

DGAP POLICY BRIEF

Berlin's Preliminary 5G Decision

Limiting Damage and Learning Lessons



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Despite the security concerns of the US, EU, and Australia, Germany plans not to exclude any telecom equipment vendors, including Chinese companies such as Huawei, from its 5G network. This stance reflects a narrow view of the issue that prioritizes short-term economic interests and fails to uphold national security and democratic values. Widespread criticism, including from within the government, shows that political decision-makers in Germany need a more sophisticated, forward-looking approach to 5G.

- Germany should exclude Huawei and other Chinese tech companies from its 5G networks on national security and technological sovereignty grounds.
- With the support of think tanks and government units, Germany must quickly implement geopolitically-minded assessments of emerging technologies. The Bundestag and civil society should also be involved in deciding issues of technology sovereignty.
- Europe should consider issuing credit to its leading companies, such as Nokia and Ericsson, to enable them to compete with state-subsidized Chinese companies – possibly with transatlantic support.
- Germany and the EU should already work to gain first mover advantage in the rollout of the next generation of mobile networks, 6G.

In mid-October 2019, the Federal Chancellery effectively decided not to ban Huawei or any other vendor from Germany's 5G network. This preliminary decision has sparked the fiercest debate yet on how Germany should handle not only China's 5G technology, but also – the debate's true target – China's increasing global power in the technology sector. Despite serious trust and espionage concerns surrounding Chinese technology firms, which are obliged by China's National Intelligence Law of 2017 to "support, assist, and co-operate in national intelligence work" and to "guard the secrecy" of such work, the government says they should not be excluded from future networks, including critical national infrastructure.

On October 15, 2019, these two technical agencies released a second, more complete draft of the security catalog on behalf of the German government. It included details on technology certification procedures and expressed the view that telecommunications firms should take a "multi-vendor approach" to 5G by using a mix of equipment from different suppliers. This second draft waters down the already weak trust requirements of the first. Whereas suppliers formerly had to be judged trustworthy per se, companies would now be able to issue their own trustworthiness declarations with no further explanation. The draft is currently undergoing a consultative process by companies, as well as business and industry associations, but the government is understood to want to move fast on finalizing its plans.

The push against Huawei goes beyond considerations of cyber security

The controversy began in March 2019, when the government of Chancellor Angela Merkel – including the Federal Network Agency (Bundesnetzagentur, BNetzA) – issued a draft of a so-called 5G "security catalog." This draft signaled that Germany did not plan to categorically exclude any vendor from providing critical network components for its fifth-generation cellular network technology. The Federal Office for Information Security (Bundesamt für Sicherheit in der Informationstechnik, BSI) and the BNetzA were then tasked with further evaluating risks associated with 5G suppliers.

In essence, the German government has given the BSI and BNetzA, two technical agencies, decision-making power over a complex, multilayered issue that is not merely technical. The German approach reflects China's own view. In the original Chinese version of a speech given in late October at the sixth World Internet Conference in Wuzhen, Wang Lei, coordinator for cyber affairs at China's Ministry of Foreign Affairs, warned Western countries against what he called "politicizing simple technical issues."¹ In the English version published by China's Foreign Ministry, Wang criticized the inclusion of non-technical criteria in 5G decisions as "a flagrant move to politicize a technology issue."²

Thus, in Germany, 5G – one of the biggest economic and political issues of our time – is so far being handled by administrative regulation. Its parliament, the Bundestag, was not involved.

¹ Chinese text of speech by Wang Lei, coordinator for cyber affairs, at the sixth World Internet Conference: https://www.fmprc.gov.cn/web/wjb_673085/zzjg_673183/jks_674633/fywj_674643/t1710345.shtml (accessed October 30, 2019).

² English text of speech by Wang Lei, coordinator for cyber affairs, at the sixth World Internet Conference: https://www.fmprc.gov.cn/mfa_eng/wjb_663304/zzjg_663340/jks_665232/kfywj_665252/t1710346.shtml (accessed October 30, 2019).

Around the world, however, Germany's democratic friends and allies, including Japan, Australia, and the US, have moved to bar Chinese technology companies from taking part in their 5G networks, precisely because they see it as more than a "technology issue."

