International Journal of Education, Social Science & Humanities. FARS Publishers
Impact factor (SJIF) = 6.786

Volume-11| Issue-2| 2023 **Research Article**

ADVANCED TECHNOLOGIES AND THEIR INFLUENCE ON THE FORMATION OF NEW CONCEPTUAL TRENDS IN THE CHINESE SOCIETY

https://doi.org/10.5281/zenodo.7671396

Alimova Saodat
independent researcher, Tashkent, Uzbeksitan.

Abstract: There are two points discussed in the article. Initially, the concept of advanced technologies is explained in comparison with other similar understandings relying on different scientific and official sources. Then, the following part compares the impact of advanced technologies on the creation of new concepts in various fields (philosophy, society and government; economy and market; military and policy) of Chinese society.

Keywords: advanced technologies, PRC, AI, blockchain, semiconductors, smart society, Chinese elite, illiberal state.

Received: 22-02-2023
Accepted: 22-02-2023
Published: 22-02-2023

The concept of advanced technologies

The term of advanced technology as a whole hasn't attained much scholarly attention to be scientifically specified with its characteristics. If searched on Google scholar, Scopus and Science Direct the term comes in the context of other scientific topics ranging from medicinal education[141] to submarine research[142], chemistry and waste management[143]. When the term is divided and its parts are looked up on a dictionary, advanced means "having the most modern and recently developed ideas, methods" and technology is defined as "scientific knowledge used in practical ways in industry"[144]. It is also clear that advanced technology along with modern technology, as collocations, are widely used in everyday language.

When the term is simply searched to have a basic understanding of today's advanced technologies, numerous non-scientific online sources including policy papers, newsletters and reports appear signifying almost the same set of technologies advanced technologies. They include artificial intelligence (AI), big data, robotics, augmented and virtual reality, blockchain, cloud technologies, the Internet of Things (IoT), nanotechnology, 3D technologies and autonomous

[141] Vozenilek, J., 2008. See One, Do One, Teach One: Advanced Technology in Medical Education. *Academic emergency medicine.* Available at: https://doi.org/10.1197/j.aem.2004.08.003
[142] Anderson, W., 1997. *The Application of Advanced Composite Technology to Marine Drilling Riser Systems: Design, Manufacturing and Test.* Offshore Technology Conference. Available at:https://doi.org/10.4043/8433-MS
[143] Khan, A., 2021.Advanced Technology for the Conversion of Waste Into Fuels and Chemicals. Available at: https://doi.org/10.1016/C2020-0-03428-6.
[144] Oxfordlearnersdictionary.com
Available at:https://www.oxfordlearnersdictionaries.com/definition/english/technology?q=technology

vehicles. The creators of the European Commission's recent report called "Advanced Technologies for Industry" count 16 technologies including almost all of the abovementioned technologies within the "advanced technology" category and mark their wide industrial engagement as a priority for European industrial policy enabling process, product and service innovation throughout the economy and fostering industrial modernization.[145]

There are several other similar terms such as high technology, technologies of Fourth Industrial Revolution (4IR), emerging technologies and next generation digital technologies, which either have the same description as the term of advanced technologies does or involve the same types of technologies as their core constituents.

Regarding the similarity between high technology (high-tech) and advanced technology, these two are used interchangeably to mean the highest sort of technology, which is the newest and the most compounded technology available on tech market.[146] Research on the newest technology trends of the current industrial market frequently highlights[147] the employment of robotics, advanced manufacturing, smart industry, industrial clouds, chatbots, AI as key to industrial success.[148]

There is the recurrence of similar set of technologies such as AI, big data, robotics, 3D printing and manufacturing, blockchain, autonomous vehicles, IoT, smart cities among nanotechnologies, neuro technologies, chips, augmented reality (AR) described as the technologies of the 4IR - a pervasive and disruptive potential of the latest technological developments, which, according to Claus Schwab, unlike other industrial revolutions brings together digital, physical and biological systems, and deeply impacts every field of society.[149]

As for the emerging technologies, researchers count five attributes for a technology to be categorized as "emerging". They include radical novelty, relatively fast growth, coherence, prominent impact, and uncertainty and ambiguity.[150] Wikipedia based analysis of emerging technologies leads to finding AI, robotics, 3D printing, blockchain, nanotechnologies along with gene editing, stem cell therapy, cancer vaccines, cultured meat in the group of emerging technologies.

