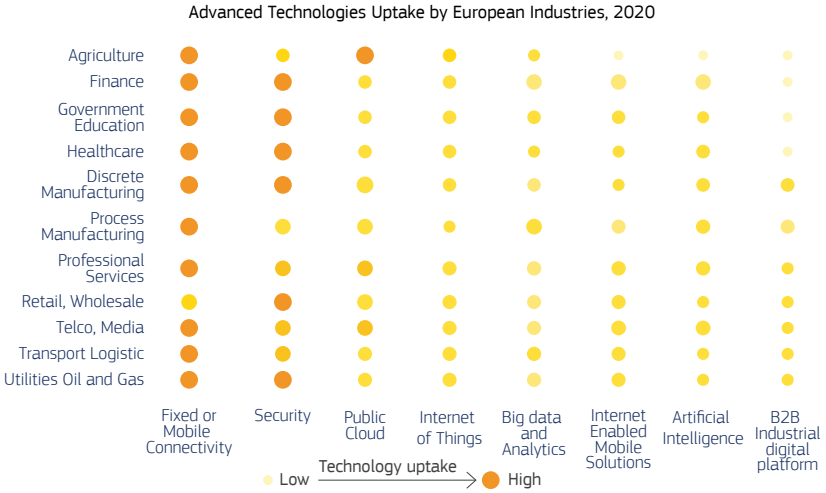
Advanced Technologies Watch – Technology Focus on Beyond the Horizon technologies

The digitalisation and industry modernisation processes in Europe are progressing at different speeds across various industry sectors, driven by a whole set of changing priorities, challenges and use cases.

If from one side the pandemic resulted in a slowdown in the adoption of advanced technologies, due to the shift towards more business contingency-related initiatives, on the other side Covid-19 has sped up the adoption of some specific technologies through the forced digitalisation of customer and supply-chain interactions and all the related internal processes. These technologies are acting as return-to-growth accelerators, making businesses and organisations as a whole more resilient for the future scenario.



Source: Advanced Technologies for Industry Survey November 2020, (N=1 547)

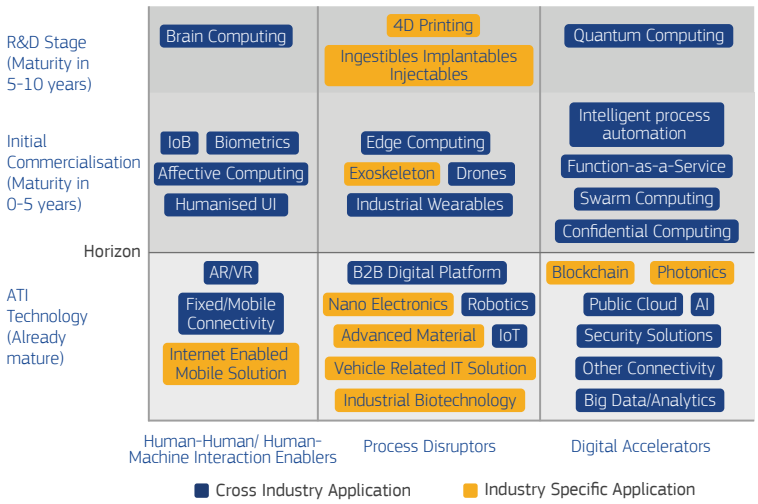
While some technologies have a marked horizontal diffusion across all industries (general purpose technologies such as connectivity, security, public cloud and more), other technologies clearly display a niche or industry-specific orientation (blockchain and industrial biotech).

As technologies mature, they are more and more widening their application scope: robotics, for example, was initially implemented in manufacturing to speed up production processes. Nowadays it finds application in other sectors, such as healthcare, where it supports the medical personnel and enhances procedure safety.

Technologies beyond the horizon are paramount for European organisations to accelerate their digital roadmap

While several advanced technologies are high on the innovation agenda of European organisations, a new wave of emerging technologies and tech paradigms is already on the horizon, preparing the ground for the "next big wave". These "beyond-the-horizon advanced technologies" are in a very early maturity stage, not fully ready for broad commercialisation or business application and with a broad and not-yet-defined effect.

Looking Beyond the horizon of Advanced Technologies



Source: IDC Emerging Technologies Research, 2021

Although it is difficult to provide an exhaustive list of all the advanced technologies beyond the horizon, the ones displayed in the figure certainly represent an important share of "the next big wave".

In the visual, technologies are plotted based on three dimensions:

Time to maturity: this dimension refers to the time needed for a technology to become highly competitive and safely integrated into products or processes. Three-time ranges have been identified: already mature, mature in 0-5 years and mature in 5-10 years.

Industry-specific focus: whether the technology is broadly applicable across industries or has a more industry-specific focus.

Potential application and impact: whether the technology fosters human-human/human-machine interaction, enables process disruption or is a digital accelerator.

For more information, read the full Advanced Technology Watch Report on Looking Beyond the Horizon here:
https://ati.ec.europa.eu/reports/technology-watch/looking-beyond-horizon

Europe is providing a fertile ground for growth for the development and broader adoption of advanced technologies across organisations

Global-leading industries
Energy, manufacturing and healthcare are the three industries in which Europe is world-beating. These industries are at the forefront of the adoption of future-orientated advanced technologies.

Talent and skills initiatives
Several European projects are in place to enhance the development of the right set of skills and knowledge for the full exploitation of emerging technology.

Public-private connection
The strong public-private strategic partnership will include research and innovation funding, as well as providing the right framework for international companies to invest more in technology development in Europe.

Next Generation EU and Advanced Technology focus
European resources will foster advanced technologies adoption, as well as Research and Development activities (e.g., Artificial Intelligence for electric vehicle solutions and quantum computing for the next level of infrastructure computing).

Vibrant startups and tech vendor ecosystem
After an impressive 40% increase in 2019, European tech companies managed to hit a new high record in investment in 2020 (€34 bn).

The demographics of SMEs
More and more innovation-orientated, digital-native SMEs are emerging, with the organisational agility needed to "test, fail and succeed" with future-orientated technologies in real-life business scenarios.

Focus on skills, build a solid infrastructure backbone, nurture startups and Information Technology vendor ecosystem and strive for a trust-infused future

Double-down on hard and soft skills enablement initiatives

In-region talent resources and skills (both hard and soft skills) will make the difference in the advanced technologies landscape.

Enable a solid common infrastructure backbone

A solid and modern technology infrastructure background will grant intelligent computational and analytical capabilities, as well as enable a frictionless data exchange.

Nurture the startups and emerging tech vendor ecosystem

Startups and emerging tech vendors have a key driving role behind advanced technologies: boosting this ecosystem, with financial stimuli and dedicated venture initiatives is key for the region's success in the tech space.

Strive for a trust-infused future

A high level of data security and privacy is paramount, being data the common denominator behind advanced technologies. In this respect, Europe has always been at the forefront of this "Future of Trust", ensuring a safe application of future advanced technologies.

About the Advanced Technologies for Industry (ATI) project

The ATI project – funded by the European Commission – supports the **implementation** of Europe's new growth strategy with a systematic monitoring of **technological trends** and reliable, **up-to-date data** on advanced technologies.

The **Advanced Technology Watch Reports** explore the futuristic, upcoming technologies that are on the horizon of technology development today and that are characterised by high speed of evolution and a significative disruptive potential.

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