CRITICISM AND ALTERNATE SUGGESTIONS

This situation has triggered significant domestic and international criticism, as well as suggestions for how to better handle decisions involving technology sovereignty. Critique has also come from several members of the Bundestag, including from within the ruling coalition. Most notably, Norbert Röttgen, a lawmaker from the Christian Democratic Union (CDU) and chairperson of the Bundestag's Foreign Affairs Committee said, "a question of such strategic importance should not be decided at the administrative level."³ His party colleague Christoph Bernstiel, spokesperson for cyber policy and IT, joined Röttgen and four other CDU members in warning publicly that, because Chinese technology firms are obligated to cooperate with the Chinese Communist Party, including them threatens Germany and Europe's national and technological sovereignty.⁴

In a hearing of the parliamentary control committee of the Bundestag (Parlamentarische Kontrollgremium, PKGr) at the end of October, Bruno Kahl, the head of Germany's foreign intelligence service (Bundesnachrichtendienst, BND), warned lawmakers against integrating Huawei into the country's 5G

network, saying the tech giant "cannot be trusted fully" due its opaque entanglements with the Chinese state and Communist Party apparatus.⁵

Internationally, the administration of US President Donald Trump reacted by repeating that Huawei is not a trusted vendor. Robert L. Strayer, the State Department's deputy assistant secretary for cyber and international communications, called for a re-evaluation of security and intelligence

A question of such strategic importance should not be decided at the administrative level

relationships with Germany, its traditional ally. Strayer stated that security tests and source code disclosure were not enough, but that "an inherent trust relationship" with suppliers was a prerequisite.⁶ The US Federal Communications Commission (FCC) has announced plans for a vote in November 2019 on whether to designate Huawei and another Chinese company, ZTE, as national security risks. Such a vote would exclude US companies that purchase equipment or services from those companies from an annual \$8.5 billion federal fund. The US push against Huawei is also driven by considerations that go beyond the risk of espionage and cyber-attacks, indicating how multifaceted the

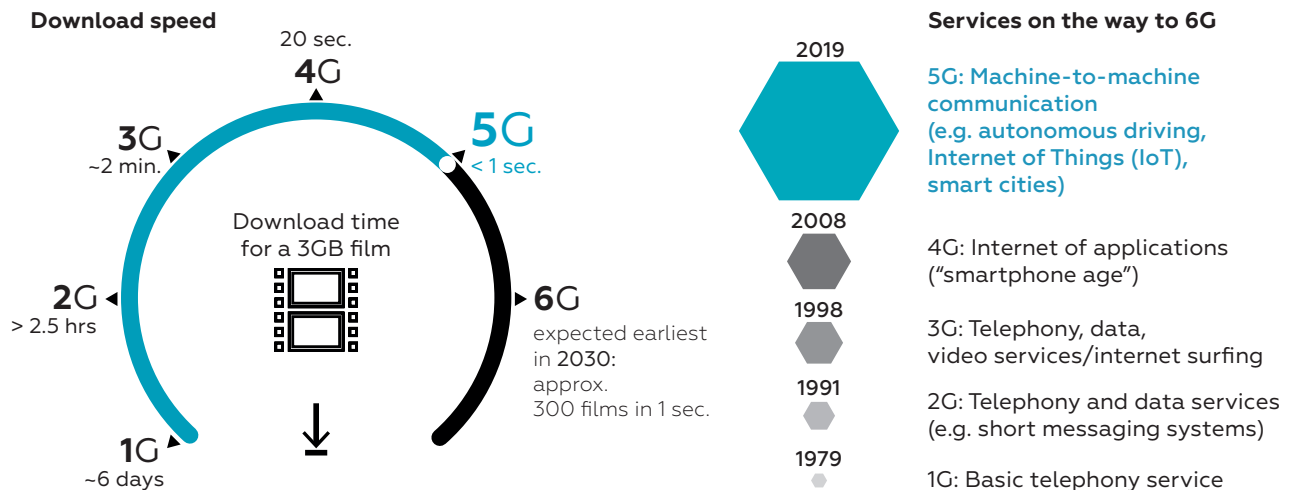
3 Zak Doffman, "Trump's Huawei Ban Rejected by New Ruling in Germany," *Forbes*, October 15, 2019, <https://www.forbes.com/sites/zakdoffman/2019/10/15/trumps-huawei-ban-rejected-by-surprise-new-report/> (accessed October 19, 2019).