[145] Heimberger H., Karaulova M. ,2021. Advanced Technologies for Industry – international reports Advanced technology landscape and related policies in China. European Comission. Available at:https://ati.ec.europa.eu/reports/international-reports/advanced-technology-landscape-and-related-policies-china
[146] Steenhuis, H., 2006. "High technology revisited: definition and position". *International Conference on Management of Innovation and Technology*. doi:10.1109/ICMIT.2006.262389
[147] Plain concepts. , 2022. Industry Trends of 2022: Keys to Corporate Success. Available at:https://www.plainconcepts.com/industry-trends-2022/
[148] Advanced technology services. Top 10 Smart Manufacturing Trends for 2022. Available at:
Available at: https://www.advancedtech.com/blog/smart-manufacturing-trends/
[149] Schwab, K., 2017. *Fourth Industrial Revolution*. UK: Penguin Books.
[150]Rotolo, D., 2015. "What is an emerging technology?". Research Policy. doi:10.1016/j.respol.2015.06.006.

Meanwhile, a scholarly article describes the next generation digital technologies include AI, big data, robotics, 3D printing, blockchain, IoT, 5G, AR, VR and cloud computing, while explaining the wide diffusion of the digital technologies in society.[151]

Based on the analysis and comparison above, in order for us to be clear with our use of "emerging technologies", "technologies of 4IR" and "next generation digital technologies" in place of "advanced technologies" in the current thesis it is important to mention that while using these terms, we mean AI, big data, robotics, blockchain, IoT, autonomous vehicles, 3D printing and manufacturing.

The place of advanced technologies on the formation of new concepts in PRC

Advanced technologies in Chinese philosophy, society and government

The Chinese elite deeply concerned with the crisis facing People's Republic of China (PRC) since the early nineteenth century and proposed the principle of "learning advanced technology from barbarians in order to oppose barbarians"[152] Further marxist revolutions and the movement of opening up in 20th century intensified the Chinese appreciation of technology. Technology in the country is seen as fundamentally good because it both reduces the burden of human labor and increases human productivity.

Transforming PRC from a technical state to "an advanced technological state" is another rising concept in the philosophical and societal studies in PRC. Although the concept inspires the Chinese elite to materialize it by involving it into the current Chinese legislation and policy initiatives, the western critics of the concept claim that it raises sinotechnophobic attitude in people abroad.[153]

Regarding the attitude of masses towards the wide implementation of emerging technologies in society, several research done on public attitudes towards emerging technologies in Chinese society and identified the abovementioned accepting mood that the elite has. A research conducted on public attitudes to AI mentions that particularly in the country, where the government has proclaimed aspirations to make the nation a worldwide AI power, artificial intelligence has emerged as a hot topic in the media and public discourse. Through the conceptual lenses of public spheres theory and counter-public spheres, the public debate in two following platforms around AI in PRC has been examined. The researchers contrasted the official People's Daily Online AI narrative with the open discussion on AI on the social media platform WeChat and anticipated the contest in official viewpoints.

[151] Cho, J., 2022. What's driving the diffusion of next-generation digital technologies? *Technovation*. Available at:https://doi.org/10.1016/j.technovation.2022.102477

[152] Wang, N., 2013. Philosophical perspectives on technology in Chinese Society . *Technology in Society*. Available at:https://doi.org/10.1016/j.techsoc.2013.05.001

[153] Mahoney, G., 2022. China's Rise as an Advanced Technological Society and the Rise of Digital Orientalism. *Journal of Chinese Political Science*. Available at:https://link.springer.com/article/10.1007/s11366-022-09817-z#Abs1

The study made it clear that industry and political actors, including governmental organizations and technology companies, dominate the discourse, which is primarily characterized by discussions about the economic potential of the technology, with overall positive assessments and little critical discussion general technological changes happening in the country.[154]

Another group of researchers conducted a content analysis on 120 articles about social robots published within 9 years of period in two Asian-English publications (China Daily and The Japan Times) and two Western-English publications (The Guardian and New York Times) to examine the presumption that East and West are different in their acceptance and use of robots. Two aspects were framed in attitudes including the tone of voice and how the effects of social robot implementation on different fields of society.

