

# The EU and Huawei 5G technology against the backdrop of the US-China trade war

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## 1 Introduction

Last weekend, at the 2019 G20 summit in Osaka, Japan, United States President Donald Trump and Chinese President Xi Jinping met to discuss recent developments in the U.S.-China trade war. One of the key agreements of the meeting, announced by President Trump, was the lifting of the most recent sanctions by the U.S. against the Chinese telecommunications provider Huawei. This agreement was met with relief both in and outside of China, as the conflict around Huawei symbolizes the potentially global consequences of the U.S.-China trade war. However, the trouble for Huawei and the world is far from over: the ban by the U.S. and a number of its partners against the company's participation in rolling out new 5G infrastructure is still in place and the future of the trade negotiations is unclear.

The European Union (EU), as one of the key stakeholders to Huawei's 5G technology, has a particular interest in a timely and peaceful resolution, as its member states are preparing to update their telecommunications networks to 5G over the next decades. To shine a light on the EU's role and interest in the Huawei case and to suggest a way China can position itself towards the EU, this article is a refresher on what is behind the 5G technology as well as Huawei's rise to global 5G leadership.

## 2 Huawei offers the promise of a digital future: 5G technologies

5G networks are expected to make up the backbone of modern digital societies: The purpose of 5G is to enable the connection of a growing number of devices ("Internet of Things") with fast network speeds, lower latencies, and the usage in small sensors with little power supply. For this reason, 5G is seen as the basis for promising future technologies such as autonomous driving and industry 4.0.<sup>1</sup> A 5G network is composed of many different technologies, including base stations, data centers, antennas, and handsets. At this time, only three companies worldwide can provide all these technologies together, among them Huawei from China, Nokia from Finland and Ericsson from Sweden. According to some sources, Huawei is the only firm among these three that can produce the most critical 5G technologies both "at scale and cost".<sup>2</sup>

5G also comes with unique changes in its architecture, compared to the previous 3G and 4G networks, which are, of course, relevant for assessing the risks posed by an equipment provider. In the past, a distinction between critical and non-critical parts of the network was common, so that a provider could be given access to only non-critical parts if it was considered a security risk. For 5G networks, there have been claims that this distinction would not be possible anymore, and that any equipment

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<sup>1</sup> Daniel Voelsen, "5G, Huawei und die Sicherheit unserer Kommunikationsnetze" (in German), SWP, February 2019, [https://www.swp-berlin.org/fileadmin/contents/products/aktuell/2019A05\\_job.pdf](https://www.swp-berlin.org/fileadmin/contents/products/aktuell/2019A05_job.pdf)

<sup>2</sup> CNN, "Huawei arrest: This is what the start of a tech Cold War looks like", December 9, 2018, [https://m.cnn.com/en/article/h\\_9345b23ca7053f08332030a63d7e3329](https://m.cnn.com/en/article/h_9345b23ca7053f08332030a63d7e3329)

involved would pose a risk for the whole network.<sup>3</sup> These claims, however, have been disputed and judging from the UK announcement to allow Huawei to non-critical network components, it might in fact still be possible to grant only partial network access.<sup>4</sup>

Because of these technological specifications and the fact that only three companies have the potential to provide the necessary 5G equipment, the EU’s vision of a digitalized and automated future depends strongly on its stance towards Huawei.

### 3 Huawei has gained stronger foothold in the EU than in the U.S.

Since its foundation in 1988, Huawei has developed into the world’s largest provider of telecommunications equipment with a global market share of 29 % in 2018. Its path from the roots to the current multinational technology giant is illustrated in the following timeline:<sup>5</sup>

