

THE US AND THE “COLLECTIVE WEST” VS. CHINA: THE “TRADE” AND “TECHNOLOGICAL WARS” IN THE 2nd AND 3rd DECADES OF THE 21st CENTURY

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Abstract: In today’s turbulent environment of large-scale geopolitical clashes and fierce geo-economic competition, characterized by complex and self-contradictory dynamics, as well as upward escalation, we are witnessing what we call “Trade Wars” and “Technology Wars”. In 2018, the world witnessed an intensifying US-initiated conflict affecting trade and economic relations with the PRC.

Almost simultaneously with the “Trade War”, the “Technology War” began, initially directed against Huawei, recognized in 2017 as the most innovative corporation in the world.

Initially, an important tool in these wars became the course of decoupling – i.e. “separation”. It is a process by which the deep economic interdependence between the US and China, built up over the past four decades, is gradually diminishing. “Separation” manifests itself in the trade area through trade sanctions, restriction and even prohibition of import or export of certain goods, etc.

China’s economy, however, is too large for secession to be a realistic prospect. Therefore, the “disengagement course” is gradually transformed into a “de-risking” course.

“De-risking”, i.e. reducing the risk to US national security has a more cautious task. It does not seek to limit China’s access to less advanced American techno-

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logy, products and equipment. But things are different when it comes to products, “know-how” and equipment of the highest technological level. The goal is to strengthen the role of the United States as a global technology leader. High technology will be an increasingly important determinant of economic power in the digitalized and connected world of the future. The Biden administration, and the American “establishment” in general, believe that if Chinese technology firms close the gap with their US counterparts this would pose a risk to US supremacy. An important means of achieving this goal of Washington is to enlist not just the potential of the States, but the collective Western potential, including the developed countries of Asia – Japan, RoK, Taiwan and Singapore in the “Technology War” against China.

China’s reaction has been multifaceted. But the key response of the Celestial Empire is to pursue a course of technological self-sufficiency. China is making progress in its efforts to create top-class chips and is succeeding in the development of “Artificial Intelligence”.

It is difficult to predict exactly how the process of “Trade” and “Technology Wars” the USA and the “Collective West” is waging against the PRC will proceed. In the unfolding geostrategic “chess game”, such moments as mobilizing the full potential of society is of key importance.

Keywords: Trade War; Technology War; US and “Collective West”; microchips; “Artificial Intelligence”

Introduction

At the end of the 2nd and the beginning of the 3rd decade of the 21st century, the world witnessed sharp commercial and technological clashes, initially between the USA and the PRC. At the time, Washington gathered around itself – in the attack against Beijing – a number of Western and Eastern countries, i.e. what we call the “Collective West”.

The purpose of this paper is to trace these clashes, which have meanwhile received the names “Trade War” and “Technological War”, to illuminate the main points in them, as well as to present possible scenarios for their development in the foreseeable future.

The subject of research are the “Trade” and “Technology Wars” which today the “Collective West” led by the USA is waging against the People’s Republic of China.

Key methodological approaches used in the present article are:

- The system approach, according to which the research object is regarded as a system, i.e. a set (complex) composed of interconnected components acting as a whole. All these components form the internal environment of the system,

and everything outside this internal environment represents an environment external to the system;

- Analytical-structural approach – “breaks” the researched phenomenon into its most important components, as well as classifies the latter based on a certain logic, which gives us the opportunity to gain knowledge about the functioning of the phenomenon;

- Problem-chronological approach – the main problems are considered through the prism of their situation in time and space;

- Logical approach – i.e. that approach which reveals the logic, i.e. the meaning, the underlying scheme of interactions and relationships of a given phenomenon;

- Geopolitical and geo-economic approaches (platforms) – the latter consider political and economic, social and cultural relations through the prism of the concrete specificity of the formed geographical-natural environment, creating unique formats of interactions;

- Historical approach, starting from the presumption that the object cannot be understood if we do not analyze it historically, i.e. how it has evolved in time and space.