In comparison to Eastern publications, which offered much positive economic frames, Western newspapers significantly demonstrated high scores in negative social frames including the fairness, equality, safety and health frames along with expecting less economic advantages. While, in contrast, the Eastern resources anticipated positive economic results rather than significant harm to society, safety, health, and equality, which turned out to be of main western concern.[155]

Along with the attitudes towards the advanced technologies in Chinese society, their wide societal application has also been the subject of several research. A case study scrutinized China's Guangdong Province, which was the point of comprehensive experiment of big data application since 2016. This project with its the first application of blockchain in Chinese government, aims to promote the use of the technology in e-government. The researcher studies the framework, limitations, and constraints of current implementation of blockchain to e-government and argues how blockchain technology might promote the growth of e-government and public services in the country using a Chinese city's project as a case study.

Thus, considering the local circumstances in China, the use of blockchain technology in Chinese e-government have been discussed throughout the research. The study concludes counting following positive effects of blockchain application in Chinese e-government: enhancement in the efficiency and amount of government services, increased openness and availability of government

[154] Zeng, J., 2020. Contested Chinese Dreams of AI? Public discourse about Artificial intelligence on WeChat and People's Daily Online. *Information, Communication and Society.* Available at:https://doi.org/10.1080/1369118X.2020.1776372

[155] Hoorn, J., 2021. Social Robotics in Eastern and Western Newspapers: China and (Even) Japan are Optimistic. *Innovation and Technology Management.* Available at:https://doi.org/10.1142/S0219877020400015

information, improvement of information-sharing across various organizations, and support for creating an individual credit system in PRC.[156]

Another societal trend, which occurred with the introduction of advanced technologies to the Chinese society is surveillance technologies powered by AI, which are prevalent in the country. The public surveillance system is the main part of the government's social credit system policy, which has gained alarming criticism by societal, political, democracy, and human rights experts around the globe. Because, unlike other commercial scoring systems that only analyze the shopping habits of customers and use the data in the marketing analysis, through the social credit system policy, the Chinese government observes and scores all aspects of its citizens' life, starting from their behavior to the level of trustworthiness and can even punish or reward depending on the citizens' conduct in society. For example, people who do not pay their bill on time, or listen to a song loudly in a public area could be punished by throttled internet or banning of their flights, while those who do not violate regulations and therefore has good score would have their travel application processes speeded up or gain discounts on their energy bills.

The concept of smart cities is integral part of the concept of "smart society" and is tightly connected to the Chinese urbanization process. The role of urbanization in PRC's dramatic economic growth during the last 40 years has been underestimated. Chinese millennials has seen their villages turning into cities then the cities turning into mega cities within their life time along with experiencing 30 times increase in their life condition due to the growth. Having understood the importance of urbanization in the economic growth, the government officials give strong accent to increase the urbanization up to 80% by the middle of 21st century.[157]

A relatively recent innovation in the society that appeared due to the emergence of advanced technologies is smart city projects. The term "smart city" relates to the use of technology to improve urban infrastructure and services, from energy grids to systems for transport/mobility and parking, and includes water treatment, waste management and security aspects, among others.[158] The government has already invested billions of dollars on building intelligent city infrastructure including the provision of autonomous vehicles, setting 5G networks, building smart grids and high speed railways within the cities.

[156] Hou, H., 2017. *The Application of Blockchain Technology in E-Government in China*. The International Conference on Computer Communication and Networks (ICCCN. Doi: 10.1109/ICCCN.2017.8038519

[157] Bloomberg Quicktake. *The Promise and Threat of China's Smart Cities*. [online video] Available at: < Available at: https://www.youtube.com/watch?v=qXO-D5sbRdA>

[158] Ekman, A.,2020. China's smart city ambitions at the time of Covid-19. EU Institutet for Security Studies Report. Available at:https://www.iss.europa.eu/sites/default/files/EUISSFiles/Brief%2010%20Smart%20Cities.pdf

Shenzhen is one of the intelligent cities in PRC, which has recently been established and gained global recognition. The city provides e-government and e-banking services to the millions of its urban residents and lowers the burden of traffic in service provision. Widely fixed advanced technologies around the city work with immense data to analyze the urban processes and anticipate further progression of the city by simply making it easy to identify where the city is consuming electricity power most and capturing traffic violations with advanced closed circuit televisions (cctvs).

