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*Article*

# The Sino-American Competition on the 5G Technological Field

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**Abstract:** *The impact of technological findings has invariably been one of the factors which have been investigated by different authors focused on the study of international relations. The greatest technological breakthroughs definitely changed the life of billions of people and, along with them, the functionality of one of the most relevant actors in the field, the states. Technology changed the tactics used by an emperor to carry a war, allowed the explorers to conquer unsullied lands and promised to send the man to the outer space.*

*The 21st century stands as no exception to this rule, as technology proves itself to be more powerful than even and vital for the ordinary activities. One of the greatest technological landmarks which have been yet achieved in the first decades of the 21st century is the 5G technology, tied to its promises of totally changing the global connectivity. As expected for such a milestone, it was forcefully bonded to the competition between the financial commercial giants and the interest of the greatest global economic powers: United States and China.*

**Keywords:** *China; international relations; technology; US; 5G*

## 1. Introduction

The 5G technology stands as the reason for one of the greatest competitions between the United States (US) and the People's Republic of China (PRC) as it is due to change many of the most important elements regarding digitalization, connectivity and communications. This technology may improve the processes of automatization, may reduce the dependence on the human factor and may create the context for massive progress in areas such as Smart Cities, Smart Cars and Internet of Things. A new wireless era is expected to be assured by the 5G technology, as its power and speed are way more improved than the ones previously existing in the market (English, 2020).

The Sino-American competition in the field of technology stands as the most important piece towards implementing and consolidating the existence of the 5G technology worldwide. The two states find themselves in a contest in which the one who manages to sign more agreements with more states is able to win and gain control over the technological market, or, at least, stop the other one from gaining it.

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It should be understood from the very beginning that the entity which manages to sign deals with different states around the world is highly probable to remain the main supplier of that specific state both in other technological sectors and in the one which made the object of the agreement. It is most likely that, if a state decides to start the process of digitalization and modernization of its own national communication infrastructure with a specific private entity, it would be easier to also choose that specific entity in order to receive maintenance, support and updates for the infrastructure. Therefore, it is expected that such an agreement will create a long-term connection between the supplier and the consumer and that this connection may be used as a context in which one can use its influence in order to gain benefits.

Considering the facts stated above, both PRC and US find themselves in a competition in which the main stake consists of managing to sign more agreements with states, so that one can block the expansion of the other.

The aim of this article is to analyse the main agreements (Memorandums of Understanding) signed by the US and PRC with different states, their goals and the benefits which may be gained in the short and long terms. The final objective of this case study is to understand some political strategies used by both PRC and US in order to secure their position as global technological supplier and to try to overcome the competitors.

This paper will analyse the strategic decisions adopted by the American and the Chinese governments in the field of 5G technology through the lenses of John Mearsheimer's theory entitled *offensive realism*. This theory underlines that the aim of the great powers is to maximize their capacities, to achieve the status of dominator in the international system and to protect it over the time. Moreover, the theory states that the great powers are not entirely satisfied with their status in the international system, as they will continuously try to grow their potential and extend their influence (Mearsheimer, 2009). Although John Mearsheimer's theory is focused on the military area, the paper will use the offensive realist principles in correlation with the economic field. This is due to the fact that nowadays, through the lenses of offensive realism, the 5G technology can be broadly seen as a mechanism for both PRC and US to extend their influence and to gain power, as it is prone to produce significant profits and determine great technological dependence.

## **2. An analysis of the US MoUs**

The US side started to sign Memorandums of Understanding (MoUs) with different European countries in order to prevent a future cooperation with Chinese companies regarding the implementation of the 5G technologies on their territory. The general view of the American side is that the European states should be aware of the risks involved by a future cooperation with Chinese counterparts in different fields of activity, especially on the technological one (Peel et al., 2020).

By signing public MoUs with different European countries, the US aimed to convince the governments of these countries to publicly state that they will not accept a 5G technology which is suspected to be controlled by a foreign entity, such as a foreign government or intelligence service. It should be stated, however, that the MoUs are not mandatory documents and that they are not automatically legally binding. However, they should be seen as some public statements regarding some fundamental principles which ought to be respected by a certain supplier if there is a contract to be signed.