4 Röttgen, Norbert et al, "Causa Huawei: Unionspolitiker stellen sich gegen Kanzlerin Angela Merkel," *Handelsblatt*, October 22, 2019, <https://www.handelsblatt.com/meinung/gastbeitraege/gastkommentar-zum-5g-ausbau-causa-huawei-unionspolitiker-stellen-sich-gegen-kanzlerin-angela-merkel/25137724.html?ticket=ST-44508012-uasgVW1q3KXbbvRfLQ4a-ap3> (accessed October 24, 2019).

5 Buck, Tobias, "Germany Spy Chief Warns Against 5G Role for Huawei," *Financial Times*, October 30, 2019, <https://www.ft.com/content/f97731da-fa6f-11e9-a354-36acbbb0d9b6> (accessed October 30, 2019).

6 Sara Germano and Bojan Pancevski, "Germany Won't Ban Huawei from 5G Network," *The Wall Street Journal*, October 15, 2019, <https://www.wsj.com/articles/germany-wont-ban-huawei-from-5g-network-11571159339> (accessed October 19, 2019).

Figure 1: Generations of cellular mobile communications and how they have enabled and will enable services on a large scale



Note: For 1G and 2G these download speeds are only theoretical. 1G was an analog system and 2G was only partly connected to the internet.

Source: Sean Culligan/OZY, <https://www.ozy.com/fast-forward/trump-is-right-forget-about-5g-6g-is-already-coming/95019/> (accessed 17.11.2019).

issue is. These include political values, economic competitiveness, first-mover-advantage vis-à-vis China, and the setting of technological standards.

The criticism is bearing fruit in Germany. Some lawmakers, such as Röttgen, have suggested amending existing telecommunications and IT-security laws to allow the legislature to participate in the decision and to create mechanisms to assess 5G vendors. Though the exact plan is not yet clear, such amendments could expand the legislative power of the Bundestag and allow political criteria to be included as additional benchmarks for decisions related to 5G.

Such initiatives by the German parliament might not be needed, however. According to a report by the *Handelsblatt* newspaper that followed high-level consultations between Foreign Minister Heiko Mass and Interior Minister Horst Seehofer, the Ministry of the Interior is planning its own initiative to

revise laws in order to include political assessments of 5G.⁷ It remains to be seen whether the initiative will succeed; the government is currently stalemated. While the Foreign Office, Ministry of the Interior, and intelligence services all emphasize the risks of Huawei, the Federal Chancellery and Ministry for Economic Affairs are against a ban.⁸

A MULTIDIMENSIONAL DECISION

The call to look at more than technical issues in deciding this issue is justified. Because 5G components will drive critical national infrastructure, the identity and political environment of suppliers must be considered. Other major democratic powers have already applied additional criteria to suppliers, including the degree of independence and transparency of the company, the laws and strategic objectives of its country of origin, and how the supplier will enhance or restrict its own ca-

capacity to act. Currently, such concerns have led Huawei to be banned not only in the US, but also in Japan, Australia, and New Zealand.

Tellingly, the European Commission and the European Agency for Cybersecurity (ENISA) issued a report in early October 2019 on the potential risks of 5G networks. The report was based on national risk assessments by the EU's 28 member states and issues the following warnings:

- State (or state-led) actors can pose a security threat to 5G networks throughout Europe.
- "The increased role of software and services provided by third-party suppliers in 5G networks leads to a greater exposure to a number of vulnerabilities."⁹
- In addition to technical vulnerabilities, such as the insertion of intentional backdoors into 5G network components, non-technical risk factors are important and include a

7 Heide, Dana et al, "5G-Ausbau: Bundesregierung wendet sich nun doch gegen Huawei," *Handelsblatt*, October 29, 2019, <https://www.handelsblatt.com/politik/deutschland/5g-ausbau-bundesregierung-wendet-sich-nun-doch-gegen-huawei/25165694.html> (accessed October 30, 2019).