The sources used in the paper can be classified according to written system into several groups – Hieroglyphic sources, Cyrillic sources and Latin sources. Such a wide range of sources implies the consideration of diverse positions and points of view, their comparison, as well as revealing their logic. All this definitely enriches the work.

1. Key moments in US-China relations

Period of tense relations 1949 – end of the 1960s

The establishment of the People’s Republic of China (PRC) on October 1, 1949 marked the beginning of an extremely tense relationship with the United States. The appearance of the PRC was a serious blow to the positions of the United States in the conditions of the opposition between “Pax Americana” and “Pax Sovietica” created after WW2. However, the deterioration of relations between the USSR and China in the 1960s created a new situation in the world.

Beginning of normalization from the early 1970s

In 1971–72, a process of normalization of relations began between the United States and the People’s Republic of China. From the end of 1978, under the leadership of Deng Xiaoping, a reform process began in China. In the

process of reforms in China, a model of high economic dynamics is formed, in which trade and economic interactions with the USA play a key role. This model, called “Chimerica”, represents a “symbiosis” between China’s export-driven development and the US’s overconsumption model. A process of deindustrialization of the United States begins, as the production is transferred to the People’s Republic of China.

The end of “Chimerica” and the beginning of the “Cloudy War”

With the “Global Crisis” of 2007–2008, the “Chimerica Phenomenon” comes to an end. Beijing sets out to create a new model of economic dynamics, in which domestic consumption begins to replace foreign trade as the engine of economic development. At the same time, there is a transition to production and services at the highest technological level. Meanwhile, the USA announces a new concept for its relations with the PRC – the so-called Idea for “G-2”², i.e. “bipolar scheme” of global balance, in which, however, it is assumed that the United States is the senior partner, and the “Celestial Empire” – the junior partner.

Beijing’s reaction is that China does not agree with the G-2 and that China prefers a multipolar world. The PRC’s refusal provokes Washington’s announcement of a “Pivot to East Asia” course³. In practice, the US is starting a course of “containment” of the PRC, where among the measures for this return is the formation of a military presence. Relations between the USA and the PRC began to be described by Western journalism with the term “The Cloudy war”⁴.

² The concept of “G-2” was first proposed by the economist C. Fred Bergsten in 2005. Later, Zbigniew Brzezinski became an active supporter of this idea. In 2009, at a meeting in Beijing marking the 30th anniversary of the establishment of official diplomatic ties between the United States and the People’s Republic of China, Brzezinski went public with this concept.

³ The policy of the administration of President Barack Obama is characterized by a regional strategy called “Pivot to East Asia”. This strategy was announced by former US Secretary of State Hillary Clinton in an article titled “America’s Pacific Century” in Foreign Policy magazine (see Clinton, Hillary “America’s Pacific Century”. Foreign Policy, November 2011).

⁴ The coining of the term “Cloudy war” by journalism is modeled after the term “Cold War”. Unlike, however, the “Cold War” between the USA and the USSR, characterized by a “hard confrontation”, although it did not reach a direct “hot confrontation”, which did not exclude “hot skirmishes” on the periphery of this confrontation, the situation between USA and China is different. This difference is determined by the significant economic interdependence between the two powers. As a result, some of the conflicts have a strong economic component.

2. The Open beginning of the “Trade War”

The Trump Administration and the Beginning of the “Trade War” in 2018

The initial “sparks” of the “Trade War” declared by the USA are unaddressed, although they mostly affect the PRC. For example, on January 22, 2018, a 30% duty was imposed on the import of solar panels with the condition that the duty be used at 15 % after four years, as well as a 20 % duty on washing machines. It should be added here that China is the world leader in the production of solar panels, as well as the largest importer of washing machines in the United States.

Also unaddressed is the next step, when on March 1, 2018, a 25 % duty is imposed on steel imports and 10 % on aluminum. While China is disrupted, it will have a greater effect on some other countries, including allies such as Canada and South Korea, than on China.