It should be pointed out that most of the MoUs are quoting a general framework referred to as the “*Prague Proposals*”, which stands for a set of norms and good practices concluded after “*Prague 5G Security Conference 2019*”. The states which took part in the conference were Albania, Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Israel, Italy, Japan, South Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Romania, Slovakia, Slovenia, Sweden, Switzerland, UK and US. It is important to notice that, after the conference (2<sup>nd</sup> and 3<sup>rd</sup> of May 2019) a document was released and contained some of the conclusions of the meeting. One particular conclusion which is important for the study is “[t]he overall risk of influence on a supplier by a third country should be taken into account, notably in relation to its model of governance, the absence of cooperation agreements on security, or similar arrangements, such as adequacy decisions, as regards data protection, or whether this country is a party to multilateral, international or bilateral agreements on cybersecurity, the fight against cybercrime, or data protection” (National Agency and Cyber Information, n.d.). Considering the Chinese national legislation regarding the interaction between private entities and the PRC government, this conclusion may be interpreted as an element which indicates that the agreements regarding the 5G technology may be endangered by the influence of a foreign government, such as the Chinese one.

Some elements of the Chinese legislation which may be useful for understanding its interaction with 3<sup>rd</sup> parties:

- Article 35 of the Foreign Investment Law of the PRC (2020) “[...] The State establishes a security review system for foreign investment and conducts security review of foreign investment that affects or may affect national security. Security review decisions made in accordance with law are final decisions” (National People’s Congress, 2019);
- Article 19 of the Foreign Investment Law of the PRC (2020) “The Chinese Communist Party may, according to the Constitution of the Chinese Communist Party, establish its branches in companies to carry out activities of the Chinese Communist Party. The company shall provide necessary conditions to facilitate the activities of the Party” (National People’s Congress, 2019);
- Article 5 of the Company Law of the People’s Republic of China (last updated 2018) “When conducting business operations, a company shall comply with the laws and administrative regulations, social morality, and business morality. It shall act in good faith, accept the supervision of the government and general public, and bear social responsibilities” (Ghip Legal, n.d.);
- Article 7 of the National Intelligence Law of the PRC (2017) “All organizations and citizens shall support, assist, and cooperate with national intelligence efforts in accordance with law, and shall protect national intelligence work secrets they are aware of. The State protects individuals and organizations that support, assist, and cooperate with national intelligence efforts” (China Law Translate, 2017).

On the 14<sup>th</sup> of January 2021, the US Government and the government of Georgia adopted a MoU declaring the strong cooperation of the two countries on the 5G area and their commitment towards assuring the safety of the communication infrastructure of the fifth generation of technology. The MoU underlines the importance of 5G both for improving the national com-

munication system, but also for assuring the national security on different levels (US Embassy in Georgia, 2021).

The MoU explains how the importance of the 5G communication systems does not allow for any foreign interference and it is the duty of the hosting state to adopt all the necessary measures in order to prevent these risks from appearing. Moreover, the systems should be efficient, protected and trustworthy, meaning that the conditions necessary in order to win the contract for their implementations should be strict and unnegotiable (US Embassy in Georgia, 2021). The 4 main conditions which have been established in the MoU disapprove the following:

- Whether network hardware and software suppliers are subject, without independent judicial review, to control by a foreign government. This indicates a connection towards the National Intelligence Law of the PRC, by creating the opportunity for the Chinese authorities to expand their influence over the activity of companies;
- Whether network hardware and software suppliers are financed openly and transparently using standard best practices in procurement, investment, and contracting (US Embassy in Georgia, 2021). This principle underlines the fact that unfair market practices are not to be accepted when signing agreements with different suppliers;
- Whether network hardware and software suppliers have a record of ethical corporate behaviour, including transparent ownership, partnerships, and corporate governance structures (US Embassy in Georgia, 2021). This statement directly addresses some of the Chinese companies which have been the subject of critics addressed towards their connection with the Chinese government and their lack of independence when deciding certain strategies, agreements or further development plans;
- Whether network hardware and software suppliers exemplify a commitment to innovation and respect for intellectual property rights. Finally, this condition is another element which indicates some critics addressed towards the Chinese companies and their unfair practices in the market.

The MoU stands as a strong attempt towards discouraging European states from cooperating with Chinese government on the 5G technology market. As explained before, the competition towards the 5G infrastructure has a great stake and represents one of the most important points of interests of the US in this field.

