Techno-Politics Series: 1

Decoding EU Digital Strategic Autonomy

Sectors, Issues, and Partners

Edited by
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Reconciling Digital Strategic Autonomy with Transatlantic Partnership: A US–EU Agenda

Daniel S. Hamilton

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ABSTRACT

Renewed EU–US solidarity in the face of Russia's war in Ukraine and multi-dimensional challenges posed by China is shifting EU debates over 'strategic autonomy' to discussion of European 'strategic responsibility.' This is most noticeable in the areas of defense and energy, but it is also affecting EU notions of 'digital strategic autonomy.' US–EU commercial disputes continue, but now in the context of transatlantic unity rather than division, amidst growing recognition that the transatlantic economy is the geo-economic base for both sides of the North Atlantic in an age of disruption. This mixture of competition within a frame of deeply integrated cooperation plays itself out across different sectors of the digital economy. Four sectors merit particular attention: ICT and cloud services; semiconductors; artificial intelligence; and clean technologies.

THE AUTHOR

Daniel S. Hamilton is Austrian Marshall Plan Foundation Professor and formerly Executive Director of the Center for Transatlantic Relations Johns Hopkins University, SAIS. He has also directed the Global Europe Program at the Woodrow Wilson International Center for Scholars and has served as a senior US diplomat.

THE AUTONOMY MUDDLE

The term 'digital strategic autonomy', now popular in some European circles, is derivative of an earlier discourse within the French strategic community, which came up with the phrase 'strategic autonomy' to describe France's ambition to boost its military capabilities and reduce its dependencies so that it could act alone if necessary to protect French interests, beginning with crisis management operations in Africa and along Europe's southern periphery.

About five years ago, France's national debate was elevated to the EU stage as concerns in Europe mounted about the United States' reliability as an ally under Donald Trump, China's rising technological and norm-setting challenges, and signs that the EU could be trampled as the American and Chinese elephants collided. Debate was further energised by signs of faltering European technological prowess, and especially by the COVID-19 pandemic, which exposed European dependencies across a number of health-related sectors.

The term has now assumed a far more expansive meaning. European concerns have spawned a raft of related phrases, such as 'economic sovereignty', 'health sovereignty', 'technological sovereignty', 'data sovereignty', 'cybersecurity sovereignty', 'digital sovereignty', and now 'digital strategic autonomy'. The result, as one European observer noted, is a 'muddle of words' (Libek, 2019). EU member states muddy things further by interpreting these assorted phrases very differently according to their diverse strategic cultures, threat perceptions, and calculations of self-interest.

Taken together, however, this jumble conveys a shared and deeply felt anxiety among many Europeans that their grand experiment of integration is being imperilled by internal weaknesses and external forces. In all its forms, the autonomy

narrative has been used to generate EU-wide consensus behind ambitious and often costly initiatives to bolster the bloc's technological, industrial, and norm-setting capabilities in ways that their proponents believe can preserve European competitiveness, lower strategic dependencies, and improve the EU's ability to resist geo-political or geo-economic coercion.

While 'strategic autonomy' has been popular in some European countries, it has rankled opinion in others. Policymakers in Finland, Sweden, Estonia, and the Netherlands, among others, have preferred to talk about Europe's strategic *responsibility*, which entails more substantial contributions to regional security, the readiness and ability to act together rather than alone, and downplays implicit trade-offs between a strong Europe and a strong transatlantic partnership (European Union, 2022).

Against the backdrop of Russia's brutal war in Ukraine and impressive US–European solidarity in response, there are signs that the EU debate is moving away from discussions of strategic 'autonomy' to that of strategic responsibility, and what that is likely to entail. The March 2022 EU Strategic Compass, for example, only refers to 'strategic autonomy' once, whereas it refers repeatedly to the EU's commitment to reinforce its 'strategic partnership' with NATO, and for Europe to take on greater responsibility for its own security in partnership with the United States, NATO, and other institutions and countries. Faced with a revanchist Russia and a revisionist China and finding renewed strength within the US–EU partnership, EU notions of 'autonomy' seem likely to turn on efforts to wean EU countries off of uncomfortable dependencies on Moscow and Beijing, while strengthening the deep connections that bind the two sides of the North Atlantic.