Advanced technologies in Chinese economy and market

Emerging technologies have permeated into all fields of Chinese economy, from commerce to labor market, finance to taxation increasing the country's innovative potential and shaping new concepts within the field. The section, however, involves two recent processes in Chinese economy, which gained much of media attention, such as the US sanctions on Chinese tech companies, the shortage in the semiconductor industry of the country

US sanctions on PRC's leading tech companies

The sanctions were introduced as a part of American tech war strategy against the country by the Donald Trump administration starting from 2018. The government formed the blacklists of Chinese IT companies that cannot buy components and software from America, and restricted their abilities of buying US high-tech equipment through foreign corporations, along with increasing tariffs on the export of products by Chinese tech enterprises.

Huawei was an exemplar Chinese big tech company, which was hit with a set of US sanctions. In fact, 38 businesses operating in 21 countries in August 2020 listed in the United States to assist Huawei buy American components. Also the pressure is being exerted on foreign companies that have built value chains with Huawei. Under the new rules, foreign companies using US-made equipment to manufacture microcircuits will need to obtain a US license before supplying their products to Huawei and its subsidiaries. American partner countries are under American pressure to refuse to install 5G equipment from Huawei in order to ensure national security.

The Trump administration also successfully pressured other states leading in advanced technology manufacturing machines to limit or block the provision of tech products to China. The Netherlands, for example, was demanded to block the export of a $150 million cutting-edge chip-manufacturing machine to PRC.

Regarding Biden's policy of restricting Chinese initiatives in the technological field, during his presidential campaign he dismissed the notion that the United States should be worried about PRC as a geopolitical competitor criticizing Trump's trade war against PRC. But from the initial period of his presidency, it was

publicly declared that Biden's position on PRC does not differ from that of Trump and its government takes a tougher stance on China.

In 2021, two Executive orders were issued by Biden Administration namely, "Addressing the Threat From Securities Investments That Finance Certain Companies of the People's Republic of China", "Protecting Americans' Sensitive Data from Foreign Adversaries", which further extended American policy on Chinese issue. That year Biden's team noted that there was no immediate action to remove the 25% tariffs that Trump imposed on half of Chinese exports to the decoupling' methods in tackling the country's technological and industrial development ambitions.

The existing bans of Chinese companies were reported to be likely to remain in place and possibly further escalate in 2021. However, the recent inflation in the US is making the Biden administration reduce the tariffs on Chinese consumer goods, including technologic products to counter increasing inflation in the US.[159]

The shortage of semiconductors in Chinese high tech industry

The semiconductor shortage phenomenon rose during the Covid-19 pandemic, which increased the demand for the technologies and gadgets people in lockdown use to do distance work and learning. The problem also worsened due to the abovementioned US sanctions restricting the international collaboration with PRC in the production of semiconductor. Chinese state has therefore developed an economic plan to become independent in strategic core technologies. The "technological self-reliance" theme is emphasized in PRC's most recent five-year economic plan, with an emphasis on robotics, semiconductors, and electric vehicles. Xi Jingping clearly stated that Chinese dependence on core technology is the biggest hidden trouble for the country. He described heavy dependence on imported core technology to the process of building one's house on top of someone else's walls, which no matter how big and how beautiful it is, won't remain standing during a storm.[160]

It has been stated in the state's policies and initiatives on boosting tech self-sufficiency that the country should cover 70% of its semiconductor needs by 2025 through domestic production.[161] However, experts' calculations suggest that despite some progress, the country is still far from fulfilling these plans, partly due to the recent lockdown in the country. Against the backdrop of strict quarantine, the largest chipmakers in the country, from Semiconductor Manufacturing International Corp. to Hua Hong Semiconductor, began to experience difficulties