The MoU signed between US and Georgia was necessary for the Sino-American conflict mainly because the bilateral cooperation between the Asian and the European counterparts has been constantly growing in the last decade. In 2017, PRC and Georgia signed a free trade zone MoU, which was due to facilitate the role of the Georgian state in the Belt and Road Initiative (BRI) of the Chinese government. The MoU was due to eliminating trade tariffs between the 2 countries, including more than 90% of the products under the free trade policies (Swire, 2017). As a result, it was expected from the Chinese side that Georgia would continue the high level of cooperation and extend it on the technological field, as the state has been included in the further development of the BRI. However, the MoU signed with the US proved that Georgia is not an extremely reliable partner and that it will probably maintain its cooperation with the American side.

On the 23<sup>rd</sup> of October 2020, Bulgaria and the US signed a Joint Statement which, among other elements regarding different areas of interest, included the security of the 5G networks

and the efforts which are necessary in order to assure a desirable level of security. The US side stated that the security of the 5G networks is not only a point of interests for the states which implement the infrastructure through agreements, but it is also a priority for NATO and EU, as their security could be threatened if a state does not adopt a certain set of requirements for this technology (Bulgarian News Agency, 2020).

The Bulgarian Transport, Information Technology and Communication Minister stated that “[b]y the exchange of data that are protected in line with our shared principles and values, we guarantee that the new prosperity and well-being infrastructure will accomplish its mission” (Bulgarian News Agency, 2020). This statement comes as a very important point, as it may indicate that Bulgaria is willing to share a common position with other European states, which acknowledged the risks posed by the Chinese 5G technology and the measures that should be adopted (Reuters, 2020).

The case of Bulgaria is particularly important as in recent years the state has been in a constant process of establishing the foothold for durable cooperation with the Chinese side. The Bulgarian government expected foreign investments coming from the PRC, as the Chinese government has publicly declared the importance of massive cooperation with Bulgarian entities, as a part of the BRI project (Filipova, 2019).

Still, Bulgaria is remaining an important stake both for the US and for the PRC, as the state may become a regional access point for the Chinese side. It may be assessed that Bulgaria stands as the main access point for China on the EU markets, considering the fact that the state is a member of the European Union. Therefore, signing a Joint Statement with the American side might become a significant problem for the PRC, as its main advantage in the negotiations with the Bulgarian side was the technological development and, inherently, the 5G networks. If this advantage is to be eliminated, PRC might have to reconsider its strategy for joining the EU markets.

Other states with which the US have signed MoUs regarding the implementation of the 5G network on their territory under standard security measures were the North Macedonia and Kosovo, both of them being on the verge of signing agreements with Chinese companies in order to develop their national digital infrastructure.

In October 2020, North Macedonia signed a MoU with the US regarding the safety of the hardware components of a future 5G national infrastructure. The statement made by the Macedonian Prime Minister safely underlined the necessity for security and national protection of the critical infrastructure “[g]iven the advantages of 5G generation wireless communication, this Memorandum of Understanding is vital for the future prosperity of our country from an economic point of view, as well as for national security” (Petrushevska, 2020). However, on the other side, the statement made by the US DoS was much clearer and directly accused the PRC of endangering the provided 5G infrastructures “[t]he Clean Network programme is the Trump administration’s comprehensive approach to safeguarding the nation’s assets including citizens’ privacy and companies’ most sensitive information from aggressive intrusions by malign actors, such as the Chinese Communist Party” (Petrushevska, 2020). The conditions included in the MoU were similar to the ones agreed with Bulgaria and Georgia.

Regarding the MoU signed with Kosovo, the US Government and the Kosovo Government released their statements and the conditions of the MoU regarding the safety of the 5G infrastructures were identical to the ones described above, as a part of the MoU signed with Georgia (US Government, 2020). Although signing an agreement with Kosovo did not produce

many advantages, as the country was not going to settle on a deal with Chinese companies, the US still insisted on signing the MoU as a measure of safety and as an international statement against Chinese companies.

It is important to notice that most of the MoUs were signed during 2020 and 2021, proving a general strategy of the US towards convincing different European states to support a common statement and to block the expansion of the Chinese companies on their territory. A similar MoU was also signed with Romania and the US Embassy posted a statement regarding the importance of the security of the 5G infrastructure and the necessity to commonly work in order to maintain a high level of safety. Moreover, in the same statement, the US blamed the Chinese companies because they are directly cooperating with the Chinese authorities and with the Chinese Communist Party, as requested in their national legislation (Zuckerman, 2020).