Year	Activity	Worldwide Service Provider Equipment Market. Source: Dell’Oro Group <sup>6</sup>
1988	<ul style="list-style-type: none"> <li>Foundation of Huawei</li> <li>Mostly reselling imported equipment</li> </ul>	
1990	<ul style="list-style-type: none"> <li>Huawei develops its first own devices</li> <li>Building up its R&amp;D capacities</li> </ul>	
1995	<ul style="list-style-type: none"> <li>Huawei opens research centers in Shanghai and Beijing</li> </ul>	
1996	<ul style="list-style-type: none"> <li>First international customer in Hong Kong</li> </ul>	
1997	<ul style="list-style-type: none"> <li>Customers in Russia and other emerging economies</li> </ul>	
2000	<ul style="list-style-type: none"> <li>Trip to Africa with Chinese vice premier, laying foundations for future deals</li> </ul>	
2001	<ul style="list-style-type: none"> <li>First major sales in Europe in Netherlands and Germany</li> <li>Huawei enters U.S. market but with little success</li> </ul>	
2003	<ul style="list-style-type: none"> <li>Cisco files lawsuit against Huawei for allegedly copying its software</li> </ul>	
2004	<ul style="list-style-type: none"> <li>Major sale to Netherlands for building out the 3G network</li> <li>International revenues for first time higher than domestic revenues</li> </ul>	
2005	<ul style="list-style-type: none"> <li>Huawei becomes preferred supplier for British Telecom</li> </ul>	
2012	<ul style="list-style-type: none"> <li>Huawei surpasses Ericsson in sales</li> </ul>	
2018	<ul style="list-style-type: none"> <li>Arrest of Meng Wanzhou in Canada, the founder’s daughter and Huawei’s Chief Financial Officer</li> </ul>	
2019	<ul style="list-style-type: none"> <li>The U.S. Department of Commerce adds Huawei to its Export Administration Regulations entity list, restricting U.S. companies from doing business with Huawei</li> </ul>	

A few years after its foundation, Huawei started to set itself apart from most Chinese competitors by investing heavily in research and development (R&D) and developing new products in-house instead of in cooperation with international joint ventures. The revenues were mostly reinvested in expanding

<sup>3</sup> Daniel Voelsen, “5G, Huawei und die Sicherheit unserer Kommunikationsnetze“, *ibid*.

<sup>4</sup> Phil Muncaster, “UK Government Allows Huawei to Provide ‘Non-Core’ 5G Kit”, *Infosecurity Magazine*, April 24, 2019, <https://www.infosecurity-magazine.com/news/uk-government-huawei-provide-1/>, also see Stan Beer, “The 5G network core is not really the heart of Huawei’s problem”, *wirefree5*, December 28, 2019, <https://wirefree5.com/the-5g-network-core-is-not-really-the-heart-of-huaweis-problem/>

<sup>5</sup> Nathaniel Ahrens, “China’s Competitiveness – Myth, Reality, and Lessons for the United States and Japan”, *CSIS*, February 2013, [https://csis-prod.s3.amazonaws.com/s3fs-public/legacy\\_files/files/publication/130215\\_competitiveness\\_Huawei\\_casestudy\\_Web.pdf](https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/130215_competitiveness_Huawei_casestudy_Web.pdf)

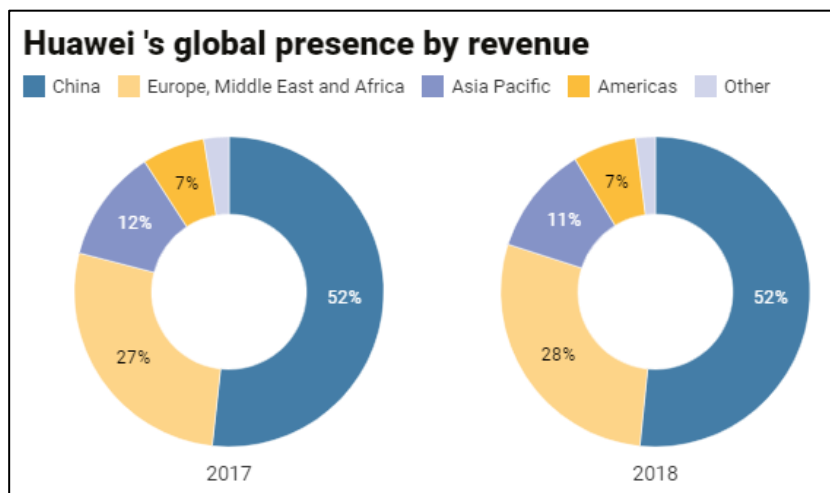
<sup>6</sup> Stefan Pongratz, “Key Takeaways – Worldwide Telecom Equipment Market 2018”, *Dell’Oro Group*, March 4, 2019, <https://www.delloro.com/telecom-equipment-market-2018-2/>

