

Sustainable Digitalisation: Strengthening Europe's Digital Sovereignty

Position paper outlining DIGITAL SME's views how Europe can achieve the green & digital (twin) transitions

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Executive Summary

The goal of transforming **Europe to a globally competitive, climate-neutral digitalised economy and society** rests on two pillars: the green and digital (“twin”) transitions.¹ As the European Commission states, these twin transitions require *“new products and services, markets and business models, which must be grounded in our European values and our social market economy.”* The European Green Deal and the New Circular Economy Action Plan have set out an ambitious agenda for environmental policy, while the Industrial Strategy sets out actions in the area of innovation, investment, standards, fair competition and efforts to reduce barriers to the single market. Together, these initiatives outline the European Commission's strategy of the so-called twin transitions.

European digital enterprises — especially SMEs — have the systemic power to comprehensively digitalise the economy. Such digital enterprises enable the digitalisation of other sectors: they develop technological solutions, such as software, AI, blockchain and Internet of Things (IoT), that are applied in other companies. If

¹ This goal was part of President von der Leyen's Political Guidelines and is outlined in the EU's Industrial Strategy as well as the Circular Economy Action Plan and the European Green Deal. See: European Commission, Political Guidelines, available at: https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf

there is a level-playing field for Europe’s digital companies and if they are supported by investment, Europe can thrive in the digital revolution. At the same time, it is important that the **digital transformation takes place in a sustainable manner and supports the environmental goals** of the Green Deal and the Circular Economy Plan. However, apart from its connotation of “environmental-friendliness”, sustainability has an important meaning for the digital transformation itself. How exactly can we **define sustainable digitalisation**? Also known as **sustainable digital transformation**, the concept refers to the process of digitalising the economy in a long-lasting, green, and organic way by building on its key strength: innovative SMEs and their business ecosystems. At DIGITAL SME, we propose to define a sustainable digital transformation along three interconnected dimensions:

1) Sustainable B2B digitalisation: A long-term oriented digital transformation that builds on B2B relationships to create an innovation-driven ecosystem, rather than adopting closed “off-the-shelf” solutions, which lead to dependency.

2) Green(er) technologies and a circular economy: A digital sector that saves resources, increases efficiency, and allows the repairability and re-use of products.

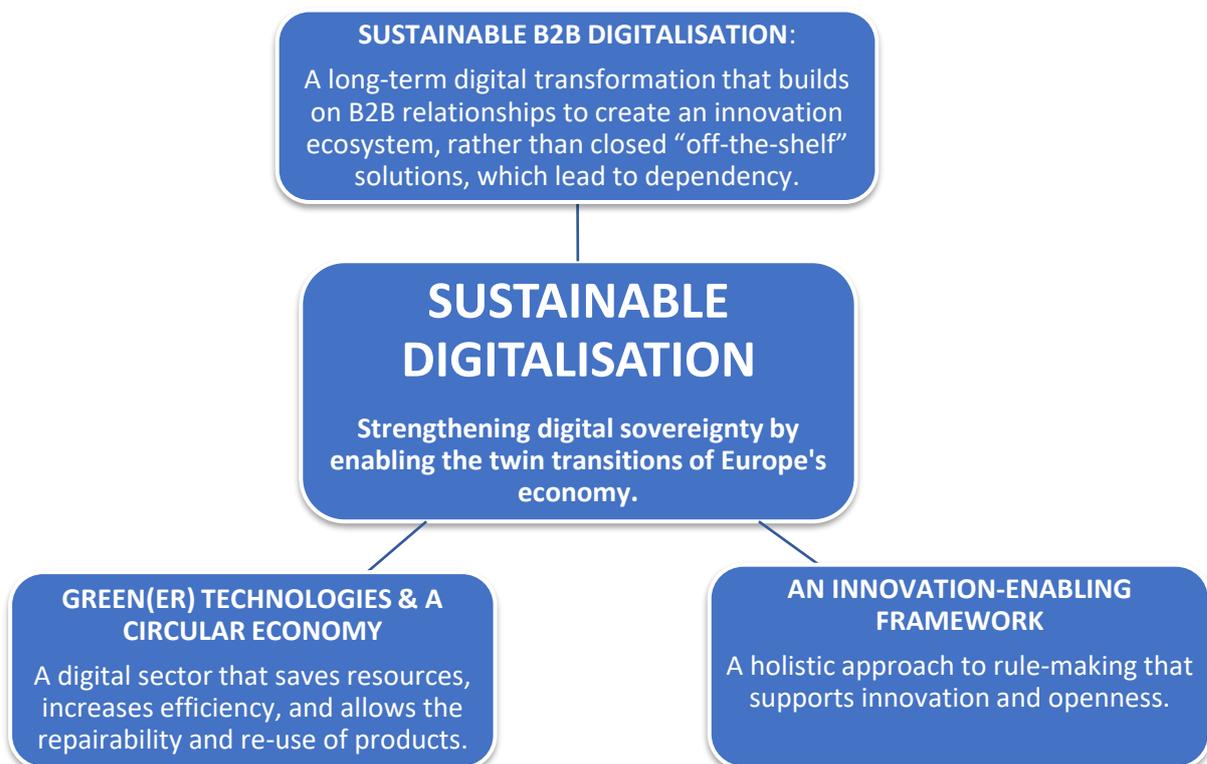
3) Innovation-enabling policy & regulation: A holistic approach to rule-making that supports innovation by emphasising software & hardware openness.