[159] Leonard, J., 2022. Biden Close to Rollback of Chinese Tariffs to Fight Inflation. *Bloomberg*. Available at:https://www.bloomberg.com/news/articles/2022-07-04/biden-close-to-rollback-of-china-tariffs-to-fight-inflation
[160] Klyman, K., 2022. China's Tech Crackdown Could Give It an Edge. *The Diplomat*. Available at:
Available at: https://thediplomat.com/2022/04/chinas-tech-crackdown-could-give-it-an-edge/
[161] Trepalina, Y.,2022. China's semiconductor independence - how to walk to Shanghai.
Available at:https://nag.ru/material/42462

with the supply of components, as local authorities tightened control over the movement of vehicles. [162]

Advanced technologies in Chinese military and policy

Official Chinese documents mention that the application of advanced technologies such as AI, quantum information, big data, cloud computing and the IoT is gaining momentum in the military.[163] In fact, this aligns with the fact that by the middle of this century, President Xi Jinping proclaimed the long-term objective of making the People's Liberation Army a "world-class force", which will certainly deploy the state of art next generation military technologies and train military personnel in the modern military mood. The government officials highlight the concept of strengthening the armed forces with the help of science and technology as one of the main objectives for sophisticating the PLA and encourage the innovation in core technologies.[164]

Along with being a means of strengthening domestic stability, AI is an important technology that will allow the Chinese military to conduct combat operations in the modern military warfare. In 2017, Chinese President Xi Jinping announced the establishment of the Central Commission for Integrated Civil and Military Development. The task of the new body is to integrate civilian technological solutions into the creation of new types of weapons for the PLA. And artificial intelligence is especially important here for the development of many systems.[165] AI is also seen as means of conducting cognitive warfare and speedy operations, which are critical in the outcome of warfare.

Additionally, contrary to conventional Chinese military analysts, who preferred to analyze military lessons using techniques like generalization and deduction of examples in the past, the rapid growth of disruptive technologies like big data and cloud computing offers a striking contrast. Instead, the PLA might soon have the chance to create cutting-edge military doctrine before a conflict breaks out.[166]

Regarding the key policy trends, which arose due to the introduction of advanced technologies, three could be highlighted including the emergence of technological war, the strengthened global environmental activity and mass surveillance in PRC.

[162] Bloomberg., 2022. China's Chip Output Shrinks as Lockdowns Hurt Production. Available at:https://www.bloomberg.com/news/articles/2022-04-18/china-s-chip-output-shrinks-as-lockdowns-hurt-production?sref=47WpoKbt#xj4y7vzkg

[163] The white paper on national defense (NDWP. 2019."China's National Defense in a New Era". Available at:https://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html

[164] Larina, Y., 2021. Chinese security in the new era. Available at: http://svop.ru/main/39088/

[165] Kovacic, L., 2020. Chinese Experience in the Development of the Artificial Intelligence Industry: A Strategic Approach. *Carnegi Endowment International.* Available at:https://carnegieendowment.org/2020/07/07/ru-pub-82172#_ednref1

[166] Jing, Y., 2021. How Does China Aim to Use AI in Warfare? *The Diplomat.* Available at:https://thediplomat.com/2021/12/how-does-china-aim-to-use-ai-in-warfare/

The first is the concept of technological war (tech war), which defines the US-PRC competition in ITC area and technology market. It is impelled by the US, while the Chinese government "painstakingly depoliticizes the PRC's international technological relations"[167]. Although Chinese officials call for peace and common development instead of furthering "cold war mentality" around the globe in their official speeches during international meetings and high level dialogues, the concept of tech war has already been seen as peculiar part of Chinese foreign policy by foreign experts.

Several reasons have been counted for the emergence of tech war concept in world politics. For one, it's an attempt by the US and allies to contain PRC from the transfer of any western technology or critical defense resources. The second is the prevention of cyber threats that are attributed to China. The third is reason for the arrival of the tech confrontation, according to western experts, is to limit unfair Chinese trade and economic practices. The tech war concept has also been described as a part of trade or economic war between the US and PRC.[168]

The following is the Chinese environmental activism, which is boosted with emerging technologies in global politics. The country assured to cut emissions under the Paris Agreement, decrease its coal use, and invest in renewable energy,[169] along with being an active supporter of the UN's Sustainable Development Goals. Scholars mention that the next wave of innovation in the digital sphere is energy transition and estimate the critical role of smart cities in it. Combining advanced technologies for sustainable development of smart city environment has been researched by several scholars[170] and in practice there are ongoing projects using AI based smart city solution to decarbonize cities in PRC. Chinese experts claim that these cities are to be exported to other states thereby, increasing urban livability, sustainability, public good in these countries.