Huawei's R&D capacities, for example by creating research centers in Shanghai and Beijing. Although Huawei generally followed a policy of self-reliance, it also bought components and devices from foreign companies such as IBM and Qualcomm, especially where it lacked capacity for self-development or where the prices were low.<sup>7</sup>

From 1996 Huawei started its international business, allegedly by borrowing a strategy from Mao Zedong of "surrounding the city with the countryside"<sup>8</sup>, by first building business in emerging economies and developing countries, before trying to enter more developed markets. From its first major sales in the Netherlands and Germany in 2001, Huawei managed to build up a strong reputation and a loyal customer base in the EU. Huawei's products were valued for their advanced features, the low costs and the strong aftersales support that Huawei provided to its customers.

Huawei also set up office in Texas in 2001 but its development in the U.S. was hampered by a number of events: First, a Cisco lawsuit over alleged intellectual property infringements in 2003 tarnished Huawei's reputation. Then its attempts to acquire 3Com and 3Leaf, and its planned sales to Sprint Nextel were blocked by the Committee on Foreign Investment in the United States.<sup>9</sup> In 2012, a report investigating national security issues posed by Huawei and other Chinese companies was published by the House of Representatives in 2012, however, with reportedly weak actual findings.<sup>10</sup> Despite Huawei's global technological leadership, U.S. telecommunications companies today still mostly rely on the European providers Ericsson and Nokia as well as on the South Korean provider Samsung.<sup>11</sup>

Although Huawei's business in the Chinese market kept booming, its operations became more and more integrated into the global economy and interwoven with the U.S., Europe and other global markets. As a result, the company's international revenues now make up around half of its overall revenues.<sup>12</sup> Huawei continued to source critical parts from abroad and also in



non-technical fields Huawei relied on cooperations with the U.S., for example by hiring international

<sup>7</sup> Nathaniel Ahrens, "China's Competitiveness", *ibid.*

<sup>8</sup> Nathaniel Ahrens, "China's Competitiveness", *ibid.*

<sup>9</sup> Nathaniel Ahrens, "China's Competitiveness", *ibid.*

<sup>10</sup> Mike Rogers and Dutch Ruppersberger, "Investigative Report on the U.S. National Security Issues Posed by Chinese Telecommunications Companies Huawei and ZTE", U.S. House of Representatives, October 8, 2012, [https://republicans-intelligence.house.gov/sites/intelligence.house.gov/files/documents/huawei-zte%20investigative%20report%20\(final\).pdf](https://republicans-intelligence.house.gov/sites/intelligence.house.gov/files/documents/huawei-zte%20investigative%20report%20(final).pdf)

<sup>11</sup> SCMP, "'Grave concerns': U.S. ex-military leaders warn that allies' use of Chinese 5G tech poses unacceptable risk", April 4, 2019, <https://www.scmp.com/print/news/world/united-states-canada/article/3004572/grave-concerns-us-ex-military-leaders-warn-allies>

<sup>12</sup> Louise Moon and Chad Bray, "Donald Trump's Huawei ban is a more severe threat to global economy than trade war tariffs, economist say", SCMP, May 24, 2019, <https://www.scmp.com/business/companies/article/3011676/trumps-huawei-ban-more-severe-threat-global-economy-trade-war>

consultancies and adopting a management style that is said to be strongly influenced by IBM.<sup>13</sup> This continuing deepening of Huawei's ties with the West facilitated its rise to the top, but it also increasingly exposed the company to the risks of becoming a political pawn.