These three aspects of sustainable digitalisation go hand in hand and will support Europe’s twin transitions. For instance, digital companies can provide the know-how to nondigital companies to move towards IoT or smart sensor-based business models for better data gathering that supports efficiency gains and allows products longer life cycles by shifting the value generation from the hardware production to software based services. At the same time, a smart policy and regulatory framework that builds

on openness and interoperability can move our economy from the traditional production-consumption-disposal model to more sustainable green and circular business models.

In the long term, the goal of sustainable digitalisation is to **strengthen European digital sovereignty**.

Figure 1: Sustainable Digitalisation at a glance



1. Sustainable B2B digitalisation

“A long-term oriented digital transformation that builds on B2B relationships to create an innovation-driven ecosystem, rather than adopting closed “off-the-shelf” solutions, which lead to dependency.”

A sustainable digitalisation emphasises long-term synergetic **partnerships between innovative digital and traditional SMEs**. It aims for a long-term orientation in digitalisation efforts and investment. This means that investment should focus on building up a European industry and capacities in strategic areas, and supporting a long-term transition to digital business models, rather than simply supporting the acquisition of closed off-the-shelf digital solutions. Frontrunner SMEs and start-ups provide tailored technological solutions to non-digital businesses and accompany them through their digitalisation journey. Such synergy most often occurs in ecosystems of digital SME associations and clusters, academia, public administrations, and larger enterprises. For instance, in grass-root digital hubs, traditional SMEs and innovative frontrunners are working together to develop innovative ideas that can also contribute to environmental goals. These ideas can range from infusing AI in processes and data management to digitalising physical products with the help of smart sensors.² Hubs can provide tailored audits to traditional companies to assess their digital maturity and to advise them on how to digitally transform their business models in an environmental-friendly manner. At DIGITAL SME we believe that, rather than supporting short term investment in closed, off-the-shelf digital products and

² For instance, one company revamped their traditional rain gutter installation business and turned it into an IoT/sensor-based business models, where the rain gutters not only collect the rain, but also know how much rain is collected. This can lead to advantages in terms of spotting potential needs for repairs early on by detecting irregularities in the sensors but could also lead to a whole new range of applications and intelligence about weather phenomena and water management.

services, EU public investment should focus on supporting a long-term sustainable digital transformation of businesses grounded on these existing business ecosystems.

A prerequisite for such a sustainable long-term orientation in the digital transformation of the economy are talent and skills. With the current wave of digitalisation, many job profiles and related skills needs are upgraded to integrate the competent use of digital tools. While the role of a secretary still exists, today's tasks differ tremendously from the daily tasks of a secretary 20 years ago — e.g. files are no longer stored in physical folders, but a secretary would have to be able to handle data and file management in a digital environment. Going beyond ICT *user* skills, employees in different sectors need to be trained to fully embrace the potential of emerging technologies. Wider groups of society need to gain knowledge and awareness about the potential implications of digitalisation for their jobs and the sectors they work in. Thus, rather than only teaching *basic ICT user skills* to apply available tools, there is a need to upskill a large proportion of the workforce to be able to *critically engage with these technologies* and employ them in a sustainable manner. For instance, rather than choosing the first off-the-shelf teleconferencing tool, managers and staff in companies should be aware of cybersecurity and privacy implications associated with their choice. When it comes to more complex solutions, employees need competences and skills to assess potential risks of lock-in and dependency and to make sustainable choices about the digitalisation path they will choose for their company. However, this will only be possible if there is sufficient talent in advanced ICT skills and understanding of emerging technologies. The availability of demonstration rooms and use cases of specific technologies could lower hurdles of realising the potential of these technologies.