8 Ibid.

9 NIS Cooperation Group, "EU Coordinated Risk Assessment of the Cybersecurity of 5G Networks," October 9, 2019, p. 22, <https://ec.europa.eu/digital-single-market/en/news/eu-wide-coordinated-risk-assessment-5g-networks-security> (accessed October 19, 2019).

“strong link between the supplier and government of a given third country,” “the third country’s legislation,” and “the characteristics of the supplier’s corporate ownership.”¹⁰

Pointedly, the report says that Huawei and European vendors Ericsson and Nokia, though all market leaders, differ in terms of corporate governance and level of transparency – a clear reference to the Chinese tech giant and its internal structure and links.¹¹

The current stance of the German government on 5G is strongly influenced by Germany’s perceived economic dependence on China, as well as by German telcos, which have reportedly already ordered 5G parts from Huawei.

eighty issues. Given the ever-changing nature of technology, which is growing more complex and moving into more and more areas of life, judgements are required that foster political security – and support a democratic way of life.

TOUGH TRADE-OFFS

The differing positions on 5G within Germany are a sign of conflicting objectives. The most striking dilemma is the trade-off between security versus economy. While Huawei is at the forefront of 5G commercialization and offers its products at low prices, espionage concerns cannot simply be dismissed. Hacker groups linked to the Chinese state have conducted large-

al security as economic and cultural security, and “the relative absence of international or domestic threats.”¹² The Counter-Espionage Law of 2014, updated in 2017, enables the punishment of Chinese and foreigners who are seen as challenging the power of the Chinese Communist Party or the “socialist system.”¹³ Taken together, these laws suggest close collaboration between China’s economy, national security, and intelligence services, despite any “no-spy” agreements or “trustworthiness” declarations China might issue.¹⁴ More broadly, the Communist Party stands above everything in China. As Article 1 of China’s Constitution states: “The leadership of the Communist Party of China is the defining feature of socialism with Chinese characteristics.”

A second conflict of objectives is **short-term economic profit versus long-term competitiveness and innovation**. Whereas 4G was primarily introduced to facilitate rapid and uninterrupted phone communication for the onset of the “smartphone age,” 5G facilitates large-scale machine-to-machine communication. Therefore, 5G is a crucial enabler of other technological innovation such as the Internet-of-Things (IoT), autonomous vehicles, and so-called smart cities.¹⁵ In other words, 5G is not only about faster download rates, but it also creates the foundation for the fourth industrial revolution. Because it is qualitatively different, it demands a qualitatively different decision matrix. Giving Huawei a competitive edge in the roll-out of Germany’s 5G network also means giving China the first mover advantage on innovations that

The most striking dilemma is the trade-off between security versus economy

Moreover, traditional arguments for free competition would be undermined by excluding any one company. Huawei technology is also relatively cheap because overall costs in China are lower than in Europe and because of Chinese government subsidies. Yet these arguments, powerful as they are, are not enough. Decisions of such strategic importance require a more complex decision-making matrix that should include national security and sover-

scale industrial espionage in Europe. A state-linked group, “Winnti,” reportedly attacked major German companies including BASF, Siemens, and Henkel, as well as state agencies. Given the legal framework in China, concern that Huawei might collaborate with the Chinese state in espionage activities via 5G networks is justified. In addition to the National Intelligence Law of 2017 mentioned above, China’s National Security Law of 2015 defines nation-

¹⁰ Ibid.

¹¹ In 2007, Huawei reportedly had 300 Communist Party groups operating within it. The figure for today is not known, but the company has grown significantly since then. See: Australian Strategic Policy Institute (ASPI), “Mapping China’s Tech Giants, Huawei,” <https://chinatmap.aspi.org.au/#/company/huawei> (accessed October 19, 2019).

¹² Covington, “China Enacts New National Security Law,” July 2, 2015, p. 1, https://www.cov.com/-/media/files/corporate/publications/2015/06/china_passes_new_national_security_law.pdf (accessed October 19, 2019).