In this context, notions of 'digital sovereignty' or 'digital strategic autonomy' are also now evolving. According to EU Internal Market Commissioner Thierry Breton, digital sovereignty rests on three pillars: 'computing power, control over our data and secure connectivity' (Breton, 2020; see also Csernatoni, 2021). This requires the EU to free itself from its hardware and software dependencies on dominant external countries and companies. On paper, the agenda is rather breath-taking, extending from 5G/6G, artificial intelligence (AI), technological standard-setting, and infrastructure upgrades to supply chain resilience in key sectors such as semiconductors, pharmaceuticals, and critical materials. In reality, efforts are moving in fits and starts.

THE TRANSATLANTIC DIGITAL ECONOMY: COMPETITION WITHIN A FRAMEWORK OF DEEP INTEGRATION

There is a great deal of transatlantic competition across the transatlantic digital economy, as firms compete for advantage and as the US and the EU both seek to enhance the competitiveness of their companies in future technologies. US concerns centre on the motivations behind the collapse of the US–EU Privacy Shield governing transfers of personal data, the protectionist impulses behind the Digital Markets Act, industrial strategies intended to promote 'European champion' companies, and the EU proposal for a carbon border adjustment mechanism, which could disadvantage non-EU companies. The EU worries about the Biden administration's efforts to strengthen 'Buy America' rules, its proposals for electric vehicle tax credits, and its decision to postpone but not resolve transatlantic disputes on US steel and aluminium tariffs. Each party's efforts to subsidise its own digital economy could lead to subsidy wars that would only benefit China.

There are signs that the debate is moving away from discussions of strategic 'autonomy' to that of strategic responsibility

Despite these competitive pressures and ongoing disputes, Putin's war and China's tacit support of Russia's aggression have underscored how deeply reliant each side of the North Atlantic remains on a vibrant and resilient transatlantic economy, including its digital drivers. The transatlantic theatre is the fulcrum of global digital connectivity (Hamilton & Quinlan, 2022). Transatlantic flows of data continue to be the fastest and largest in the world, accounting for more than half of Europe's global data flows and about half of US flows. US exports of ICT-enabled services to Europe in 2020 were roughly double those to the entire Asia-Pacific region. The US, in turn, accounted for 22 per cent of the EU27's ICT-enabled services exports to non-EU countries, and 34per cent of EU digitally enabled services imports from non-EU countries in 2020. The EU's digital trade with one country – the United States – surpasses its digital trade with Asia and Africa combined.

Even more important than trade, however, is the delivery of digital services by US and European foreign affiliates. ICT-enabled services supplied by US affiliates in Europe were more than double US ICT-enabled exports to Europe, and ICT-enabled services supplied by European affiliates in the US were double European ICT-enabled exports to the US.

This mixture of competition within a frame of deeply integrated cooperation plays itself out across different sectors of the digital economy. Given space constraints, I will briefly discuss four: ICT and cloud services; semiconductors; artificial intelligence; and clean technologies.

ICT AND CLOUD

US and European goals in the ICT and cloud sectors align in various areas. However, instead of building on dense transatlantic digital interconnections and the shared principles that underpin them, in recent years the two parties have allowed a series of digital disconnects to roil US–EU relations.

Three developments in the deeply intertwined transatlantic cloud market bear watching. First is the shift in providers of cloud-like services from European and US telecoms companies to 'hyperscalers', mainly from the United States. While European providers have more than doubled their cloud revenues since 2017, their market share in Europe has declined from 27 per cent to under 16 per cent, whereas Amazon Web Services (AWS), Microsoft Azure, and Google Cloud now account for 69 per cent (Hardesty, 2021). This has generated concerns within Europe about US dominance, which could inhibit some possible avenues for deeper transatlantic cooperation. However, two other trends have the potential to mitigate such concerns, depending on how they unfold.