2. Green(er) technologies & a circular economy

“A digital sector that saves resources, increases efficiency, and allows the repairability and re-use of products.”

If Europe wants to reach its climate and economic goals, the digital sector has to contribute its share and embrace sustainability in all its facets: **circular economy models for hardware, climate-neutral CPU models and server centres, software advancements to reduce energy consumption, and many more.** By enhancing repairability and third-party maintenance, the life cycle of hardware could be extended. **Digital technologies such as artificial intelligence, 5G, IoT, cloud and edge computing have the capacity to accelerate and maximise the effects of environmental policies and lead to efficiency gains.** The fourth industrial (digital) revolution has the power to dramatically reduce resource consumption and pollution: By making processes more efficient, as in data analysis, or by simply replacing physical supply chains altogether, as in the case of additive manufacturing (aka 3D printing), or by increasing energy efficiency in our daily lives and our homes. For instance, energy efficiency in buildings could be greatly enhanced by enabling owners and tenants to access their own energy usage data, such as real time consumption. Owners and tenants could contract independent service providers, such as SMEs and startups, which could detect areas for improvement. Also, the use of products can be extended with the support of innovative ICT systems that can track the movement of this products in a different way than in the traditional Factory>Distributor>Retailer>Customer path.³ Besides, a well-functioning secondary market could greatly extend the life-cycle of many consumer and industrial products by offering competitive maintenance and repair services.

³ <http://akite.net/en/news/circular-economy-retail>

A thriving digital ecosystem can bring about the innovative green companies that will help to solve environmental challenges. At DIGITAL SME we believe that the EU should consider creating a framework that provides for an open and competitive (aftersales) market. This would bring benefits for three reasons: 1) rather than putting repairs in the hands of manufacture-owned repair networks, this would open up a market to independent repairers and thus lower prices for consumers; 2) this could contribute to lowering the environmental footprint; 3) this could open **opportunities to European-based innovative companies who think circular economy models in their products from the start**, rather than promoting products that follow aggressive lock-in strategies and work with premature obsolescence.

While other players may argue that a right to repair may jeopardise quality and consumer safety, security and privacy, there needs to be awareness that these risks are manageable and that those are arguments that can be used by incumbents to shield off markets from competition. Preference should be given to consumer free choice and autonomy over fostering a closed market for manufacturers. Rather than limiting the repair market and innovation, **electronic products could be designed in a modular way that allows consumers to easily replace parts themselves as is the case with some products** (see e.g. Shiftphones).

European policymakers should think about the **potential of creating a level playing field in this area for European-based newcomers and about the positive environmental impact.** Also, consumers should have access to high-quality repairs for fair prices, which preserve the functionality of the product, are safe, secure and protect privacy, while offering free choice and maintaining warranties. This has been traditionally the case for a variety of consumer products (let's think about tables, beds, furniture in general or watches). Rather than closing off these markets, by not giving

access to necessary repair instructions, access, data and information, the legislator should **orientate itself along a framework that has in mind consumer-benefits and keeps the market open to newcomers and innovators.**

3. Innovation-enabling policy & regulation

“A holistic approach to rule-making that supports innovation by emphasising software & hardware openness.”

Innovative SMEs can develop solutions on top of existing hardware and software, if devices, operating systems and platforms are open. They can perform repairs and extend the life-cycle of products and thus contribute to environmental goals. Openness needs to transcend through different pieces of legislation that will shape the digital environment: right to repair, rules for wireless devices, platform regulation, product safety and liability, etc. require careful consideration not to lock-in users but — on the contrary — to open up silos and “walled gardens”. At the same time, regulation needs to address the real issues holding back our economy—gatekeeping, anti-competitive behaviour, and tax evasion by tech giants—, and avoid "one-size-fits-all" solutions that disproportionately affect smaller players.

Software- and hardware openness

A competitive and thriving digital single market requires **software- and hardware openness**. **Open-source software**, fosters innovation by allowing tech-savvy players to access and improve technology. Open hardware does the same for physical products; if electronic devices are **unlocked for third-party software**, businesses can compete and develop better applications to run on them. **European regulators should support openness in software and hardware** alike, for example by [reducing liability issues in case of a software malfunction on a third-party device](#). In addition, access to data and interoperability are building blocks for an innovative European digital economy.