The subsequent strikes, however, expose the main target – the PRC. On March 22, 2018, President Trump asked the US Trade Representative to investigate the imposition of tariffs on US\$ 50 – 60 billion worth of Chinese goods. He invoked Section 301 of the Trade Act of 1974, saying the proposed tariffs were “in response to China’s unfair trade practices over the years”,⁵ including the theft of U.S. intellectual property. Attached is a list of over 1,300 categories of Chinese imports – aircraft parts, batteries, flat screen TVs, medical devices etc.

China’s response followed on April 2, 2018, when Beijing imposed 25 % tariffs on 128 products imported from America, including aircraft, cars, pork and soybeans, as well as 15 % tariffs on fruit, nuts and steel pipes. Accordingly, on April 5, 2018, Trump responded that he was considering another round of tariffs amounting to \$100 billion. The next day, the World Trade Organization received a request from China for consultations on the new US tariffs.

In the international media, it is commented that a “trade war” is starting between the USA and the PRC. In response, Trump denied the existence of a “trade war”, saying “the war was lost many years ago by the stupid or incompetent people who represented the United States,” adding, “We now have a trade deficit of \$500 billion a year, with theft of intellectual property (IP) to another 300 billion. We cannot let this continue.” (Smith 2018).

April 2018 saw a wavering in the already heated trade conflict. A Chinese delegation led by State Council Vice Premier Liu He, who is chief economic adviser to the country’s leader Xi Jinping, visited Washington. After the talks, Liu

⁵ See Statement from President Donald J. Trump on Additional Proposed Section 301 Remedies at <https://www.whitehouse.gov/briefings-statements/statement-president-donald-j-trump-additional-proposed-section-301-remedies/> [Accessed 22.12.2018].

He told reporters that the two countries „have come to an agreement to avoid a trade war and refrain from imposing protective tariffs on each other. As a result of the trade negotiations, the two delegations issued a statement that China will “significantly” reduce the trade deficit by increasing imports of agricultural products and energy resources from the United States”⁶.

But Trump later said he was unhappy with the trade deficit with China. On June 15, 2018, he announced that due to China’s theft of American intellectual property, as well as the fact that Beijing is resorting to unfair trade practices, the US will impose a 25 % tariff on imports of goods worth 50 billion dollars. On July 6, 2018, US tariffs on \$ 34 billion worth of Chinese goods go into effect. China accordingly imposes tariffs on US goods of similar value. On July 10, 2018, the US released an initial list of an additional \$ 200 billion worth of Chinese goods subject to 10 % tariffs. China accordingly vowed to retaliate with additional tariffs on \$ 60 billion worth of American goods two days later. In fact, the volume of exports from the PRC affected by the “draconian” tariffs amounts to 250 billion dollars – this is half of all exports from China to the United States.

In response, Beijing introduced various restrictions on US supplies, primarily on soybeans and other agricultural crops. But the volume of these restrictions is significantly smaller – goods with a volume of only 110 billion dollars.

On August 22, 2018, US Treasury Undersecretary David Malpass and China’s Ministry of Commerce Vice Minister Wang Shouwen met in Washington in an attempt to resume negotiations. On August 27, 2018, China filed a new complaint at the World Trade Organization (WTO) against the United States regarding additional tariffs. However, this did not prevent the United States from declaring a 10 % tariff on Chinese goods worth 200 billion dollars on September 17, 2018, increasing to 25 % by the end of 2018. They also threatened tariffs on \$ 267 billion worth of additional Chinese goods. In this way, what we can call “Trump-style” is manifested once again – raising the tension to “red”, then trading on the relaxation of the tension to achieve the initial goal.