Firstly, by 2025, 80 per cent of all data is expected to be processed in smart devices closer to the user, known as edge computing. This could open opportunities for European providers able to offer multi-cloud options that ensure local control over data with the amplified possibilities that come from hyperscaled connections (European Commission, 2021a). Secondly, the evolution of 'cloud-as-a-service' to 'cloud-as-a-product' means that some European telecoms operators and companies in a range of other businesses now see their biggest opportunities in the cloud building on top of the basic infrastructure already rolled out by US companies, rather than trying to build their own. For instance, Siemens is building an ambitious 'industrial cloud platform' on top of the basic cloud infrastructure provided by Amazon, to enable it to become a key player in digital industrial manufacturing services. Thales, a French defence company, is forming

Each party's efforts to subsidise its own digital economy could lead to subsidy wars that would only benefit China

a joint company with Google to provide a sovereign hyperscale cloud service in France. Vodaphone has also formed a partnership with Google, and AWS will soon start selling private 5G networks directly to businesses (Pannier, 2021; Waters, 2021).

If one analyses the full technology stack, important opportunities emerge. Whereas the EU is relatively underdeveloped compared with the US in higher technology layers such as AI and platforms, the US is relatively underdeveloped compared with the EU in key parts of lower technology layers such as 5G. Moreover, after initial transatlantic turmoil generated by US efforts to oust Chinese 5G telecoms from critical networks, not only at home but in Europe and elsewhere, many – but not all – European allies have also acted to marginalise those companies' presence in their networks.

An overall bargain could conceivably be achieved by joint efforts to enhance open radio access network architectures (Open RAN), align on privacy standards, and guard against external and internal security threats and market abuses, coupled with US willingness to grant European firms greater access to its domestic 5G market and European willingness to cooperate more closely on platforms and AI. Since the potential gains and pains from such an overall arrangement would affect particular industry sectors and individual countries differently, opposition to such an overall arrangement could be significant. Yet the pieces are there.

A start could be made via US–EU efforts in the Transatlantic Trade and Technology Council (TTC), which the two parties created in 2021. It would be useful for both parties to reaffirm their joint commitment to core principles, such as transparency in legislation and regulation; the independence of regulatory authorities; open networks for consumers to access and distribute information, applications, and services of their choice; the importance of a strong and competitive shared environment for ICT development and use; strong yet flexible intellectual property (IP) laws; interoperable data protection regimes that enable innovation while also protecting privacy; agreement that governments should allow foreign participation in their ICT services; affirmative policies in support of digital trade; science and technology cooperation related to digital innovation and research; and robust international cooperation to manage policy differences. In addition, the two parties should foster industry codes of conduct for data protection in the cloud, building on efforts currently underway on each side of the Atlantic. If the two sides of the Atlantic prove able to harness their joint potential based on these principles, they could form the core of a wider technology alliance of like-minded democracies that can prove more vibrant than autocratic alternatives (IT Law Wiki, 2011; Wallace, McQuinn, Ezell & Castro, 2018).

SEMICONDUCTORS

The leading supply chains of common interest to the US and the EU revolve around semiconductors, which the two parties have called 'the material basis for integrated circuits that are essential to modern-day life and underpin our economies'. In this area, the two parties have acknowledged that they have 'some important respective strengths as well as ongoing, significant mutual dependencies, and common external dependencies'. Each has announced initiatives to mitigate those dependencies, improve security of supply, and boost their ability to design and manufacture the 'most powerful and resource efficient semiconductors' (White House 2021a, 2021b).

To understand how the US and the EU could accomplish these goals, it is important to look

at the key elements of highly fragmented, highly specialised, and global semiconductor production networks. The key stages are design; fabrication; assembly, testing, and packaging (ATP); and production of semiconductor manufacturing equipment (SME). While specific companies and countries may be leaders in one or more elements of the overall process, none has a lock on all (see Bown, 2021).