Platform regulation

When it comes to online services and platforms, an important piece of legislation will be the [upcoming Digital Services Act](#). The majority of the large platforms that dominate a large variety of internet services take place in walled gardens or silos, enforced by network effects and user lock-in, and are thus shielded from direct competition. As a remedy, new legislative initiatives, such as the Digital Services Act package could introduce interoperability⁴ requirements for large gate-keeper platforms. In combination with a set of obligations and prohibitions imposed on large platforms (e.g. requirements on access to data, non-discrimination, transparency requirements), interoperability could solve some of the issues associated with those gatekeeper platforms and allow new innovative solutions to enter closed-off markets.⁵ Further, interoperability is a solution discussed in competition circles to solve many issues associated with closed market environments in the digital sphere. This is for instance the case with emails, which allow for free choice and communication as a customer can communicate freely between platforms as emails can be exchanged irrespective of the email service provider.⁶

⁴ Interoperability can be defined as “a characteristic of a product or system, whose interfaces are completely understood, to work with other products or systems, present or future, in either implementation or access, without any restrictions” (see: <https://aful.org/gdt/interop>). In simple terms, interoperability can be defined as “the act of making a new product or service work with an existing product or service”. Examples of day-to-day interoperability are a majority of chairs fitting with tables or standardised plugs providing electricity to a broad variety of devices. In the context of the internet ecosystem, most of us are familiar with basic internet services that relied on a set of open standards for website protocols, emails, instant messaging (see EDRI paper, ‘Platform Regulation Done Rights’, April 2020, p. 19 and EFF: <https://www.eff.org/de/deeplinks/2019/10/adversarial-interoperability>).

⁵ See joint letter to Vestager requesting ex ante interoperability in the DSA: https://www.digitalsme.eu/digital/uploads/Vestager_Letter_Interoperability.pdf

Historically, the EU has successfully required and pioneered interoperability in ICT markets as essential as:

1. Telecoms (Local Loop Unbundling),
2. Fintech (Payment Services Directive 2), and
3. Web browsers (both supporting W3C standards and requiring Microsoft to permit interoperability with their operating system).

⁶ Wojciech Wiewiórowski, Friday, 13 December, 2019, available at: https://edps.europa.eu/press-publications/press-news/blog/sharing-caring-depends_en

Interoperability and access to data will likely become more prominent and important at the frontlines of digital and physical, e.g. with IoT and devices that are digitally enabled by smart sensors. To make sure that this market remains open, there is a necessity to support and incentivise interoperability of IoT enabling platforms. There is a need to work on the standardisation in the area of platform interoperability and data portability to ensure a competitive digital environment. Platforms are likely to become more prominent in other sectors, so we will encounter the issues in terms of lock-in also in more traditional sectors such as, e.g. automotive, or the lift sector. Already today, independent SMEs in the lift sector report that they can no longer perform repair and maintenance services, as larger companies, which manufacture the lifts, do not grant them access to the necessary data. This has negative consequences for small companies as it locks them out from the after-sales repair market, for competition, and thus consumer choice.

Ensuring safety and security in wireless devices

The European Commission is currently investigating the extent of the applicability and issues of liability related to the Radio Equipment Directive (RED). This may lead to an update of the technical framework by drafting delegated acts and to revise existing standards based different articles⁷ of the RED. At the moment, the discussion could go both ways – an update of the regulatory framework may lead to further locking down devices and going down the path of closed proprietary silos whereas the other path can ensure a competitive innovative market based on openness and interoperability. DIGITAL SME advocates for a clear legal framework that sets the foundation for hardware/software dis-aggregation, which would allow SMEs to

⁷ Articles 3(3)(a),(d),(e),(f), and (i) and article 4 of the Radio Equipment Directive (Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02014L0053-20180911>

develop software on existing hardware. In this context, there is a need to clarify responsibility and liability. For instance, some of the current standards based on the RED state that, if a software is loaded by the user, it could revoke the essential requirements which need to be met to prevent the hardware vendor from being liable in case of damages. Thus, to be on the safe side, vendors will likely decide to lock down the hardware in order to avoid compliance issues. There is a need to tackle these questions of compliance with the RED in terms of liability, safety, privacy, and security with the holistic aim in mind to keep the wireless devices market open to newcomers and innovators. Similarly, the Product Liability Directive's revision needs to be considered from this perspective and address the issue of who will be the manufacturer in case of repair and refurbishment.