Meanwhile, the official position on the US-PRC trade conflict has been expressed by Zhang Qinli, vice chairman of the People’s Political Consultative Conference Committee of the People’s Republic of China, who stated that “China has never wanted a trade war with anyone, let alone the US, which is a long-term strategic partner. But we are also not afraid of such a war... The US

⁶ U.S., China Strike Trade Deal, Ending Threat of Protective Tariffs, at <https://www.caixinglobal.com/2018-05-20/us-china-strike-trade-deal-ending-threat-of-protective-tariffs-101253055.html>. [Accessed 24.12.2018].

side is ignoring the consensus with China after repeated consultations, insisting on waging a trade war against China and continuing the escalation.”⁷

At the G-20 meeting in Buenos Aires at the end of 2018, a conversation was held between the leaders of the two countries – Donald Trump and Xi Jinping. The conversation took place on 01.12.2018 after the end of the G-20 meeting. It lasted for more than 2 hours. The two sides agreed to refrain for 90 days from introducing new tariffs, and that a document to regulate the trade conflict should be signed by March 1, 2019. Xi Jinping promised to settle the trade imbalance situation and to begin by purchasing significant volumes of agricultural produce and other American goods. In response, Trump agreed not to raise tariffs from 10% to 25% on a total of \$200 billion worth of Chinese goods from January 1, 2019, if they could agree on the above issues. According to China’s official Xinhua News Agency, during the working lunch, the Chinese President stressed that cooperation was the best choice for both the US and China.

A little later, at the end of December 2018, a conference on economic issues was held in China under the leadership of Xi Jinping, to report the results of the year and to identify the urgent tasks for the next. In connection with the “Trade War” with the US and given the arrangements with the US President, lawmakers at a meeting of the Standing Committee of the Chinese National People’s Congress were expected to consider a foreign investment bill that would prohibit local governments from forcing foreign businessmen to transfer technology to its Chinese joint venture partners. It would also prohibit the illegal restriction of foreign companies’ access to the Chinese market.

Beijing has always maintained that forced technology transfer does not exist and such a practice would be against official policy. But foreign businessmen say such practices are based on the unwritten rules foreign investors are forced to follow in the Middle Kingdom. One of Washington’s main accusations against Beijing is precisely about forcing foreign companies to transfer their technologies to the Chinese side.

Foreign commentators, as reported by CNBC, interpreted the bill as a move by Beijing to respond to US complaints about how China treats foreign companies operating in the country. These grievances, as well as the huge trade imbalance between the two superpowers, have led to a war that has alarmed the world market.⁸ According to some experts, “It would be wrong to assume that the bill makes life easier only for foreigners. In China, there are more and more scientific and technical developments. Now Chinese companies themselves are

⁷ <https://www.cnbc.com/2018/10/22/chinese-official-tells-us-investors-at-meeting--we-dont-fear-trade-war.htm> [Accessed 24.12.2018].

⁸ http://www.ng.ru/world/2018-12-25/1_7473_china.html [Accessed 25.12.2018].

demanding the protection of their patents from their Chinese competitors. This is a big plus for China itself”⁹.

Events begin to develop with an accelerated dynamics. At the same time, it was announced that the delivery of liquefied natural gas from the United States to China had begun. And all this was taking place against the background of the announcement that on December 29, 2018, negotiations had begun to settle the US-China trade conflict and reach an agreement.¹⁰

Meanwhile on December 2, 2018 – US and China agreed to a temporary truce. On December 14, 2018 China temporarily lowered tariffs on US autos and resumed buying US soybeans. On January 7, official delegations from US and China began trade talks, which were held in Beijing – the first face-to-face meeting since agreeing to a 90-day truce, which ends March 1. On February 7, 2019 Trump says that he will not meet with Xi in-person before the tariff cease-fire expires on March 1, 2019. After several fruitless trade talks on April 1, 2019 China announces that it will ban all variants of the synthetic opioid fentanyl, effective May 1, 2019. As the US and China fail to reach a deal following the end of the first day of the eleventh round of high-level trade talks on May 10, 2019 US increases tariffs on US\$ 200 billion worth of Chinese goods from 10 percent to 25 percent. On May 13, 2019 China announces that it will increase tariffs on US\$60 billion worth of US goods from June 1, 2019, in response to the tariff increases imposed by the US on May 10. The ping-pong game between the two countries with imposing tariffs, conducting fruitless trade talks and so on, continued during 2019 and 2020. “People’s Daily”, the official newspaper of the Central Committee of the Chinese Communist Party, has stated that China will be able to withstand the trade war, and that Trump’s policies are affecting American consumers (Bloomberg 2019).

