of humans with each other. The virtual world, social media, and new and online communication tools have been able to facilitate and even transform communication and cooperation between people in an unprecedented way and overcome geographical and cultural boundaries. While these technologies provide new opportunities for social participation and interactions between humans, they will also lead to challenges related to mental health, social isolation, erosion of face-to-face interactions, concerns related to identity, privacy, and commodification of personal data.

Prospective Outlook and Conclusion:

Technological advancements since the early 20th century have centered on military applications, significantly shaping the trajectory of global conflicts. Following World War II, there was resurgence in civilian industries, with consumerism emerging as the primary catalyst for technological innovation. In contrast to earlier technologies that sought to enhance the quality of life, the post-war period prioritized mass production and consumerism, transforming items that were once considered luxuries into essential components of daily life.

Human history indicates that the collection and processing of information have been integral to society since approximately 1900 BC, a period marked by the emergence of mathematics and systematic record-keeping. However, by the 1990s, the introduction of the Internet led to an exponential increase in data volume, surpassing the capabilities of traditional processing methods. This shift catalyzed the development of technologies such as big data, data analytics, and artificial intelligence.

The launch of Web 2.0 in 2005 transformed the dynamics of data transmission and storage, particularly through the rise of social media and sophisticated networking systems. These advancements have empowered decision-making processes that were previously unimaginable, significantly impacting planning, research, and manufacturing. Nonetheless, a pressing challenge remains in the development, application, and assessment of these technologies to ensure they serve humanity in ethical, equitable, and sustainable manners.

A collaborative society thrives on shared values, principles, and beliefs that promote cooperation over competition, enabling individuals to engage meaningfully within their communities. When effectively utilized, technological advancements can bolster this cooperation and tackle intricate issues such as inequality, climate change, and global instability. However, these challenges extend beyond mere technological concerns; they are connected to ethical issues surrounding trust, privacy, and societal values.

The ethical application of technology is essential for cultivating trust and encouraging collaboration. Advancements in technology, particularly in mobile devices and artificial intelligence, present opportunities for enhanced personalization that improve customer service and enable businesses to cater more effectively to individual preferences. However, the true promise of technology resides in its capacity to foster communities characterized by mutual trust, resource sharing, and collective support in addressing global challenges.

As we progress further into the 21st century, technologies such as artificial intelligence, augmented reality, quantum computing, biotechnology, and nanotechnology are transforming the global environment. These innovations present significant opportunities to tackle intricate issues like resource depletion and climate change, but they also introduce serious ethical, economic, and political dilemmas. Societies must evolve in response to this new landscape by re-evaluating conventional economic frameworks and advocating for inclusive growth while addressing the potential for increasing inequality.

Moreover, political reforms and the adaptation of governmental structures will be vital in overseeing these technological advancements. The establishment of new regulatory and legal frameworks is imperative to tackle issues such as space exploration, privacy rights, and the governance of digital platforms. Global leaders will be instrumental in ensuring that international collaboration remains a priority in addressing shared challenges and distribute the benefits fairly amongst humanity.

The course of governance, economic structures, and human existence demand the interaction of technology, ethical principles, and human values. As we embrace these emerging technologies, it is essential to engage in thoughtful reflection and create well-informed policies. Although technology has the potential to profoundly change our societies, this change can only occur if we ensure that its benefits align with the welfare of individuals and the global community. The influence of technology on our future will depend on the decisions we make today, underscoring the need for interdisciplinary collaboration to tackle the complex challenges brought about by our technological progress.

The swift evolution of technology has profoundly reshaped our world, offering both significant opportunities and pressing challenges. Initially focused on military innovations, the emphasis has now shifted to consumer technologies and is currently progressing towards the integration of emerging fields like artificial intelligence, biotechnology, and quantum computing. These technological advancements have enormous potential to tackle global issues such as inequality, climate change, and resource scarcity; however, they also raise important ethical, economic, and political questions that require careful consideration.

Governments will need to prioritize collaboration by steering these advancements towards the common good and thoughtfully address their ethical implications. This is a remarkable transition to a future where technology enhances human well-being and supports sustainable development.

The decisions we make today will shape the future role of technology and underscore the need for interdisciplinary cooperation to navigate the complexities of an increasingly technological world.

In conclusion, research conducted on simplicity and complexity examines different methods to identify problems and discover strategies from a human viewpoint. Yet, such strategies might not always be relevant because simplicity and complexity are constructs of human thought.

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