

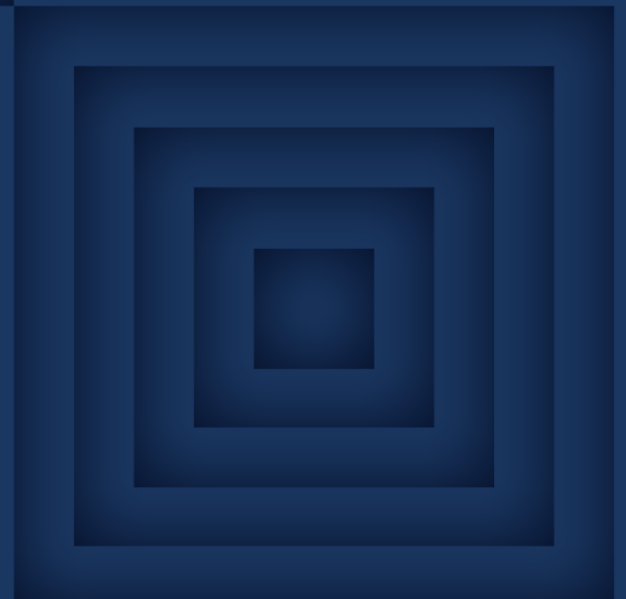
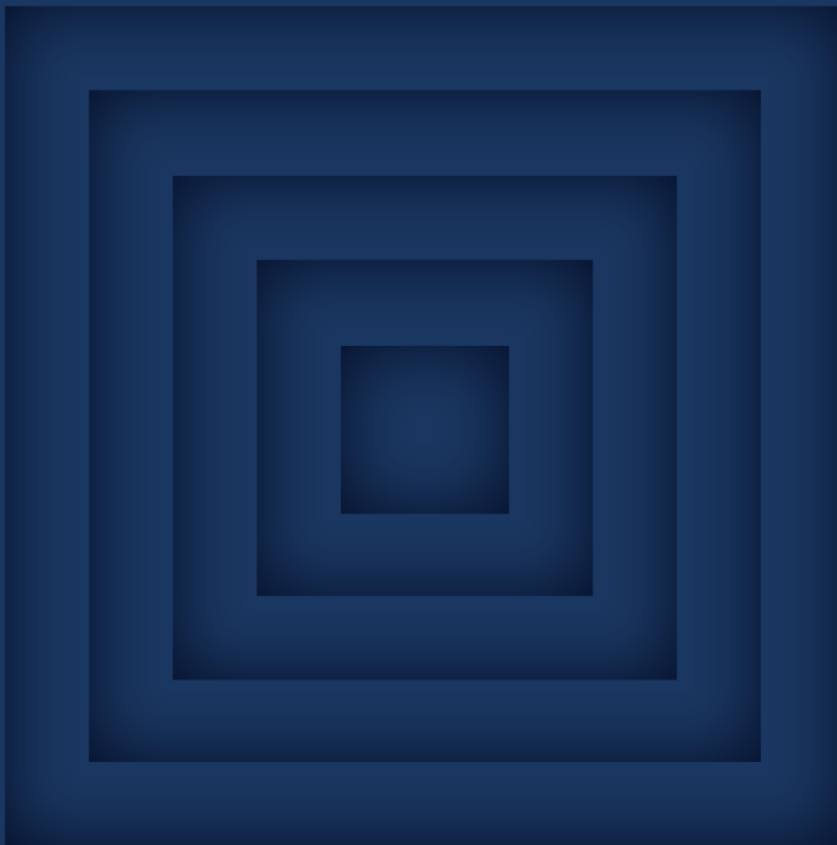


The Hague Centre  
for Strategic Studies

# From Lightning to USB-C

## Why the iPhone's Upcoming Port Change Signals a More Geopolitical EU

**Author: Hugo van Manen**  
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Apple's Worldwide Developer Conference (WWDC) is scheduled for June 7-11. The company is expected to unveil a redesigned MacBook Air featuring a new (ARM-based) Apple Silicon Chip, as well as software updates for its Watch, iPhone, iPad, and Mac product lines. Not expected at WWDC – but widely reported on by noted Apple analysts Min Chi Kuo and Mark Gurman – is an announcement that Apple will switch the iPhone's charging port from Lightning to USB-C as of 2023.



Figure 1. USB-C charging cable (top) alongside Lightning charging cable (bottom).