¹³ Brown University, “National Intelligence Law of the People’s Republic,” February 26, 2019, http://cs.brown.edu/courses/csci1800/sources/2017_PRC_NationalIntelligenceLaw.pdf (accessed October 19, 2019).

¹⁴ Government of Canada, “China’s Intelligence Law and the Country’s Future Intelligence Competitions,” <https://www.canada.ca/en/security-intelligence-service/corporate/publications/china-and-the-age-of-strategic-rivalry/chinas-intelligence-law-and-the-countrys-future-intelligence-competitions.html> (accessed October 19, 2019).

¹⁵ Jan-Peter Kleinhans, “5G vs. National Security,” Stiftung Neue Verantwortung, February 12, 2019, p. 3, <https://www.stiftung-nv.de/de/publikation/5g-vs-national-security> (accessed October 19, 2019).

will have a major impact on economic competitiveness everywhere.

A third conflict results from the intersection of **political and social values with data protection**. China's half a dozen recent security laws – including those mentioned above and the Cybersecurity Law of 2017, which essentially enables the state to access all data, including that of companies and individuals, and directs it to keep it in China – raise questions about how personal digital rights can be protected at home and abroad.¹⁶ It is hard to see how this situation fits with personal liberties and protections enshrined in the German constitution.

Last but not least, the 5G decision affects Berlin's relationship with Washington and, consequently, where Germany stands in **the emerging great power contest between the US and China**, which is increasingly being waged through emerging technologies such as artificial intelligence, quantum computing, and 5G. US officials – Republicans and Democrats alike – have said they would consider cutting off

ties. In the interest of building international trust, the German government should reexamine its current decision in light of potentially serious economic, security, and socio-political outcomes for the country.

RECOMMENDATIONS

The following recommendations serve as guidelines for how Germany should deal with technology decisions that involve national sovereignty issues. As technology becomes more and more dominant in our lives, these will only occur more and more often.

Begin geopolitically-minded technology assessments: Technology decisions cannot be viewed in isolation and will automatically impact multiple areas, including economic competitiveness, national security, relations with allied and third countries, political values, and privacy issues. Therefore, the German government and ministries must quickly implement geopolitically-sensitive technology assessments in order to better weigh and antici-

Future Analysis Section at the Bundeswehr Planning Office, or the Office of Technology Assessment at the German Bundestag (TAB).

Involve the Bundestag and civil society in issues of technology sovereignty: The current situation should be a wake-up call that Germany needs a broader, better-informed debate on 5G and technological sovereignty issues in general. The Bundestag should act as a corrective, as well as a platform for debate, and bring them to the attention of the general public. 5G is a crucial test for how involved the Bundestag could be in this area. Civil society, including think tanks, should work to raise awareness of the significance of 5G and other tech-related decisions for the economy, the new global order currently taking shape, and democracy. Here, the role of Western tech companies should also be examined.

Support Huawei's competitors: The US government has suggested issuing credit to companies such as Nokia and Ericsson to enable them to match the generous financing that Huawei offers its customers thanks to the subsidies it gets from the Chinese state.¹⁷ Arguably, Europe too should fund its leading companies. Especially considering the long-term significance of 5G (and even 6G, see below) for national and transatlantic security, this should be discussed within the context of the transatlantic alliance. Because Europe has a relatively strong hand when it comes to global telecom technology,¹⁸ it would be a significant fail not to use and boost EU-based companies. All is not yet lost; Huawei's competitors have begun to acquire new contracts for 5G projects, and industry experts believe that "5G non-standalone systems will operate alongside 4G LTE

Germany needs a better-informed debate on technological sovereignty

intelligence-sharing with Germany if it uses Huawei components to build its 5G networks. A German decision to include Huawei would further cool, perhaps even deeply chill, transatlantic

decisions that impact technological sovereignty. This task could be assumed by think tanks and government units such as the Policy Planning Staff of the Federal Foreign Office, the

¹⁶ Lawinfochina.com, "Cybersecurity Law of the People's Republic of China," <http://www.lawinfochina.com/display.aspx?id=22826&lib=law> (accessed October 20, 2019).