US enterprises are global leaders in SME production and in semiconductor design and associated design tools. European firms also show strength in design and SME production, and in some materials key to the semiconductor manufacturing process. The EU has a strong position in certain subsegments such as discrete semiconductors (global sales leader), analogue integrated circuits, microcontrollers, power electronics, sensors, chip architecture, and advanced chip-making equipment. The EU is also well positioned in the 'More than Moore' market (products made up of a mix of semiconductors), as well as in dedicated processors for applications in the automotive and industrial sectors (including machinery), which are all expected to grow significantly in the future (Szczepanski, 2021). Despite these respective strengths, each party relies heavily on third countries for highest-end chip manufacture, critical materials, and assembly packaging and testing.

Whereas EU leaders have used 'strategic autonomy' to animate their efforts to alleviate semiconductor supply chain dependencies, US leaders speak of 'decoupling'. The decoupling metaphor is easy to understand because it evokes a simple image of disconnecting a cable, in this case a worrying link to China. If drawn to their ultimate conclusions, however, both terms would wreak havoc on the US, European, and global economies. Despite each side's push for self-reliance, achieving fully independent chip supplies is unrealistic given the highly complicated, specialised, and global nature of semiconductor supply chains. Moreover, neither term is an accurate depiction of actual US or EU policies. Neither party is really trying to break free of its interdependencies; each is more intent on redefining the terms of those interdependencies in ways that can enhance its relative security and prosperity. Given each party's relative balance of strengths and weaknesses, the best course for the US and the EU to enhance security of semiconductor supply is not to 'decouple' or become fully 'autonomous' from all other semiconductor producers; it is to ensure that other semiconductor producers remain dependent on them, by doubling down on areas of strength (see Beattie, 2021; Busvine, 2021; Cerulus & Barigazzi, 2021; Duchâtel, 2021; Hancké, 2021; Jones, 2021; Miller, 2021; Poitiers & Weil, 2021).

For the US, this can mean efforts to mitigate strategic vulnerabilities such as reliance on foreign semiconductor fabrication, and assembly packaging and testing. It means working with the EU and other like-minded countries to ensure reliability of supplies of critical materials. Most of all, it means reinforcing US strengths in semiconductor design and SME production. For the EU, it means acknowledging that becoming completely autonomous in high-end semiconductor fabrication is just 'not doable', as EU competition chief Margrethe Vestager has acknowledged – not only because the EU has neither the incentives nor the resources to overtake the world's leading high-end fabricators, but also because the EU itself has relatively low demand (see Amaro, 2021; Hetzner, 2021; Kleinhans, 2021; Poitiers, 2021; Poitiers & Weil, 2021; van Manen, Gehrke, Thompson & Sweijs, 2021; Waters, 2021). As a whole, the EU accounts only for 9 per cent of global semiconductor imports, while Asia accounts

for 83 per cent of exports and 81 per cent of imports. Instead, the EU should focus its resources on areas of strength by fostering semiconductor subsectors upon which other countries, including the semiconductor superpowers, are reliant. Those strengths include research and development (R&D) projects in chip and software design, SME, and materials innovation for important chip manufacturing inputs, such as chemicals, sensors, power electronics, embedded security solutions, and security chips. Furthermore, potential exists for transatlantic complementarities and synergies.