### **3. An analysis of the Chinese MoUs**

While the US has been constantly preoccupied with signing MoUs with different states in order to block the expansion of the Chinese technology on the territory of these countries, PRC's main focus was to start investing in as many regions as possible, in order to mark its influence and to be capable of expanding it. As a result, it will be provided an overview regarding the expansion of Huawei in Europe, South Africa, South America and Asia.

One of the most important partners of the PRC has been the Russian Federation, a state which has agreed from 2019 to allow Huawei to expand its capabilities over the national territory in order to develop the 5G infrastructure. Based on the offensive attitude of the Trump administration towards both PRC and RF, it was expected from the 2 states to develop their partnership and to allow bilateral investments for national development (Qingqing and Yeping, 2020).

Moreover, considering that the PRC and the FR are not direct competitors in the high-tech field, it is easier to evaluate their interaction as a partnership which will continue to be developed over the next decade. Furthermore, for the Chinese side, the partnership with Russia is extremely important, especially considering the technological area. More exactly, most of the former USSR member states share similar technological capabilities and will, probably, be inclined to adopt a similar pattern with the Russian Federation. This is particularly relevant because it has been proved to be a valid theory, as states such as Azerbaijan, Uzbekistan and Kazakhstan have already signed agreements with Huawei in order to develop the national 5G infrastructure with the help of the Chinese companies (Sacks, 2021).

Finally, the agreements for development signed with the Russian Federation generate another massive advantage for the Chinese companies and, therefore, for PRC, the Chinese technology becomes a general leader in the Asian continent. This is particularly important because it may be considered one of the very first massive achievements of the Chinese companies, as these have managed to become regional leaders.

Another state which has started to cooperate with the Chinese companies in order to develop its high-tech capabilities is Turkey, a country which has managed to evolve their national technology and has decided to cooperate with Huawei, instead of simply agreeing for the company to provide the necessary 5G hardware.

In 2018, Turkey and China have signed a deal related to the development of smart cities on the territory of the Turkish state. The main actors which were involved in this deal were the Chinese giant Huawei and the Turkish biggest telecommunication company, Turk Cell, both of

them agreeing to commonly work in order to develop the technological outcome which would improve the level of digitalization and connectivity (Sahin, 2018).

The cooperation between Turk Cell and Huawei on the smart cities rapidly expanded to the 5G technology, which is currently standing as the main objective for the 2 developers in the next years. Moreover, the results have started to be published, as in the 2019, the 2 companies started to test the outcomes of the researches done in recent years and claimed to have achieved “*unprecedented speeds*” (Sbeliga, 2019).

For PRC, the cooperation with the Turkish private entities is extremely important, as the state is an essential regional actor and, more than anything, a NATO member state. This is a direct message towards the US efforts of convincing its allies not to sign with Chinese developers and it may stand as an example for other NATO member states which are currently undecided regarding the right supplier for the development of the 5G infrastructure. Still, it is important to notice that, in comparison with the interaction between PRC and Zambia or Zimbabwe, the agreements signed between Turkey and China are not based on a relation of subordination, but rather reciprocity, as both national companies have created joint teams of experts which were due to commonly develop and improve the capabilities of the 5G technology (Levy, 2020).

Besides Turkey and Russia, the Chinese companies have managed to develop agreements with different states from South America in order to supply them with the necessary technology required to implement the 5G technology.

China and Brazil have strengthened their cooperation over the last decade as in 2017 PRC became the leading trade partner of Brazil. In the last years, PRC has constantly deployed efforts in order to assure its technological presence in Brazil, as the main high-tech supplier, especially in the 5G context. Over the last decade, Huawei was the company that built most of the 4G networks for Brazil and, as a result, is currently pursuing the South American state to continue the high level of cooperation in the 5G networks. The Chinese company has managed to build one massive hardware factory on Brazilian territory and is planning to invest in a second one, in order to raise the stake towards the 5G systems. Moreover, Huawei managed to conduct some 5G tests with the main communication operators from Brazil in order to prove the efficiency and the advantages implied by a future cooperation (Sacks, 2021). Still, considering the regional proximity between Brazil and US, the country’s decision towards the main 5G supplier has become quite difficult to be accepted by the American side, which is actively pursuing towards refusing an agreement with Huawei (Stuenkel, 2020).