The third is the recent phenomenon of "mass surveillance", which originated due to wide application of closed circuit television (cctv), which are the byproduct of the facial recognition technologies in the country. According to the experts in the field, Chinese way of engaging in surveillance technologies demonstrates the stark difference of how liberal and illiberal states could employ emerging technologies in their exercise of power. While the use of surveillance technologies create severe public discussion on the topic of providing state security versus upholding

[167] Danilin, I., 2021. The U.S.-China Technological War . *Russia in Global Affairs.* Available at:https://eng.globalaffairs.ru/wp-content/uploads/2021/12/078-096.pdf
[168] Ibid.
[169] Maizland, S., 2021. China's Fight Against Climate Change and Environmental Degradation. *Council on Foreign Relations.* Available at: https://www.cfr.org/backgrounder/china-climate-change-policies-environmental-degradation
[170] Rani, S., 2021. Amalgamation of Advanced Technologies for Sustainable Development of Smart City Environment: A Review. Research Gate. Available at: https://www.researchgate.net/publication/355919660_Amalgamation_of_Advanced_Technologies_for_Sustainable_Development_of_Smart_City_Environment_A_Review

individual liberty and privacy in the liberal states, due to the absence of such criticism and discourse in Chinese society, state could become even more abusive in its use of these technologies.[171] It has also been mentioned that PRC expands and exports its surveillance state to the other illiberal countries by building smart cities and providing them with surveillance technologies.[172]

Conclusion

Althought the term of advanced technologies are prevalent in diverse scholarly works, the concept itself as a whole is not scientifically defined and characterized much. However, several official sources provide the definition of the concept and include the following as its core technologies: AI, big data, robotics, augmented and virtual reality, blockchain, cloud technologies, the IoT, nanotechnology, 3D technologies and autonomous vehicles.

There are several other similar terms such as high technology, technologies of 4IR, emerging technologies and next generation digital technologies, which either have the same description as the term of advanced technologies does or involve the same types of technologies as their core constituents.

To explain the impact of advanced technologies in the PRC, their role in the formation of new concepts in three main directions has been analyzed. The initial direction includes concepts in philosophy and society. The following identifies key understandings appeared due to advanced technologies in economy and market. Lastly concepts appeared in military and policy are highlighted.

The hilosophical attitude to technologies appeared earlier in the nineteenth century. A Marxist notion "learning advanced technology from barbarians in order to oppose barbarians" meant that the Chinese considered any technology implementation as an opportunity to gain success in their dealing with their external political opponents.

Several research done to identify the overall attitude of Chinese people to the wide implementation of emerging technologies in the country and clarified that the nation is more positive about the technologies and believe their promotion of overall labor productivity and the alleviation of livelihoods. Another research on the other hand compared this to the society's attitude to technology in the west, where people are skeptical about the goods the advanced technologies could bring and tend to vision dystopian future with their application.

The following societal trend, which occurred with the introduction of advanced technologies to the Chinese society is surveillance technologies powered by AI, which are prevalent in the country. The public surveillance system is the

[171] Michaelsen, M., 2018. Authoritarian Practices in the Digital Age—Introduction. *International journal of communication.* Available at:https://ijoc.org/index.php/ijoc/article/view/8536

[172] Qiang, I., 2022. Four Takeaways From a Times Investigation Into China's Expanding Surveillance State. *The New York Times*. Available at: https://www.nytimes.com/2022/06/21/world/asia/china-surveillance-investigation.html

main part of the government's social credit system policy, which has gained alarming criticism by societal, political, democracy, and human rights experts around the globe.