While the TTC's potential regarding semiconductors is currently limited by France's insistence that the focus remain on 'short-term supply chain issues' rather than longer-term strategies, it offers a chance for the two parties to harness their respective strengths and mitigate their respective dependencies within semiconductor supply chains. The two parties have already agreed to jointly identify gaps and vulnerabilities, map capacity in the semiconductor value chain, and strengthen domestic semiconductor ecosystems. They could conduct a joint assessment of supply chain vulnerabilities, improve transparency throughout the semiconductor supply chains, build synergies between the US National Science Foundation and the Horizon Europe framework programmes, and work to design new microchips that could perform better – and require less energy – than silicon. US–EU cooperation could form the core of a broader semiconductor consortium of like-minded nations, including Japan, Taiwan, and South Korea, that could also consider forging a common innovation base with R&D of next-generation semiconductor designs and materials (Rasser, Arcesati, Oya, Riikonen, & Bochert, 2020; Barker, 2021; Gehrke, 2021; U.S. Chamber of Commerce, 2021).

ARTIFICIAL INTELLIGENCE

McKinsey estimates that widespread adoption of AI could grow European economic activity by almost 20 per cent by 2030. However, even though the EU has more specialised AI researchers than the US or China, it lags in AI investments, adoption, and R&D spending. The EU's fragmented market hampers the scale-up of small and-medium sized AI and blockchain enterprises and constrains the access of such firms to the creation of large, cross-country pools of data for building and testing their algorithms, limiting their ability to compete globally (Bughin, Seong, Manyika, Hämäläinen, Windhagen, & Hazan, 2019; Castro, McLaughlin, & Chivot, 2019).

When it comes to AI, the European Commission has prioritised risk management and trust. It has introduced draft legislation for a new regulatory framework through the Artificial Intelligence Act (AIA), which is the first effort to create a comprehensive AI law and another example of EU efforts to lead the world in making rules to govern the digital economy, which tracks with parallel efforts to regulate online content, competition in digital markets, and other areas. While a final law is only likely to emerge after several years, the current draft would apply to any company selling an AI product or service in the EU, so would be extraterritorial in nature, and thus could become a flashpoint between Washington and Brussels (Benaich & Hogarth, 2021; European Commission, 2021b; Veale & Zuiderveen Borgesius, 2021).

Despite potential transatlantic challenges, US policymakers share the EU's interest in mitigating risks associated with AI. US National Security Advisor Jake Sullivan welcomed the European Commission's AI draft, indicating the Biden administration's potential interest in fostering 'trustworthy AI' (Sullivan, 2021). The White House Office of Science and Technology

Even more important than trade is the delivery of digital services by US and European foreign affiliates

Policy is working with stakeholders to develop an 'AI bill of rights' that would guarantee protection from biased or inaccurate algorithms, ensure transparency, and safeguard citizens from pervasive or discriminatory surveillance (Lander & Nelson, 2021). In addition, even though the US is the world's AI leader, with the largest share of private investment, the most start-ups, and strengths in AI talent, R&D, data, hardware, and commercialisation of innovation, US public and private leaders are concerned about the country's ability to maintain this position, particularly in the light of rising Chinese competition. Here, too, there is potential for greater transatlantic cooperation (Aaronson, 2020).

US and EU policymakers are aligned around two core themes for AI policy: (1) enabling innovation and competition, and (2) ensuring trust and accountability. But there are important differences in these policy approaches. Washington tends to focus on the importance of innovation and growth, greater R&D funding, and light-touch regulation, whereas Brussels tends to focus on risk management and trust. The TTC could play a role by exploring to what extent these approaches can be aligned behind a US–EU effort to enable safe and responsible AI innovation and adoption globally. Whether the two parties can avoid costly divergence in the regulation of AI in the future will become apparent as discussions move to legal definitions and metrics for risk management requirements. The task is to seek common or complementary positions that balance AI risks against the risks inherent in slowing technological innovation. As Nigel Corey of the Information Technology and Innovation Foundation (ITIF) warns, the United States and the EU should seek common principles, norms, and regulations, 'but they should not expect to achieve complete convergence' (cited in Broadbent, 2021).