An analysis published by The Wall Street Journal in October 2020 found the trade war did not achieve the primary objective of reviving American manufacturing nor did it result in the reshoring of factory production. Though the trade war led to higher employment in certain industries, tariffs led to a net loss of U.S. manufacturing jobs. The trade war reduced the United States’ trade deficit with China in 2019, but this trend reversed itself in 2020 with the trade deficit increasing back to its pre-trade war level, while the United States’ overall trade deficit has increased (Zumbrun 2020).

We have to say that the government of the PRC has blamed the US government for starting the conflict and said that US actions were making negotiations difficult (EST, John Feng 2021).

⁹ Ibid.

¹⁰ See “U.S. and China Fleshing Out Trade Deal” at <https://www.wsj.com/articles/u-s-and-china-fleshing-out-trade-deal-11546126975> [Accessed 30.12.2018].

The economist C. Fred Bergsten concluded in 2021 that “China’s economy is too large and too powerful to be suppressed. It fended off the Trump attacks with little damage, and indeed with renewed confidence in its prospects” (Bergsten 2022). Such a statement is backed with the concerns expressed by The Wall Street Journal, which is citing Trade Data Monitor (TDM). TDM indicates the situation that the tariffs on medical supplies have become politically complicated due to the COVID-19 pandemic. The cause is hidden in the fact that China is the leading source of many key medical supplies. So, the US tariffs on imports from China threaten imports of medical supplies into the United States (Ferek, Zumbrun 2020).

On 20 January 2021 China imposed sanctions against outgoing US Secretary of State Mike Pompeo, former secretary of health and human services Alex Azar, former undersecretary of state Keith J. Krach, outgoing US ambassador to the United Nations Kelly Craft, and 24 other former Trump officials. Later, after the Biden administration came to power, the National Security Council called the sanctions “unproductive and cynical” (Martina, Michael 2021).

3. The Change of “Trade War Strategy” to “Technology War Strategy”

The Biden Administration in Power and the Course of “de-coupling”

On January 2021 Trump left office and Joe Biden was inaugurated as President of the United States. Biden said that he did not have immediate plans to remove the tariffs and planned to review the phase-one trade deal and discuss the matter with allies first. The Biden administration has introduced a number of new export limits and a US investment ban for Chinese companies to protect US economic and military interests. But the Democrats started gradually to change the focus of their strategy in trade relations with China.

Step by step the Trade War is transforming into a Technological War. In October 2022, the US Department of Commerce expanded the sanctions after implicating 50 Chinese companies, including telecoms equipment maker Huawei. Export controls were also introduced for chip maker Nvidia, Yangtze Memory Technologies (YMTC) and Chang Xin Memory Technologies. Sanctions were expanded to include Chinese companies such as drone maker DJI and genomics company BGI Genomics, among others. South Korean telecom companies trading with the PRC were partially excluded from the new restrictions¹¹.

¹¹ “Exclusive: Samsung, SK Hynix to be spared brunt of China chip crackdown by U.S.”. Reuters.com. <https://amp.fxempire.com/en/exclusive-samsung-sk-hynix-to-be-spared-brunt-of-china-memory-chip-crackdown-sources/1153437> [Accessed 06.10.2022].