## 4 EU disapproves of U.S. 5G pressures and is headed for more strategic autonomy

While the trade dispute between the U.S. and China has been going on since the U.S. first set tariffs on Chinese goods in January 2018, Huawei became involved only over the last ten months: In August 2018, the U.S. passed legislation that prohibited all executive agencies from buying products from Huawei or from companies that used Huawei equipment in their own products. In December 2018, the Chief Financial Officer of Huawei, Meng Wanzhou, who is also the daughter of founder Ren Zhengfei, was arrested in Canada on U.S. charges of bypassing sanctions against trade with Iran. In May 2019, the U.S. Department of Commerce added Huawei to a list of companies considered a threat to national security, which prompted companies like Intel and Google to stop selling and licensing technology to Huawei.<sup>14</sup> While most of these sanctions were passed on grounds of national security, the U.S. government also made comments indicating that Huawei could be included in some sort of trade deal.<sup>15</sup>

Going along with these measures, the U.S. also prompted its allies to block Huawei from participation in 5G networks. Although some of the U.S.' closest allies, including Japan and Australia, followed suit and banned Huawei from all bids related to 5G provision, most other countries are still weighting their decision or have already expressed their unwillingness to completely ban Huawei.<sup>16</sup> In fact, for most countries the U.S. demand to boycott Huawei puts them into the dilemma of not only potentially delaying their 5G roll-out for months or years, but also being reluctantly pushed to picking one side over the other.<sup>17</sup>

### **The European Union and its member states are carefully considering options**

The EU is in a particularly delicate situation: The Union can not make a decision for its member states, as the authority over national security lays with the countries themselves. Having to "pick a lane" between the U.S. and China, therefore, has the ominous potential to drive an even larger wedge between the member states. Either move, banning or accepting Huawei, would likely be viewed by both the U.S. and China as taking a political stance and could attract backlash. At the same time, it could lead to further alienation between the EU member states and therefore threaten the bloc's unity.

That is why, for now, it seems that most countries in the European Union are seeking a sort of compromise on Huawei, which on the one hand takes their countries best economic interests into account, and on the other hand is careful not to be perceived as outright rejection of either the U.S. or China. Because many European lawmakers think that the evidence of actual security risks posed by

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<sup>13</sup> Nathaniel Ahrens, "China's Competitiveness", *ibid*.

<sup>14</sup> Klint Finley, "HOW HUAWEI MIGHT HANDLE THE LATEST U.S. SANCTIONS", *Wired*, May 21, 2019, <https://www.wired.com/story/how-huawei-might-handle-latest-us-sanctions/>

<sup>15</sup> Zak Doffman, "Huawei: U.S. Admits It's All About Trade Talks As Europe Faces \$60 Billion Hit", *Forbes*, June 10, 2019, <https://www.forbes.com/sites/zakdoffman/2019/06/10/huawei-europe-faces-60-billion-hit-just-as-u-s-hints-its-all-about-trade-talks/#19b86626f0a3>

<sup>16</sup> Reality Check team, "Huawei: Which countries are blocking its 5G technology?", *BBC News*, May 18, 2019, <https://www.bbc.com/news/world-48309132>

<sup>17</sup> Matthew P. Goodman, "Picking a Lane", *CSIS*, October 23, 2018, <https://www.csis.org/analysis/picking-lane>

Huawei is weak, the question for them is therefore rather one of “how” to work with Huawei than “if” to work with them. They consider solutions that welcome Huawei’s involvement in providing 5G infrastructure while simultaneously strengthening the existing security frameworks through access to encryption keys and by preemptively vetting source codes.<sup>18</sup>

In the UK, for example, which is already troubled by domestic leadership fights and the unclear future regarding Brexit, good relationships to both the U.S. and China are seen as particularly important. On the one hand, the British Telecom already started to substitute Huawei technology in their existing 3G and 4G networks with other brands.<sup>19</sup> On the other hand, the UK is reportedly considering to only block Huawei from providing core parts of the 5G network, but still allow the provision of other, not so critical parts of the infrastructure.<sup>20</sup> The German position seems to be less ambivalent: In the first months of 2019, the German government sold 20 year licenses to use certain 5G frequencies at an auction to four mobile operators from Germany.<sup>21</sup> Already before the very latest U.S. sanctions, therefore, the question of whether to allow Huawei to the 5G contracts was widely discussed in Germany. As the economy is strongly dependent on its high-tech car and mechanical industry its lobby groups have been promoting the fast deployment of 5G networks for a number of years already, so that a ban of Huawei did not seem very likely from the beginning.<sup>22</sup> Other EU countries also seem to be searching for ways to mitigate security risks while still benefitting from Huawei’s products. France is currently discussing proposals that would enable the French government full access to supplier’s technology, including encryption keys and codes. Italy recently amended its legislation to allow the government to block contracts with non-EU telecommunications providers.<sup>23</sup>