CLEAN TECHNOLOGIES

Digital technologies are transforming the way energy is produced, transported, and consumed. They will be indispensable to decarbonisation. Here again, competitive considerations come into play, as each side of the Atlantic is focused on promoting its own clean-tech commercial breakthroughs. Nonetheless, the immense scale of the climate challenge gives the two parties both need and opportunity to harness their respective strengths. European research and early-stage development of low-carbon technologies continues to be world-beating. Yet the EU is relatively weak when it comes to scaling and commercialising its innovations. The United States, in contrast, accounts for more than 65 per cent of global clean-tech growth equity funding and venture capital investments, yet it trails in areas of low-carbon research where Europe is strong. Given the deeply integrated nature of the transatlantic innovation economy, both parties stand to gain by harnessing their relative synergies to promote scaled-up demonstration projects that hold promise for commercialisation (CleanTech Group, 2021).

Such efforts are not just 'nice to do'; they take on added urgency when considering that autocratic governments such as China do not necessarily need to rely on purely market-based approaches to deploy the technologies of the future. Beijing directs massive resources to promote its own competitors in many clean-tech areas, based on differing norms than those likely to be found in democracies. A cautionary tale is offered by the solar industry, where pioneering US and European companies once led global markets. Today, thanks to substantial government subsidies, forced technology transfer, and predatory pricing, China produces three-quarters of global supplies.

Governments can set incentives and market signals to help make clean-tech innovations commercially viable

Leaders at the June 2021 US–EU summit pledged to 'work towards' a Transatlantic Green Technology Alliance. Both parties must use the TTC to make it real. A Green Technology Alliance could help both parties align on technical standards, address regulatory discrepancies, and mobilise public and private investment to rapidly scale up breakthrough technologies in hard-to-abate sectors so they can become more affordable, accessible, and attractive than their traditional, higher-carbon counterparts (Gates, 2021).[1] This will require greater public investment in demonstration projects, which is a major weakness in the clean energy innovation system. Public investments should not and cannot take the place of the far larger resources the private sector can bring to bear, but private investment is currently deterred by the high costs and risks still associated with scaled-up clean-tech demonstration projects. Governments can set incentives and market signals to help make clean-tech innovations commercially viable, spurring further investments and paving the way for widespread adoption and deployment by the private sector (Gates, 2021; Nguyen, Koester, & Hart, 2021; Simms Gallagher, 2022).

A related challenge is posed by the flow of critical raw materials. The International Energy Agency projects that global demand for critical materials generated by the widespread deployment of clean technologies will quadruple by 2040 and increase sixfold by 2050. EU demand is slated to increase tenfold (International Energy Agency, 2021; Sanderson & Sheppard, 2021). The largest reserves of such materials are in developing countries already struggling to lift their populations out of poverty even as they commit to low-carbon development. Many developed countries are likely to be as dependent on these critical-materials producers as they have been on fossil-fuel suppliers. The issue is particularly sensitive because the US and the EU are both inordinately dependent on China for many critical materials, potentially opening them up to economic coercion. China controls 50–90 per cent of the world's clean energy minerals supply chains and is dominant in their processing and refining. When it comes to rare earths, China accounts for 98 per cent of EU imports and 80 per cent of US imports (European Commission, 2020; Fannon, 2021a, 2021b; Gambosi, 2021; Tegler, 2021; Yu & Sevastopulo, 2021; Statista, 2022).

While both parties are slowly taking action to wean themselves off their respective dependencies, those efforts will take time and be incomplete. It is in the interest of both parties to work together, with other democratic market economies, and with key critical-materials suppliers, in strategic partnerships that can forge secure and sustainable supply chains and low-carbon development of these critical materials, which will literally provide the raw material for any EU effort at 'digital sovereignty'.

RULE-MAKERS – OR RULE-TAKERS?

For decades Europeans and American have been accustomed to setting global rules. Yet in a new era of diffuse power and disruptive challenges, they now face the prospect of becoming rule-takers – unless they manage their competition within a more effective frame of cooperation and coordination. Nowhere is this truer than with regard to the digital revolution.

NOTE

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Public investments should not and cannot take the place of the far larger resources the private sector can bring to bear

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