Another important South American country which has open talks with Huawei regarding the 5G technology is Argentina, an important regional player. The political leaders of Argentina held some meetings with the Huawei CEO in order to decide on further agreements regarding the development of the 5G networks. The main arguments used by the Huawei representatives in order to reach a deal with Argentinian leaders were the facts that the Chinese company already built the 4G infrastructure (so the continuation of the cooperation would be easier with the same supplier) and that the costs involved are way reduced in comparison with other suppliers such as Ericsson and Nokia (Global Times, 2020).

Furthermore, still in the South American region, another state which is intending to sign an agreement with the Chinese entities is Peru, which has accepted, in 2019, that Huawei would run some tests for a future 5G infrastructure on the national territory (Cortes, 2019). Although it is not clear yet whether or not Huawei will become the main 5G supplier for Peru, it is im-

portant to point out the fact that this hypothesis is very likely, considering that the Chinese company is the only one which tested its capabilities on the state's territory, in cooperation with the national communication company.

The South American examples are extremely relevant, mainly because they may stand as arguments towards future Chinese high-tech supremacy in the region, at least geographically speaking, considering that Brazil, Argentina and Peru are the largest states in the continent. If Huawei manages to conclude its influence in the region, South America might become the second area which has been included in the Chinese high-tech influence.

Besides South America, Africa has also become one major point of interest for the Chinese companies, as the continent holds many unexploited high-tech markets which may be used by Chinese entities in order to spread their influence in the region and to sign investment agreements which would produce massive benefits. One of the African states which have massively cooperated with Huawei is South Africa, as the national government has agreed in 2019 to allow the national telecommunications company to cooperate with Huawei in order to develop the national 5G network infrastructure, as confirmed in an official statement of the Chinese company (Huawei, 2019).

From the South African perspective, the new 5G technology has been described as an opportunity for the country to develop its main areas of activity and to improve the capacity of critical sectors such as agriculture and manufacturing. In this sense, Huawei was described as a trustworthy partner with which the South Africa is willing to maintain the cooperation and to develop the level of interaction in the field of high-tech (Goovaerts, 2020).

It is important to point out that, if Huawei manages to maintain its leading position in South Africa and to develop an infrastructure which will be proven to be extremely efficient, it is very likely that other states from the same region to sign with the Chinese company, mainly because it has proved its efficiency and, equally important, it is significantly cheaper. The Southern region of Africa stands as a great opportunity for Chinese companies which activate in multiple fields, not necessarily the high-tech one. By signing such an important contract with the leading regional state, it is probable that other agreements will come and the Chinese entities will consolidate their favourable position in the African market.

In order to consolidate its position in Asia, PRC has signed different deals also with Indonesia, a possible competitor of the Chinese companies which has been turned into a reliable partner in the field of high-tech.

In January 2021, the 2 states have signed a MoU regarding cybersecurity which aimed to develop their common capabilities and to strengthen the level of cyber activities commonly conducted. The goal of this MoU is to assure the Indonesian side that the Chinese entities are willing to cooperate and to share the knowledge in order to commonly achieve better results (Data Guidance, 2021). The deal comes in a general context in which the US has actively pressured the Indonesian institutions into acknowledging the real threats generated by the Chinese side, both in the technological field and in the field of cybersecurity operation.

Moreover, regarding the Chinese technology, the MoU underlines the importance of bilateral cooperation in the context of the implementation of the 5G technology on the national territory of Indonesia (Global Times, 2021). The importance of the MoU is given not only by the fact that the Chinese companies will be able to extend their influence on the territory of Indonesia, but also from the fact that, if the deal comes out to be successful and the technology to be reliable, then the Chinese entities will be able to spread their influence in the Southern

region of Asia, also known as ASEAN. The region of ASEAN stands as a great opportunity for the Chinese companies, as it is capable of assuring massive investments and profits.

Finally, the last point regarding the influence of the Chinese companies and their race towards signing as many deals as possible in order to supply their products to other countries is related to the European side. As it was explained, Europe and, therefore, the EU market, stands as one of the most important stakes of the competition between the US and PRC regarding the technological expansion. Among the most important deals signed by the Chinese side in the European markets are the following:

**Hungary.** The state announced in 2019 that the national 5G infrastructure will be developed by Huawei, as the 2 parts have achieved a common agreement which will allow the Chinese side to bring its technology on Hungarian territory. The agreement signed by the Prime Minister Viktor Orban comes in a context in which US has actively insisted on banning the Chinese technology as it is unsafe, unreliable and may produce massive security risks for the European side (Reuters, 2019).