It would mark a momentous change for the iPhone, which last received a change to its charging port when Apple switched from a 30-pin connector to the Lightning standard in 2012. Almost a decade later, Lightning has – by and large – fallen behind the USB-C standard in terms of its technical capabilities. Modern iterations of the USB-C standard support higher charging speeds, significantly higher data transfer speeds, and – importantly – an ecosystem of peripheral devices.

The technical benefits of the USB-C standard are likely not *the* driving factor behind Apple's decision to switch the iPhone away from Lightning. The majority of the company's other devices – the iPad, the Mac, and virtually all its power delivery cables included – have used the USB-C standard (which the company helped to co-develop) for years. Apple has long resisted calls for the iPhone to make the switch, arguing that a change would be disorienting and frustrating for consumers. In reality, its commitment to Lightning is likely to be more financially motivated than anything else. The

standard makes use of near field communication (NFC) technology to allow Apple to distinguish between licensed and unlicensed cables. This allows the company to sell Apple-branded “dongles” at a significant markup (Apple's Lightning to 3.5mm headphone jack is sold for €9). It also allows Apple to act as a gatekeeper. Third party accessory manufacturers – such as Anker and Belkin – are required to procure NFC chips from Apple in order to bring iPhone-compatible Lightning cables to market, something which results in Apple making a profit on every Lightning-compatible iPhone accessory sold. A switch away from USB-C will undermine the business model Apple has built around the Lightning since its introduction in 2012. As older iPhones are phased out, this will deprive the company of a lucrative revenue stream.

Given the revenues the company is likely to lose as a result of switching the iPhone away from Lightning, a more likely explanation for Apple's change in policy is the EU's revised Radio Equipment Directive. Having received 43 votes in favor (versus two against) in the European Parliament's (EP's) Internal Market and Consumer Protection Committee on April 20, 2022, the Directive – which would (among other things) mandate all portable electronic devices to make use of the USB-C standard – is set to be transposed into law in the near-medium term. Touted as measure which will reduce electronic waste (e-waste) and reduce frustration among consumers, the Directive can also be viewed through the lens of the European Union's (EU's) increasingly frequent pursuit of antitrust-related



Figure 2. Near-field communication (NFC) technology is used in contactless payment systems.