¹⁷ Kiran Stacey, "US Pushes to Fund Western Rivals to Huawei," Financial Times, October 8, 2019, <https://www.ft.com/content/94795848-e6e3-11e9-b112-9624ec9edc59> (accessed October 19, 2019).

¹⁸ European Political Strategy Centre, "Rethinking Strategic Autonomy in the Digital Age," July 18, 2019, p. 10, https://ec.europa.eu/epsc/publications/strategic-notes/rethinking-strategic-autonomy-digital-age_en (accessed October 19, 2019).

networks for as many as 15 years while true 5G ecosystems mature,¹⁹ giving European companies time and room to maneuver.

Lay the groundwork for 6G: A key aspect of Huawei's success in 5G technology to date lies in how it anticipated the future. Having largely failed to anticipate components supply and standard-setting issues in 3G and 4G, Beijing set the stage to grab an early competitive edge in 5G. For example, in 2013, the Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC), and the Ministry of Science and Technology (MOST)

begun. However, Huawei is believed to have begun researching 6G at its laboratory in Canada.²² Other tech companies, such as the two South Korean powerhouses Samsung and LG, have opened research centers dedicated to 6G development in cooperation with universities.²³ European telecommunication frontrunners Ericsson and Nokia have also begun research activities in 6G, for example by cooperating with the South Korean telecom operator SK Telecom. With 6G, "[r]esearchers are eyeing breakthroughs in areas like material research, chip design, and power consumption."²⁴ Crucially important here, however, is that if Huawei should indeed become em-

gence. When it assumes the presidency of the European Council in the second half of 2020, Germany should be proactive by putting 6G on the agenda and raising awareness of early, standard-setting processes in 6G technology – after having excluded Huawei and other Chinese tech companies from 5G on national security and technological sovereignty grounds. Germany and the EU should collaborate with other countries with similar values, forming a technological coalition of the like-minded. The goals are ambitious, as they should be, because they will shape Europe's future. And Europe needs – and its people deserve – an ambitious and confident future.

Germany and the EU should work to obtain first mover advantage in the rollout of 6G

established the IMT-2020 5G Promotion Group to push an all-government all-industry alliance on 5G.²⁰ Huawei itself started its 5G development back in 2009.²¹

In order to be better positioned next time, Germany and the EU should work to obtain first mover advantage in the upcoming rollout of the sixth-generation of mobile networks, 6G. One could argue that focusing on 6G – its introduction is expected at the earliest in 2030 – is premature, especially since the 5G rollout has just

bedded in Germany's 5G networks, the company will almost certainly be carried forward into 6G. Looking ahead to the next generation thus cannot be the only answer to the current challenge; the trust deficit problem presented by Chinese-built networks is an issue that must be part of future planning and assessment.

The incoming **European Commission** should fund initiatives and support trusted digital hubs, as the current Commission has already done with the development of artificial intelli-

19 Esla B. Kania and Lindsey R. Sheppard, "Why Huawei Isn't So Scary," *Foreign Policy*, October 12, 2019, <https://foreignpolicy.com/2019/10/12/huawei-china-5g-race-technology/> (accessed October 19, 2019).

20 Paul Triolo and Kevin Allison, "Eurasia Group White Paper: The Geopolitics of 5G," Eurasia Group (November 15, 2018), p. 12, <https://www.eurasiagroup.net/live-post/the-geopolitics-of-5g> (accessed October 19, 2019).

21 Huawei, "An Overview of Huawei 5G: The Battle over 5G Commercial Devices is Coming," February 25, 2019, <https://consumer.huawei.com/en/press/media-coverage/2019/an-overview-of-huawei-5g/> (accessed October 19, 2019).

22 Rob Thubron, "Huawei Starts 6G Research at its Canada Lab," *Techspot*, August 15, 2019, <https://www.techspot.com/news/81457-huawei-starts-6g-research-canada-lab.html> (accessed October 19, 2019).

23 Ibid.

24 Martijn Rasser, "Setting the Stage for US Leadership in 6G," *Lawfare*, August 13, 2019, <https://www.lawfareblog.com/setting-stage-us-leadership-6g> (accessed October 19, 2019).



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