Another recent innovation in the society that appeared due to the application of advanced technologies is smart city projects. The term "smart city" relates to the use of technology to improve urban infrastructure and services, from energy grids to systems for transport, mobility and parking, and includes water treatment, waste management and security aspects among others. The government has invested billions of dollars on building intelligent city infrastructure including the provision of autonomous vehicles, setting 5G networks, building smart grids and high speed railways within the cities.

The concept of transforming PRC from a technical state to "an advanced technological state" describes the current Chinese approach to technology and explains where the state is technologically headed. The concept can be seen in several internal and external political initiatives and military ambitions of the state. PRC leaders claim that the PLA becomes the world class army in the upcoming decades which will happen due to the wide application of advanced technologies to the military sphere.

AI is not only a means of strengthening domestic stability, but also an important technology that will allow the Chinese military to conduct combat operations in the modern military warfare. In 2017, Chinese President Xi Jinping announced the establishment of the Central Commission for Integrated Civil and Military Development, the task of which is to integrate civilian technological solutions into the creation of new types of weapons for the PLA. The techonology is also seen as means of conducting cognitive warfare and speedy operations, which are critical in the outcome of warfare.

Technological war, the strengthened global environmental activism and mass surveillance are the recent concepts in representing Chinese policy. The initial concept defines the US-PRC confrontation in ITC area and technology market. Although PRC authority and officials strongly depoliticize the state's technologic attempts and highlight it as a way of gaining prosperity, the rapid development the country is achieving in AI, quantum technologies, blockchain, robotics, autonomous vehicles and 5G sets it as a competitor to other globally leading technological countries in the global technology market. This creates resistance in the technologically leading states including the US, the EU states and other eastern states such as Japan, Taiwan, South Korea and their agents to the Chinese tech leadership in the global market.

The Chinese environmental activism is promoted with the application of emerging technologies. The next wave of innovation in the energy transition of the

country is aligned with the new technology application and the role of smart cities in the process is claimed to be critical. There is research on combining advanced technologies for sustainable development of Chinese smart cities and ongoing projects aimed at AI based smart city solution to decarbonize cities in PRC. The last concept of "mass surveillance" demonstrates the Chinese way of engaging in governance by surveillance technologies and differentiates how liberal and illiberal states could apply emerging technologies in their policy.

REFERENCE

1. Advanced technology services. Top 10 Smart Manufacturing Trends for 2022. Available at:

Available at: https://www.advancedtech.com/blog/smart-manufacturing-trends/

2. Anderson, W., 1997. *The Application of Advanced Composite Technology to Marine Drilling Riser Systems: Design, Manufacturing and Test.* Offshore Technology Conference. Available at:https://doi.org/10.4043/8433-MS

3. Bloomberg., 2022. China's Chip Output Shrinks as Lockdowns Hurt Production.

Available at:https://www.bloomberg.com/news/articles/2022-04-18/china-s-chip-output-shrinks-as-lockdowns-hurt-production?sref=47WpoKbt#xj4y7vzkg

4. Bloomberg Quicktake. *The Promise and Threat of China's Smart Cities*. [online video] Available at: < Available at: https://www.youtube.com/watch?v=qXO-D5sbRdA>

Cho, J., 2022. What's driving the diffusion of next-generation digital technologies? *Technovation.*

Available at:https://doi.org/10.1016/j.technovation.2022.102477

5. Danilin, I., 2021. The U.S.-China Technological War . *Russia in Global Affairs.* Available at:https://eng.globalaffairs.ru/wp-content/uploads/2021/12/078-096.pdf

6. Ekman, A.,2020. China's smart city ambitions at the time of Covid-19. EU Institutet for Security Studies Report. Available at:https://www.iss.europa.eu/sites/default/files/EUISSFiles/Brief%2010%20Smart%20Cites.pdf

7. Hoorn, J., 2021. Social Robotics in Eastern and Western Newspapers: China and (Even) Japan are Optimistic. *Innovation and Technology Management.* Available at:https://doi.org/10.1142/S0219877020400015

8. Hou, H., 2017. *The Application of Blockchain Technology in E-Government in China*. The International Conference on Computer Communication and Networks (ICCCN. Doi: 10.1109/ICCCN.2017.8038519