As a rule, the goal of the “Technology War” is to hold back the innovation-technological development of a given country and even contribute to its technological decline. A number of means by which it is conducted should be enumerated:

- Hostile propaganda campaigns of accusing the state that is the object of the “Technological War” of unfair commercial and other practices – theft of innovative know-how, dumping, etc.;
- Sanctions policy, i.e., limitation of innovation-technological development through various types of sanctions – imposition of excessive duties, deprivation of access to markets, restriction of import of raw materials or energy resources, prohibition of the purchase of new products and technologies, etc.;
- Formation of coalitions of countries whose existence is reduced to common actions against the object of containment, as well as assistance to competing countries of the contained country so as to suppress its innovation-technological and economic potential;
- Intervention in the internal affairs of the state, the object of the “Technological War”, by changing the power or its policy by means of different types of pressure – diplomatic, financial, political, socio-cultural, military, etc.

When we talk about the “Technology War” of the Biden administration against the PRC, we must note that it has two key features:

- The first is that it is mainly concentrated in the field of electronics;
- The second is the US efforts to attract a number of high-tech countries from Western Europe and East Asia, the so-called “Collective West” in the “Tech War” against China.

A quick look at the current situation in the field of global microchip manufacturing

Below we will dwell on these aspects of the “Technological War”, which have been developing openly from the beginning of the 1920s until today.

By the 1980s, the semiconductor industry was vertically integrated. Semiconductor companies develop their own chip manufacturing technologies while simultaneously owning and operating their own chip manufacturing, assembly and testing facilities.

Chip manufacturing requires significant investment, which is why small companies fail to enter the semiconductor industry. But as manufacturers find themselves in a state of overcapacity, small companies that can design chips are able to enter the business. This is how the so-called “no factory business model”,

known in English as “fables”, was born. I.e. to design and sell integrated circuits without owning a manufacturing plant. Leading global “fables” companies are mainly US by origin – Qualcomm, NVIDIA, Broadcom, AMD and others.

The other key building block in the semiconductor industry is the manufacturing business model, i.e. a company (plant) for the production of semiconductors. These production units are known in English as “Foundries”. Leading global foundries producing top-class microchips are Taiwan’s TSMC (Taiwan Semiconductor Manufacturing Co.) with about 60 % share of high-tech microchips and South Korean Samsung Electronics Co., Ltd. with a nearly 30 % share.

Third is the American GlobalFoundries Inc¹². The third important block in the microchip production chain are the manufacturers of lithographic equipment. Foundries are as dependent on these manufacturers as the rest of the technology industry is on chip manufacturers. Lithographic equipment, on the basis of which chips of the highest quality are produced, are made by only a few corporations in the world:

- The Dutch ASML Holding N.V. plays a key role. ASML stands for Advanced Semiconductor Materials Lithography. As of 2022, it is the largest supplier to the semiconductor industry and the world’s only supplier of extreme ultraviolet (EUV) photolithography machines used to manufacture the most advanced chips;
- The next leading manufacturers are the Japanese Canon Inc. and Nikon Corporation, which cover the rest of the production of lithography machines capable of producing 5 nm and 7 nm microchips;
- Various other manufacturers of lithographic equipment such as the American Veeco Instruments Inc. are also present with the subsidiary company Ultratech, Inc. and also MKS Instruments, Inc. and others, as well as Germany’s SÜSS MicroTec SE./ They are capable of creating photolithographic equipment, albeit with the ability to produce microchips with lower parameters than those of the leading companies.

In this regard, however, we should mention that the PRC is currently one of the largest chip manufacturers in the world – about 30 % of all production, but until recently not with the highest level of technology.

¹² GlobalFoundries Inc. (GF) is a multinational semiconductor contract manufacturing and design company incorporated in the Cayman Islands and headquartered in Malta, New York.