**Austria.** Although the state did not directly agree on signing with Huawei, it has stated that the Austrian side will be completely neutral to any supplier and will not exclude any of them (Playground, n.d.).

It is important to point out that there are many markets which are seen as opportunities for the Chinese companies and, in many of them (fig. 1) there is a high possibility for a deal to be signed.



Figure 1. Map of Huawei's 5G possibilities of expansion (Sacks, 2021)

## 4. International reactions on the MoUs

Besides signing MoUs with different European states in order to counter the Chinese influence in the region and the possibility for a continuous Huawei expansion as a 5G supplier, the US has also adopted some political decisions in order to directly attack the Chinese companies. These decisions are particularly important because they have been used in order to support the general anti-Chinese policy of the American government.

In May 2019, the US former president, Donald Trump, has signed an executive order in which it blocked the foreign companies from becoming suppliers for the American telecommunications systems, due to the security risks possessed by these companies. The executive order came into a general context of conflict and competition between the 2 powers, focused on the technological area and the telecommunications sector. It is, therefore, very clear that the main target of this executive order were the Chinese companies, especially Huawei (Lecher, 2019). It is also important to mention that, in February 2019, the US intelligence agencies made a joint public statement in which they warned the American citizens about the Chinese communication devices (especially those of Huawei and ZTE), and gave them the recommendation not to use these devices, as they may possess threats and risks towards the safety of their own data (Lecher 2019).

In May 2020, the executive order gave by Donald Trump one year before was extended until May 2021, and it contained the same general recommendation for the US telecom companies regarding their cooperation with the Chinese suppliers (Gartenberng, 2020). It should be underlined the fact that, currently, the Chinese companies are still under the ban, through the executive order given by the former president of the US. Regarding this topic, the most important element in the present is whether or not Joe Biden will continue the ban on the Chinese companies as its position towards this topic has not been fully expressed yet and the executive order of Donald Trump is due to expire at the end of May 2021. However, taking into consideration the fact that Joe Biden has already adopted some new sanctions regarding the American companies and their relation with Chinese suppliers, it is most likely that the ban will continue and that Huawei will have to face another year without access to the American markets, a situation which has been called by the PRC foreign minister as a decision which will affect both PRC and US and none of the 2 will benefit from this (Udin, 2021).

One of the private American companies which had to obey to the ban imposed by Donald Trump is Google LLC, one of the most important suppliers in the market, as the Google Service Market was not available for the newly release Huawei mobiles. Precisely, some features of Google such as the Android operating system, the Google Play and the Google Maps were not included in the Chinese products. This came out as a great problem for the newly released Huawei products, as Google in itself is, if not the most important, one of the most important features of a mobile phone, as the Google trademark in itself is extremely important for a mobile phone (Mehrotra, 2020).

However, the outcome of the Google ban was not as expected, as Huawei managed to create alternatives to the old fashioned Google features by implementing in the new devices a Chinese made operating system, an alternative Maps application and a different search bar, all of which would now compete with the American company. (Mehrotra, 2020). Not only that this allowed for the Chinese supplier to improve their position in the market, but they are also a threat towards the former giants, Apple and Samsung. In the final quarter of 2020, the mo-

mobile phone market was divided into 39% of the shares owned by Apple and Samsung, 40% owned by Chinese companies, Huawei, Xiaomi, Oppo, Vivo and Realme, while the rest of 20% are owned by other mobile phones manufacturers. This came out as a great hit for the 2 giants, considering that, at the beginning of the 2020, they owned about 55% of the market, while the Chinese companies owned only 31%, making the growth of them extremely significant (Counter Point Research, 2021).

This is particularly relevant because the initiatives of the US were expected to reduce the influence of the Chinese companies in the market and to slow down their process of constant evolution and continuous development. The sanctions imposed by Donald Trump were, on one side, deemed to avoid the security risks possessed by the devices produced by Chinese companies but, on the other side, to give an advantage to the American companies on the market. The outcome, as explained above, was quite the contrary, meaning that the Chinese suppliers managed to overcome the sanctions and are still expanding in the market, generating a real threat towards the American position in the high-tech economic sector.

Besides sanctions and public statements against the Chinese companies, the US authorities and intelligence services continued the competition against different Chinese entities by using the cyberspace and the available diplomatic means.