Access to data and data portability

In its priorities, the European Commission is considering different measures with the aim to support European business success in the data economy. This are outlined in the EU's data strategy of February 2020.⁸ In theory, the right to data portability under Article 20 of the General Data Protection Regulation (GDPR) could allow customers to easily move between service providers. A similar phenomenon occurred with markets with telephone number portability in the EU following the 2002 Universal Services Directive.⁹ However, this is currently not happening in social media, ecommerce and search platforms – an issue which could be addressed by ex-ante interoperability obligations supported by the necessary standards (as explained above). As mentioned by the EDPS, European-based privacy enhancing technologies and 'personal

⁸ European Commission, Communication, A European Strategy for Data, 19 February 2020, available at: https://ec.europa.eu/info/sites/info/files/communication-european-strategy-data-19feb2020_en.pdf

⁹ Wojciech Wiewiórowski, Friday, 13 December, 2019, available at: https://edps.europa.eu/press-publications/press-news/blog/sharing-caring-depends_en

information management' solutions are in development already available.¹⁰ However, the data portability right can only address a market failure when it comes to the B2C market. When it comes to the B2B market, the data portability right may need to be supported by an “access to data right” under certain conditions. At DIGITAL SME, we propose to introduce a notion of "legitimate business interest". For this, we suggest the following formulation: *"Data (held by business partners) should be accessible to SMEs when they have a legitimate interest in the data, i.e. they need the data to provide their services upon request of the customer or to fulfil a business contract. This may be the case for repair and maintenance data, but also in the case of e.g. small hotels that have already established a contract with a customer, e.g. if the hotel was booked via an online platform, which, in turn, does not grant the small hotel access to customer information."* This is done to avoid business models that rely on exploitation of data that runs counter to the spirit of the GDPR and against the fundamental values and interest of European citizens.

Repairability

The ICT sector is considered a priority sector for repairability. In other sectors, e.g. the automotive sector, repairs and access to necessary information are regulated. With the ongoing digitalisation and emphasis on data and non-physical components of products, companies performing repairs will have to be able to access data and basic information to carry out repairs: SMEs will only be able to offer repair services if they can access the data and information needed to perform repairs, which can be unfairly restricted by OEMs. Inadequate access to the full range of technical information could exclude independent repairers from the market. The resulting reduction in competition could lead to less choice and higher prices for consumers. It could also lead to safety

¹⁰ Ibid.

risks if repairs are not carried out correctly due to a lack of necessary information. Moreover, it would go against the goal of promoting a circular economy building on repairs. An obligation to provide independent repairers and innovators with standardised access to technical repair information and necessary data, supported by the development of interoperability standards (APIs, data formats), could ensure the openness of aftersales markets.

Conclusion

At DIGITAL SME we believe that we can build a sustainable digital environment that will support the twin transitions and unleash the innovative potential of the innovative thriving digital ecosystem in Europe. However, it will be important to address remaining hurdles in a holistic manner taking into account all three components of a sustainable digital transformation: sustainable B2B digitalisation, green(er) technologies and a circular economy, and an innovation-enabling policy- and regulatory framework that builds on openness.

How can European policymakers support this sustainable digital transformation, both in terms of climate neutrality and Europe's digital sovereignty? Investing in Europe's innovative prowess in a sustainable manner is the basic requirement to support the twin transitions — and SMEs are at the centre of it. The current wave of digitalisation is a double-edged sword. We have to make sure that **measures aimed at supporting digital transformation do so in a sustainable way — avoiding a path where investments and programmes to support digitalisation are only used for short-term purchases.** At the same time, regulatory initiatives need to be examined from a holistic point of view, that includes considerations that extend to the area of competition, telecommunication regulation, consumer law, such as e.g. the general

product safety legislation and the radio equipment directive or even the new Digital Services Act.

If Europe wants digital sovereignty, we need to understand and strengthen sustainable digitalisation. By investing in symbiotic B2B relationships, green(er) technologies, and smart innovation-enabling policy, we can empower Europe to become a leading force in the digital age. A force that does not just buy technology from abroad but develops and sells it to the rest of the world.

Through careful consideration of the thematic complex, which has SMEs at its heart, **Europe can unleash its innovative and green business ecosystems and successfully complete its twin transitions to a fully green and digital economy.**

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