US policy from “decoupling”¹³ to “derisking”

Initially, an important instrument in the US policy aimed at a sharp weakening of the Chinese “high-tech” industries was *decoupling* – i.e. the “separation”. It is a process by which the deep economic interdependence between the US and China, built up over the past four decades, is gradually diminishing. “Separation” manifests itself in the trade area through trade sanctions, restriction and even prohibition of import or export of certain goods, etc. But it also manifests itself in the technological sphere by restricting and/or prohibiting the transfer of relevant “know-how”, sale of high-tech equipment or products, termination of investments in the relevant technological field, etc.

But over time, it became clear that this course was also affecting the United States itself, due to the significant dependence on various Chinese products and investments in both directions, as well as the losses suffered by American corporations “parting” with China.

China’s economy is too large for secession to be a realistic prospect. China is the largest producer of goods in the world, with output equivalent to that of all the factories of the United States, Germany and Japan combined. In a decoupling scenario, there is likely to be a shortage of goods and an inflation spike. Moreover, Chinese superiority in the production of dishwashers, computers, or toys does not threaten US strategic interests to such an extent. Severing ties with China in such “non-critical sectors” is not necessary.

In contrast to “decoupling”, the course of “derisking” seeks to limit China’s access to first-rate American innovation and technology, thereby preventing Chinese firms from using American “know-how” to climb the ladder of innovation and high technology. “De-risking”, i.e. reducing the risk to US national security, as seen and declared by Washington, has a more cautious task. It does not seek to limit China’s access to less advanced American technology, products and equipment.

But things are not like that when it comes to products, “know-how” and equipment of the highest technological class.

The goal is to strengthen the role of the United States as a global technology leader. High technology will be an increasingly important determinant of economic power in the digitalized and connected world of the future. The Biden administration, and the American “establishment” in general, believe that Chinese technology firms closing the gap with their US counterparts poses a risk to US supremacy.

¹³ See Black, Morrison 2021.

In other words, American politicians are resigned to the fact that, despite everything, the PRC will be the largest global economy not only by GDP (gross domestic product) measured by purchasing power parity (PPP), but also by GDP measured by official exchange rate in the coming years. But they want the US to remain the most high-tech economy, which is key to the direction the world will take in the future.

An important means of achieving this goal of Washington is to enlist not just the potential of the States, but the collective Western potential, including that of the developed countries of Asia – Japan, RoK (Republic of Korea, i.e. South Korea), Taiwan and Singapore in the “Technology War” against China.

One of the main points in the “Technology War” of the “Collective West” against the PRC has become the refusal to sell the latest photolithography equipment, as well as the maintenance of the old equipment, which is also a critical point. Under pressure from the USA, the inclusion of the European Union (EU) in the “Technology War” against the PRC played a major role.

As a result of this inclusion, the Dutch ASML began to implement export controls and stopped deliveries to China, but it also discontinued the maintenance of those already delivered. Japanese manufacturers Canon Inc. and Nikon Corporation are not slow to follow the example of the Europeans.

Another important tool is the effort to attract and develop important units of microchip production in the States themselves. It began in September 2022, with the implementation of the “Biden-Harris Action Plan to Restore America’s Infrastructure. Accelerating the transition to clean energy, revitalizing communities and creating jobs” the “Chip and Science Act of 2022” was passed. As a result, a \$50 billion package was created to support the implementation of the Plan and the Act.¹⁴

As early as December 6, 2022, the groundbreaking (for TSMC) microchip plant was broken in Phoenix, Arizona¹⁵. The Taiwanese company plans to import advanced manufacturing technology creating 4 nm microchips. TSMC plans to build a second factory there, implying even more advanced manufacturing technologies – 2 nm, aimed at future smartphones, computers and other smart devices, as well as for AI (Artificial Intelligence).

¹⁴ FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China. Available at: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/>, [Accessed 06.10. 2023].

¹⁵ TSMC announced its Arizona microchip factory 3 years ago. Here’s what has happened since then. Available at: <https://www.aztechcouncil.org/tsmc-announced-its-arizona-microchip-factory-3-years-ago-heres-what-has-happened-since-then/>. [Accessed 06.10.2023].

