



ECS – the vital link between Digital and Green

The European Union has put the Green and Digital transitions at the heart of its strategy for recovery and sustainable growth in the face of climate change, global competition and the COVID crisis. Why are Electronic Components and Systems (ECS), including micro and nanoelectronics, the deep link between these two? In essence, because they will enable transformation across almost every sector from industrial production, energy and transport to healthcare, food & agriculture, and construction.

[Speaking](#) at the ‘Shaping a Digital Future for Europe’ symposium in February 2020, Margrethe Vestager, Executive Vice-President of the European Commission, made it clear: “... Digital technology can help us become the world’s first climate-neutral continent by 2050. Smart electricity grids can help to smooth the transition to renewable energy, by allowing us to adjust the electricity we use to what we produce, not the other way around. Agricultural machinery can use AI to cut the use of pesticides, so farmers can produce more, with less effect on the environment. And this is why investing in digital technology is a crucial part of the European Green Deal.”

Elsewhere, in its [‘Orientations towards the first Strategic Plan for Horizon Europe’](#), the European Commission (EC) highlights opportunities within ‘Digital, Industry and Space’. New technologies can enable climate-neutral, resource efficient manufacturing, and support the circular economy. And a recent EC [report](#) highlights how ‘Industry 5.0’, based on AI and robotics, can empower workers, increase industries’ resilience and make them more sustainable.

Putting it more broadly, Mariya Gabriel, EU Commissioner for Innovation, Research, Culture, Education and Youth has [said](#): “Investments in research and innovation improve Europeans’ quality of life... [they] accelerate the green and digital transformations that our planet needs, but also increase the competitiveness of our economies. The EU and Member States need to allocate enough resources in science, research and innovation to shape the future we want.”

European ECS industry: a committed partner

The European ECS industry is fully engaged with this vision. Its Strategic Research & Innovation [Agenda](#) (SRIA) 2021 sees the digital and green transitions “at the core of future collaborative research and innovation in ECS”. “Collaboration is key to maximize impact,” says Caroline Bedran, Director General of AENEAS. “We can only achieve Europe’s ambitious green goals by working together at every step of the value chain from chips to final application or service.”



“Already, [projects](#) funded by the 2014-2020 ECSEL Joint Undertaking, a public-private partnership across the ECS value chain, have delivered numerous ‘green and digital’ results, such as FDSOI technology (Fully Depleted Silicon On Insulator) which provides a basis to cut energy consumption of smartphone components by 50% and to enable energy efficient solutions for cloud computing and AI.”

Key Digital Technologies (KDTs) for a greener future

As the EU, participating states and industry seek to build on these partnerships, ‘Key Digital Technologies’ will be a vital focus to expand digitalisation while reducing CO₂ emissions across crucial application areas: mobility, agriculture, health, industry and energy. Similarly, other funding programmes, including EUREKA, covering 45 countries, have expressed support for R&I in areas from tackling climate change to developing hydrogen as a fuel.

Crucially, Key Digital Technologies can help decouple economic growth from resource use – a key European target. Potentially they could save almost 10 times more emissions than they produce. But it is not enough to envisage future scenarios based on technologies such as AI, cloud computing and massive data processing without recognising that these technologies themselves consume significant quantities of energy. Whether in smart energy grids, 5G and 6G communications, industry 5.0 or autonomous driving – to cut emissions, digital technologies must also ‘green’ themselves.

Greening digital technologies

Consequently, the European ECS industry is looking to improve the energy performance and disposability of components, and to reduce its own environmental footprint. Moreover, in doing so, it can create competitive opportunities: for instance, through trustworthy and energy-efficient microelectronics for AI; or special processors for Edge and embedded AI, where data is processed locally in devices, rather than in the cloud; or via innovative electronics for large-scale data transmission. As the ECS-SRIA stresses, R&I investments in the green and digital transitions are fundamental to supporting Europe’s competitiveness, strengthening its resilience and so ensuring future sustainable growth and our European quality of life.

About AENEAS: <https://aeneas-office.org>

AENEAS is an Industry Association, established in 2006. The purpose of the association is to promote Research, Development and Innovation (RD&I) in order to strengthen the competitiveness of European industry across the complete Electronics Components and Systems (ECS) value chain. AENEAS provides unparalleled networking opportunities, policy influence & supported access to funding to all types of RD&I participants in the field of micro and nanoelectronics enabled components and systems, and its applications. Partner in ECSEL JU, AENEAS is also operating the EUREKA funded Clusters PENTA and EURIPIDES².