Despite these nationally individual choices, the EU urges for coordination and harmonization on an European level. The EU member states are on course to submit their individual risk assessments to the European Commission by mid of July.<sup>24</sup> The European Commission now aims to develop, with the support of EU lobby groups and telecommunications providers, a set of risk-mitigating measures until the end of 2019 that could then be adopted by each Member state.<sup>25</sup> In the spirit of recent security discussions going on the EU, for example about setting up a shared European army, some scholars even propose a distinctively European solution to the Huawei case by excluding Chinese *and* American firms from participating in building its 5G network structure.<sup>26</sup>

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<sup>18</sup> Daniel Voelsen, “5G, Huawei und die Sicherheit unserer Kommunikationsnetze“, *ibid.*

<sup>19</sup> Daniel Voelsen, “5G, Huawei und die Sicherheit unserer Kommunikationsnetze“, *ibid.*

<sup>20</sup> Dan Sabbagh, “May to ban Huawei from providing 'core' parts of UK 5G network”, *The Guardian*, April 24, 2019, <https://www.theguardian.com/technology/2019/apr/24/may-to-ban-huawei-from-supplying-core-parts-of-uk-5g-network>

<sup>21</sup> Jo Harper, “Germany's 5G: The bidders — and what's involved”, *DW*, January 31, 2019, <https://www.dw.com/en/germanys-5g-the-bidders-and-whats-involved/a-47301598>

<sup>22</sup> SCMP, “Angela Merkel resists US pressure to ban Huawei as Germany launches 5G auction”, March 20, 2019, <https://www.scmp.com/news/world/europe/article/3002420/angela-merkel-resists-us-pressure-ban-huawei-germany-launches-5g>

<sup>23</sup> Gisela Grieger, “5G in the EU and Chinese telecoms suppliers”, *ERPS*, April 2019, [http://www.europarl.europa.eu/RegData/etudes/ATAG/2019/637912/EPRS\\_ATA\(2019\)637912\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/ATAG/2019/637912/EPRS_ATA(2019)637912_EN.pdf)

<sup>24</sup> Laurens Cerulus, “Trump’s Huawei ban spooks allies, industry”, May 17, 2019, <https://www.politico.eu/article/huawei-donald-trump-china-plan-to-isolate-irks-allies-spooks-business/>

<sup>25</sup> Laurens Cerulus, “7 takeaways on the EU’s Huawei plan”, *Politico*, March 26, 2019, <https://www.politico.eu/article/europe-huawei-7-takeaways-on-plan/>

<sup>26</sup> Daniel Voelsen, “5G, Huawei und die Sicherheit unserer Kommunikationsnetze“, *ibid.*

## 5 China should encourage the EU to find a unified response, but avoid to increase polarization

The general political climate in the EU seems to be slightly favored towards allowing Huawei to participate in the 5G network building, mostly because the economic benefits of continuing cooperation outweigh the doubts of actual Chinese government meddling in the European cyber infrastructure. The dilemma for the EU, however, is twofold: First, continuation of Huawei's involvement in providing the EU's critical infrastructure might be seen by the U.S. as a political turn away from its traditional allies towards China as the new hegemon.

Second, since the EU is not in charge of the final decisions of how to work with Huawei, its member states could adopt different solutions and pick different sides in the conflict, further destabilizing the Union.

For these reasons, the Chinese response to the Huawei case in the EU should be to encourage the EU in finding a unified response, while avoiding to increase polarization on this issue. Specifically, this means to understand the EU's political dilemma as it is inadvertently caught in the US-China trade war where it does not want to choose sides. A welcome response would most likely be openness towards the EU's determination to mitigate national security risks and restraint from communication that could be perceived as increasing political pressure.

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