China's response to the "Technology War"

China's reaction was multifaceted. By decision of the Ministry of Commerce and the General Administration of Customs of the PRC, from August 1, 2023, controls on the export of germanium and gallium were introduced. It should be borne in mind that, for example, the production of power chips, LEDs, radio frequency amplifiers etc. is impossible without gallium nitride (GaN) and gallium arsenide (GaAs).

In particular, the European Union has suffered a lot from the restrictions so far. Because 71 % of the gallium and 45 % of the germanium in the EU is imported from the Middle East. Gallium prices increased by 1/3. Attempts to solve the problem on their own are currently hitting a snag. The reason is that there is a lack of serious investments in metallurgical production, which could satisfy the needs of the extraction of a product such as gallium. Since it is not the main product, but a by-product, such private investments would be unjustified from the point of view of profits.

But China's key response is in another direction and has to do with self-sufficiency. According to one of the Chinese manufacturers of photolithography machines – Advanced Micro-Fabrication Equipment (AMEC), restrictions on the import of the necessary equipment from the West have had a negligible impact on the capacity of its plants to operate. About 80 % of imported equipment can be replaced with domestic alternatives by the end of 2023. AMEC estimates that half of the operations can be resumed with full capacity by the second half of 2024. AMEC expects to reach 60 % of the Chinese equipment market in the coming quarters – a significant increase from the overall market share of 25 % as of October 2022.

At the same time, Huawei Technologies and China's largest chip maker SMIC (Semiconductor Manufacturing International Corp.) have built an advanced 7-nanometer processor to power Huawei's latest smartphone. Huawei's Mate 60 Pro is powered by a new Kirin 9000s chip¹⁶ that is made in China by SMIC. The processor is the first to use SMIC's cutting-edge 7nm technology. I.e. China has made rapid progress in its efforts to create top-of-the-line chips.

If you add to this the fact of the 19.2 million nuclear supercomputer developed in the PRC, it becomes clear that US sanctions cannot stop China. China's latest machine "Sunway" is as powerful as the American "Frontier". It has an AI program with 174 trillion parameters. In effect, achieving leadership in AI guarantees the PRC decisive technological superiority.

¹⁶ Huawei Mate 60 Pro With Kirin 9000S Tested: Performance Observations. Available at: [news/tested-huawei-new-kirin-9000s-arm-chip-benchmarks](https://www.techradar.com/news/tested-huawei-new-kirin-9000s-arm-chip-benchmarks). [Accessed 06.10.2023].

Until recently, Western sources claimed that the leading American, Western European, Japanese, Korean and Taiwanese technology firms were several generations ahead of the PRC, and that China was 10–15 years behind them. And if China catches up and reaches this level, by then the “Collective West” will be even further ahead.

But such statements and above all hopes are becoming increasingly untrue with each passing day and are bursting like inflated balloons. For example, the Chinese lead in high-quality academic research against the US and the “Collective West”.

So it is no wonder that AMEC says it will produce equipment capable of producing 5nm chips as early as the end of 2023.

Instead of a conclusion

Today, the PRC is facing Western sanctions, to which it is responding by improving its potential and capabilities. Even a brief overview of the “Technology War” of the “Collective West” against China confirms our thesis that rather than stopping China’s technological development, this war is stimulating the acceleration of the technological dynamics of the Celestial Empire.

It is difficult to show and prove how and to what extent this policy of the “Collective West” affects the West itself. But the fact that it has already altered its course from “de-coupling”, i.e. of disengagement to “de-risking” in the sense of avoiding extreme actions to break with China, is evidence that the sanctions against the PRC are affecting the West negatively.

And they definitely have an unhealthy effect on a global level, slowing down the technological development of the world as a whole. All these consequences of the “Technology War” being waged against the PRC must be realized by the leadership circles of the West, and the adventurist “Technology Wars” and any other type of wars must become a thing of the past.

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