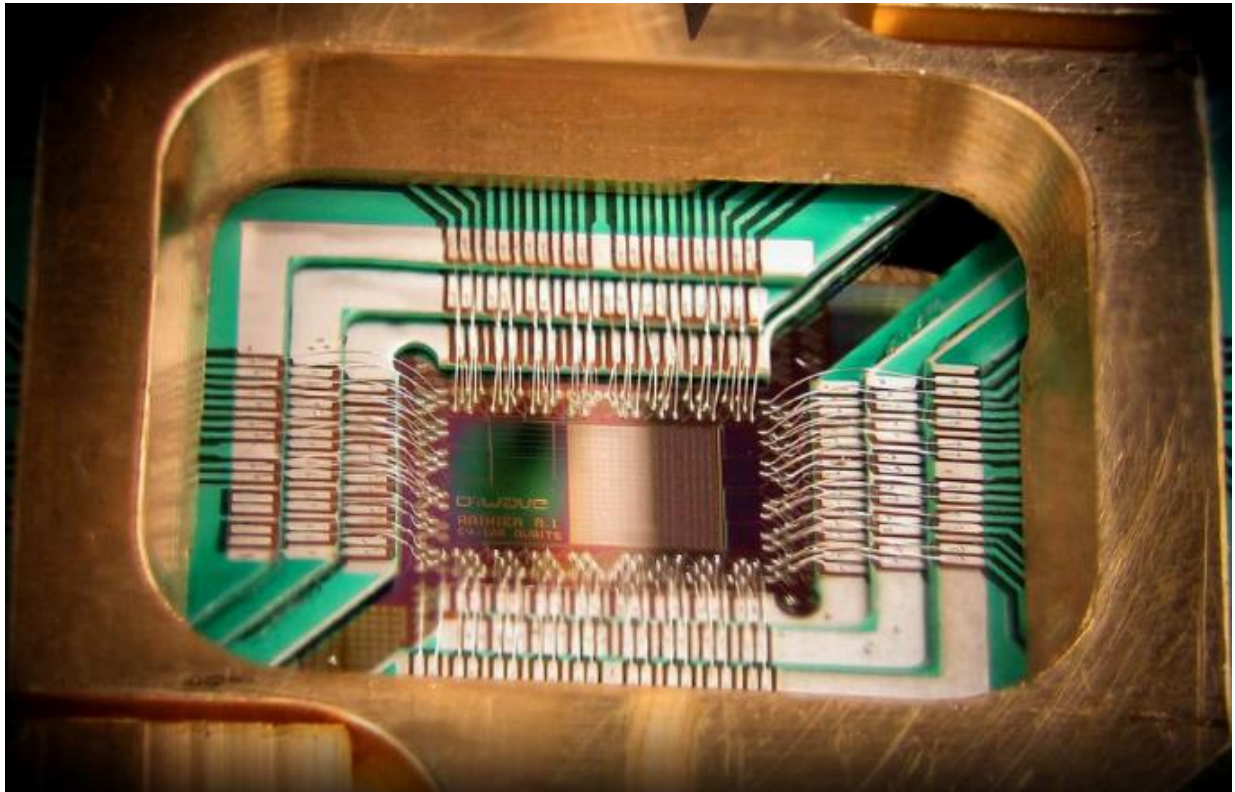


Figure 3. Chip designed to operate as a 128-qubit superconducting adiabatic quantum optimization processor. Source: D-Wave Systems, Inc.

measures to erode the influence of large American technology companies. Margrethe Vestager, the EU's Commissioner for Competition, has spearheaded several high-profile cases in this area in recent years; from probes into Google and Meta (formerly Facebook) colluding to increase the cost of online advertising, to cases brought against Apple and Amazon for prioritizing their own products over 3<sup>rd</sup> party alternatives on their respective stores.

The Internal Market and Consumer Protection Committee's revamped Radio Equipment Directive can be viewed through a similar lens because it is (at least covertly) geared towards doing away with Apple's monopoly over (and control of) iPhone chargers and peripherals. It's a move that – though not overtly geared towards reducing the company's influence in Europe – is almost certainly intended to create breathing room for EU competitors. In this regard, the Radio Equipment Directive, and the EU's various antitrust initiatives more generally, speak to the EU's reliance on antitrust as a vector for combating techno-nationalism.

Techno-nationalism refers to a trend in which, in recent years, the Netherlands and other European countries have been increasingly confronted with attempts by the US and China to force or prevent the transfer of sensitive technologies and to reduce the competitiveness of the EU's (nascent) tech industry. The geopoliticization of cutting-edge technologies (AI, quantum computing, etc.) is emblematic of a far wider and more worrying trend at the global level. Awareness of the economic, military, and strategic relevance of access to and control over the distribution of modern technologies is growing. States treat access to sensitive technologies as a zero-sum game and pursue policies to expand national control and international influence through sensitive technologies. These technologies are extremely costly, time and human capital-intensive to develop. The technological know-how necessary to pioneer breakthroughs, engineer and realize real-world applications takes years to cultivate.

States leverage a variety of tools to expand their access and control over sensitive technologies and to undermine the competitiveness of allies and adversaries alike. Policy instruments include but are not limited to; traditional mercantilist

practices such as import and export controls, the subsidization of national champions, espionage, laws designed to force foreign companies to transfer core technologies, initiatives to revise international technical standards, and even global infrastructure development strategies.

The practice has, in Europe, contributed to an intensification of discussions surrounding the need for a European strategic autonomy. European strategic autonomy has grown to encapsulate not only the need for European autonomy in military operations, but, more generally, the notion that the EU and its Member States ought to be able to make decisions without being constrained by their relationships with external actors. EU officials have made repeated reference to the importance of safeguarding the bloc's "digital" and "technological" sovereignty, highlighting their recognition of science, technology, trade, data, and investments as emerging sources of influence in international politics. The sentiment has resulted in the introduction of a bevy of new pieces of legislation. The Digital Services Act (DSA), the Digital Markets Act (DMA), the Cybersecurity Strategy, and the General Data Protection Regulation (GDPR) are all geared towards protecting EU consumers. They also all, whether by design or as a knock-on effect, serve to the monopolistic market power of US and Chinese tech giants, incentivizing the emergence and growth of EU-based competitors.

The EU's clampdown on Apple's Lightning connector combats techno-nationalism by – at least theoretically – increasing the space for EU competitors to operate in. In the long term, this may contribute to facilitating the cutting-edge research that would allow EU industries to maintain some level of independence from Chinese and American suppliers.