Over the last decade, the American intelligence services have constantly accused Chinese cyber entities of conducting cyberattacks against American targets in order to collect sensitive data and information which would help the Chinese authorities to shape their policies and to promote them in the field of international relations. The Federal Bureau of Investigation (FBI) made multiple statements regarding different offensive cyber activities conducted by Chinese citizens against American companies. One of the aims of these activities, as explained by the chief of the intelligence service, was to collect data which would help the Chinese companies to better promote their strategies in the international markets (FBI, 2020). In this sense, the Department of Justice adopted a series of indictments on different Chinese citizens which were proved by the American authorities to develop cyber activities which aimed to steal confidential information which would result in the theft of intellectual property and unfair market practices. These indictments can be seen as a mix between diplomatic and legislative means of discouraging the Chinese hackers from attacking American entities and, also, to promote an international portrayal of the Chinese institution as conducting cyber practices which are deemed to produce unfair results (US Department of Justice, 2020).

Finally, the EU perspective on the competition between US and PRC should be analysed, as it is extremely important from 2 points of view: firstly, it is a major open market for the Chinese companies and the greatest opportunity for their expansions and to overcome the American influence and, secondly, because, generally speaking, EU is a historic partner of the US from many perspectives, as the 2 actors usually maintained a high level of cooperation on different topics of interest.

The first major position adopted by the EU in the context of the Sino-American competition on technology is that the European Commission decided to allow each member-state to decide its own regulation regarding the foreign technology. EU considered that simply creating a set of pieces of advice and good practices would be enough in order for the member-states to decide what is the best way in order to achieve technological progress and, simultaneously, to protect their national security of the infrastructures (Chee, 2020).

By allowing each member-state to decide whether or not it will accept the Chinese technology, the EU generated a set of problems for the American side of the competition. Firstly, it underlined the fact that EU as a common union is not willing to adopt a position which would significantly help one of the two competitors, but rather to allow each of its members to decide for its own. Secondly, it produced a significant advantage for the Chinese side, as the greatest risk for the Chinese companies would have been to be automatically eliminated from the race by a general directive given by the EU. Thirdly, it obliged both the US and PRC to start a competition on agreements with each of the member states in order for them to choose the sides and decide whether or not will accept the Chinese technology on their territory.

These elements will, most likely, determine a general situation in which the EU will remain the main field of competition for the US and PRC, as the European market may become the final element which will set a winner and, therefore, the power with the greatest influence in the economic and technological area.

## **5. Conclusions**

This analysis regarding the Sino-American competition in the field of technology is due to underline the general impact of the 5G technology both for US and PRC, along with their economic strategies pursued in order to gain advantages and financial power.

From the Chinese perspective, few conclusions arise:

- The technological field is used by the PRC in order to directly compete with the US and to gain significant economic advantages, as stated in the theory of offensive realism. As this overall analysis is aiming to prove, the 2 power find themselves in a general state of competition, on gaining allies who are essential in order to promote their technological products and, therefore, expand their capabilities.
- The technological field allows the PRC to sign agreements which are useful because they can be used in order to promote the Chinese influence of the territory of the specific state. This is due to the fact that the agreements are general extremely advantageous for the co-signing states, both from the financial and professional perspectives. The PRC is highly probable to maintain its influence in the region as the main supplier, considering that, generally, the normal path of development implies the fact that a state prefers to keep the same supplier to do updates, maintenance and to replace the equipment whether this is necessary.
- Apart from the obvious fact that the technological area is producing enough economic advantages in order for the PRC to be able to counter the American influence, it is also capable of encouraging the states to accept a Chinese influence on their territory on different areas of interest for the Chinese government and, therefore, allows the PRC to gain international power. The goal of gaining power over other states was underlined by John Mearsheimer in his theory of offensive realism, as the author pointed out that states will aim to take advantage of one another in order to grow their influence.

On the other side, from the American perspective, the conclusions regarding the 5G technology are the following:

- The US side understand the Chinese economic strategy and its will to gain as many partnerships as possible in order to consolidate its status as the global technological supplier. However, the US is mostly concerned about the EU, as it represents the most important target for the Chinese products and the argument which may help the Chinese government to become the greatest player in the 5G field.
- The MoUs signed by the American government are a mechanism used in order to prevent the important allies from cooperating with Chinese entities and, therefore, helping them to secure the Chinese economic strength.
- The US is forced to take part in this technological competition because allowing the PRC to become the main global high-tech supplier will eventually contribute towards building the status of the Chinese world economic leader, and, therefore, surpass the actual American financial supremacy.

## Conflicts of interest

The authors declare no conflict of interest.

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