

Assessing the implications of China's digital power for the EU

Joint workshop of Digital Power China (DPC) and the China in Europe Research Network's (CHERN) Working Group 2 "high technology and innovation"

Brussels 21-22 September 2021

Two-page summary

Workshop format

In seven paper presentations and three round tables the workshop discussed China's growing footprint in digital technologies and its implications for EU policymaking. All papers are co-authored by pairs of European technology experts and China scholars; EU officials served as paper discussants. An introductory panel broadly discussing how to understand China's technology policy was followed by papers on semiconductors, digital information campaigns, wireless networks, digital connectivity in the Indo-Pacific/Eur-Africa as well as Artificial Intelligence (AI) and the Internet of Things (IoT). The round tables situated the subject in the broader context of EU policymaking. The workshop aimed to facilitate the exchange of EU policymakers and European researchers as well as interdisciplinary exchange of technical and China experts with a focus on policy relevant research.

Main findings

The following summarises seven takeaways arising from the discussions across the panels and the round tables. Specific findings and policy recommendations will be published in an edited report.

1. **China's digital capabilities are rapidly rising, but the country is not dominant (yet).** In only a short period, the People's Republic of China (PRC) has developed into an innovation powerhouse that is quick in commercialising invention and central to global supply chains of key-enabling and foundational digital technologies. China is no longer the workbench of the world, but (out-)competing the EU in digital technologies. However, the PRC's remarkable achievements should not overshadow that – just like any other country – China does not dominate whole front (e.g., in technical standard setting) and continues to depend on foreign technologies (e.g., in semiconductors and AI). In many cases, the PRC communicates its achievements and aspirations better than the EU (e.g., "Digital Silk Road" is widely known in the Indo-Pacific region among others, many EU initiatives are not). This should not lead us to confuse ambitions with achievements; often, China's aspirations point to existing shortcomings and challenges. Not least China's advancing information campaigns are launched from a perceived position of vulnerability; they are not (yet) implemented as skilfully and successfully as Russia's.
2. **China's relevance for the EU's strategic approach lies in a four-dimensional "China challenge".** The EU needs to simultaneously perceive China's increasingly central role in global supply chains of digital technologies through the lens of cooperation, competition, and systemic rivalry. In virtually no policy can the EU neglect any of these three roles. Particularly, four dimensions need to be considered: an economic, a political, a security, and an ideational dimension. The competitiveness of PRC's digital tech industry (e.g., the AI industry) profits from preferential treatment ranging from (in-)direct subsidies to patenting and protectionism. Political gains stem, for example, from lock-in effects that are not least the result of the spread of Chinese technical standards to countries participating in the Belt and Road Initiative (BRI). Security implications go beyond technical vulnerabilities (see below) but include the risk of uneven strategic dependencies (e.g., due to China's "dual circulation" strategy). Ideationally, technology is not value-free. The difference in values between the PRC and the EU manifests not least in digital technology (e.g., in approaches to data governance and technical standards).
3. **China tackles primarily new cutting-edge tech and strategically important emerging niches.** Despite the PRC's achievements, China is still primarily targeting not traditional

strongholds of the EU and the US but truly new technologies and strategically important “niches” of existing foundational technologies. For example, while efficiency gains in semiconductor front-end is getting scarcer and acquisitions difficult given the existing geopolitical tensions China positions itself in advanced back-end. Falling short of the US’s and the EU’s AI research capabilities, the PRC successfully invests (and already outcompetes) Europe in advanced IoT innovation. Seldom China challenges existing technical standards but strives to be strong in the standardisation of new foundational and key-enabling digital technologies.

4. **Backdoors are an omnipresent risk in digital technologies.** In the discussion over the new generation of wireless technologies backdoors for the purpose of espionage and sabotage have loomed large. However, the risk is omnipresent in digital tech – from applications to software-defined infrastructure and even semiconductors. Considering the latter, vulnerabilities can be built in during the packaging process. This requires us to fundamentally rethink the trustworthiness of foundational technologies and vendors. In network architectures, for example, a “zero trust” approach” is worth being explored further.
5. **The EU is better positioned in research & development but lacks turning innovation into invention.** Whether we consider innovation in wireless network technology or Artificial Intelligence, the EU is well positioned in digital technology research. However, the commercialisation and fabrication of European innovation primarily materialises in North America and East Asia. For example, cutting-edge semiconductor development will depend on European RTOs in the foreseeable future while European semiconductor production is only strong in niches.
6. **Cooperation with China is necessary to facilitate innovation, but we also compete over talent.** Cutting research cooperation with the PRC is no realistic option for the EU. However, Europe is not only collaborating with Chinese actors but also competes over talents and the best education. Shortages of skilled engineers and experts is a crucial challenge shaping competition ranging from AI and IoT to wireless networks and technical standard setting. Apart from strengthening the EU’s position, Europe needs to consider implications for values, technological dependencies, and national security (e.g., China’s civil-military fusion).
7. **The EU needs to invest more in interdisciplinary, policy-oriented research that pairs European tech with China expertise.** Only a few years back, some western observers believed that China would be incapable of true innovation and that the internet would be virtually impossible to control. These are just two examples how long-held beliefs about China’s prospects turned out to be false. This is not least surprising because comprehensive information on both technological development and Chinese policy is available. The EU does not face a lack of information but a lack of knowledge. To tackle this gap requires more creative formats of research collaboration in Europe pairing technical and China expertise. This should help understanding the technical feasibility, the agenda and the actors (including Chinese industry and local governments) driving the PRC’s approach. Strikingly, the workshop papers illustrate that China’s authoritarian matters, but it is only one of several factors shaping the PRC’s policy.

About Digital Power China

Digital Power China (DPC) is a newly founded research consortium consisting of 24 researchers based in nine European countries analysing the implications of the PRC’s growing footprint in digital technologies for the EU. The consortium is structured in nine thematic clusters pairing technical and China experts. DPC’s work further strives to translate excellent academic research results into policy relevant suggestions from technical and China policy viewpoints to inform EU policymaking. For this workshop, DPC has collaborated with Working Group 2 “high technology & innovation” of the COST Action China in Europe Research Network (CHERN).

Contact: Dr Tim Rühlig, German Council on Foreign Relations, ruehlig@dgap.org