9. Heimberger H., Karaulova M. ,2021. Advanced Technologies for Industry – international reports Advanced technology landscape and related policies in China. European Comission. Available at:https://ati.ec.europa.eu/reports/international-reports/advanced-technology-landscape-and-related-policies-china

10. Jing, Y., 2021. How Does China Aim to Use AI in Warfare? *The Diplomat.* Available at:https://thediplomat.com/2021/12/how-does-china-aim-to-use-ai-in-warfare/

11. Klyman, K., 2022. China's Tech Crackdown Could Give It an Edge. *The Diplomat*. Available at:

Available at: https://thediplomat.com/2022/04/chinas-tech-crackdown-could-give-it-an-edge/

12. Kovacic, L., 2020. Chinese Experience in the Development of the Artificial Intelligence Industry: A Strategic Approach. *Carnegi Endowment International.* Available at:https://carnegieendowment.org/2020/07/07/ru-pub-82172#_ednref1

13. Khan, A., 2021.Advanced Technology for the Conversion of Waste Into Fuels and Chemicals. Available at: https://doi.org/10.1016/C2020-0-03428-6

14. Larina, Y., 2021. Chinese security in the new era. Available at: http://svop.ru/main/39088/

15. Leonard, J., 2022. Biden Close to Rollback of Chinese Tariffs to Fight Inflation. *Bloomberg*. Available at:https://www.bloomberg.com/news/articles/2022-07-04/biden-close-to-rollback-of-china-tariffs-to-fight-inflation

16. Mahoney, G., 2022. China's Rise as an Advanced Technological Society and the Rise of Digital Orientalism. *Journal of Chinese Political Science.* Available at:https://link.springer.com/article/10.1007/s11366-022-09817-z#Abs1

17. Maizland, S., 2021. China's Fight Against Climate Change and Environmental Degradation. *Council on Foreign Relations.* Available at: https://www.cfr.org/backgrounder/china-climate-change-policies-environmental-degradation

18. Michaelsen, M., 2018. Authoritarian Practices in the Digital Age— Introduction. *International journal of communication.* Available at:https://ijoc.org/index.php/ijoc/article/view/8536

19. Oxfordlearnersdictionary.com

Available at:https://www.oxfordlearnersdictionaries.com/definition/english/technology?q=technology

20. Plain concepts. , 2022. Industry Trends of 2022: Keys to Corporate Success. Available at:https://www.plainconcepts.com/industry-trends-2022/

21.Qiang, I., 2022. Four Takeaways From a Times Investigation Into China's Expanding Surveillance State. *The New York Times*. Available at: https://www.nytimes.com/2022/06/21/world/asia/china-surveillance-investigation.html

22. Rani, S., 2021. Amalgamation of Advanced Technologies for Sustainable Development of Smart City Environment: A Review. Research Gate. Available at: https://www.researchgate.net/publication/355919660_Amalgamation_of_Advanced_Technologies_for_Sustainable_Development_of_Smart_City_Environment_A_Review

23. Rotolo, D., 2015. "What is an emerging technology?". Research Policy. doi:10.1016/j.respol.2015.06.006.

24. Steenhuis, H., 2006. "High technology revisited: definition and position". *International Conference on Management of Innovation and Technology.* doi:10.1109/ICMIT.2006.262389

25. Schwab, K., 2017. *Fourth Industrial Revolution*. UK: Penguin Books.

Trepalina, Y.,2022. China's semiconductor independence - how to walk to Shanghai.

Available at:https://nag.ru/material/42462

26. The white paper on national defense (NDWP. 2019."China's National Defense in a New Era". Available at:https://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html

27. Vozenilek, J., 2008. See One, Do One, Teach One: Advanced Technology in Medical Education. *Academic emergency medicine.* Available at: https://doi.org/10.1197/j.aem.2004.08.003

28. Wang, N., 2013. Philosophical perspectives on technology in Chinese Society . *Technology in Society.* Available at:https://doi.org/10.1016/j.techsoc.2013.05.001

29. Zeng, J., 2020. Contested Chinese Dreams of AI? Public discourse about Artificial intelligence on WeChat and People's Daily Online. *Information, Communication and Society.* Available at:https://doi.org/10.1080/1369118X.2020.1776372